Capital Structure Choice with Vertical Relationships: Evidence from Franchising

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ABSTRACT

In this paper, we initially study the capital structure problem in franchising firms. The primary goal of this study is to examine what factors affect franchisee's and franchisor's capital structure decisions, and how these decisions are interrelated. On one hand, we examine whether and how outlet-specific characteristics influence franchisee's capital structure; on the other hand we empirically tested the standard capital structure theories under the franchising setting. Finally, we study how franchisor's capital structure is affected by the setting of franchisee's capital structure. Our study also shed light on the capital structure literature focusing on SMEs since the franchising firms in our sample are mostly small and medium sized firms. We find that the outlet-specific factors like outlet size, hard type franchising and none-food retailing industry may significantly affect franchisee's optimal leverage ratio. As for the franchisor's capital structure, our study corroborates the predictions of standard capital structure theories. We find that firm-specific factors like tangibility, past growth and liquidity can significantly affect franchisor's leverage and growth opportunity and none-debt tax shields have a strong influence on franchisor's maturity. Finally, we find evidence supporting our primary prediction that franchisor's capital structure is adjusted based on the franchisee's capital structure decision. We find that franchisor's maturity is positively related to deviation between franchisee's actual leverage and his optimal leverage.

1. INTRODUCTION

Franchising is popular in the current business society and many researchers and practitioners have paid a great deal of attention to this phenomenon. Accordingly, many researches have been conducted from prospects such as: marketing, strategy, economics, etc. But very little attention has been paid to the issue of capital structure in franchising. In this paper, the franchisor's and franchisee's capital structures and their interaction are studied respectively.

Norton (1995) introduced the link between capital structure and franchising. He set up a simple empirical model and finds that less debt is expected where franchising exists due to the high debt costs. In this paper, we will more extensively explore how the outlet-specific factors affect the franchisee's capital structure. Furthermore, our study will supply another empirical evidence of how the upstream and downstream parties' capital structures are interrelated in a vertical relationship. Fraja & Piga (2004) find empirical evidence that the upstream party imposes a limit on the downstream party's borrowing. They argue that this is due to the reason that debt financing can increase the downstream party's bankruptcy risk and consequentially reduce upstream party's expected profit. Furthermore, we will empirically test the standard capital structure theories under the franchising setting. At last, our study also shed light on the capital structure literature especially focusing on SMEs. Due to the fact that the franchising firms in our sample are mainly in the category of SMEs, we accordingly adjust some of our arguments based on the characteristics of SMEs.

We construct our sample through two resources: De Nationale Franchise & Formulegids 2005 and REACH. Our final sample contains 122 Dutch franchising firms. We find in our sample that outlet-specific factors like outlet size, hard type franchising and none-food retailing industry may significantly affect franchisee's optimal leverage ratio. We find that the impact of firm-specific factors like tangibility, past growth and liquidity is significant and consistent with the prediction of conventional capital structure theories. As for the franchisor's maturity, we find that it is positively affected by future growth opportunity and none-debt tax shields. Our principal prediction that franchisor's and franchisee's capital structure are interrelated are also supported. We find that franchisor's

maturity is positively related to deviation between franchisee's actual leverage and his optimal leverage.

The structure of this paper is as follows. Section 2 discusses the existing literature and hypotheses are developed based on reviews. Section 3 describes our data set and variable definitions. Section 4 provides summary statistics and the regression analyses. Section 5 concludes.

2. LITERATURE REVIEW AND HYPOTHESES

This section studies the determinants of franchisee's and franchisor's capital structure. The possible relations between the franchisee's leverage and outlet-specific characteristics are discussed. The determinants of the franchisor's debt ratio are discussed based on standard capital structure considerations under the franchising setting. Moreover, since our sample merely covers small and medium franchising firms in the Netherlands; some hypotheses are therefore adjusted according to the characteristics of SMEs.

2.1. Franchisee's Capital Structure

The size of the investment represents the amount of capital required to open an outlet. According to Brickley & Dark (1987), initial investments are positively related to high investment risk and the level of investment in firm-specific assets. A franchisee faces the risk of an undiversified investment while a large part of his personal wealth and income are tightly tied to the franchise outlet. As an outlet is larger, the initial investment required to open it will increase accordingly, which implies more investment risk for a risk-averse franchisee. In order to mitigate this risk, the undiversified franchisees would either ask for a risk premium or lower the use debt financing to minimize the total risk. Therefore, a higher initial investment will lead to lower franchisee leverage. Franchising is also considered to involve a large proportion of relationship-specific assets or firm-specific assets due to its high brand name capital, which generates high asset specificity (Brickley & Dark, 1987; Minkler & Park, 1994). Brickley & Dark (1987) argue that initial investments are positively related to the level of investment in firm-specific assets.

On the other hand, larger outlet size may lead to more debt financing, for two reasons. Firstly, the financing transaction costs may also affect financing choices as smaller scale financing results in relatively higher transaction costs (Titman and Wessels, 1988; Wald, 1999). This can deter small firms from using debt financing. Secondly, another explanation for smaller firms having less debt is that larger firms are less likely to face financial distress and bankruptcy. Therefore, a higher initial investment, which means a larger outlet size, will lead to higher franchisee leverage.

H1a: Size of an outlet is negatively related with franchisee's leverage.
H1b: Size of an outlet is positively related with franchisee's leverage.

The degree of freedom for the franchisee depends on the business format. Hard franchising entails less freedom and more brand marketing, standardization and support. Soft franchising offers more freedom, but also brings more risks with it: as each franchisee exploit his freedom, the business format is weaker, which leads a loss of competitive advantage. Since hard franchising implies more security and soft franchising may bring more risks, franchisees under hard franchising are expected to have more debt than those under soft franchising.

H2a: Hard franchising is positively related with franchisee leverage.
H2b: Soft franchising is negatively related with franchisee leverage.

Franchisors charge a one-time lump sum franchise fee and an ongoing yearly fee, which are the main sources of revenues for the franchisors. The yearly fee gives franchisors the incentive to devote themselves to the actions that may improve franchisees' sales because franchisor's revenues are tied to franchisee's performance (Sen, 1993). High royalty rates make franchisor's performance highly tied with franchisee's performance, which may decrease the possibility of chain failure and reduces franchisees' operating risk. Therefore, we expect that franchisees belonging to a franchise chain with a high royalty rate may have a high leverage. The franchise fee is a payment to the franchisor for compensating his firm-specific knowledge transferred to franchisee. Higher franchisor's brand name capital may lead to higher franchise fees due to the higher rents generated by his

firm-specific know how. A franchisor may recover his specific investment through the initial franchise fee; therefore the franchise fee is proposed to be positively related to the level of franchisor specific investment (Lafontaine, 1992, Dnes, 1992 and Bercovitz, 1999). As franchisor's specific investments increase, franchise fees increase, and accordingly the franchisee's firm-specific investment increases. Since high asset specificity deters debt financing, therefore we expect a negative relationship between franchise fee and franchisee's leverage.

H3a: The entry fee is negatively related to franchisee leverage.
H3b: The yearly fee is positively related to franchisee leverage.

The number of years a franchisor is active in the franchise business reflects his experience and financial position. The franchisor has acquired outlet-specific knowledge and capabilities, accumulated great brand name capital, and faces less problems of capital scarcity. Therefore, franchisors with more franchising experience are less likely to fail compared with young franchisors, which supplies business security to the franchisees in the chain. Thus we expect that franchisees in a more experienced franchise network have comparatively higher leverage.

H4: Franchise age is positively related to franchisee leverage.

Top locations usually means lowers failure rate. Thus top location mitigates the risks from debt financing, franchisees at top locations are expected to finance more with debt, which lead to a higher leverage.

H5: Location is positively related to franchisee leverage.

2.2. Franchisor's Capital Structure

A key element in the capital structure literature is that interest tax shield lowers the net cost of borrowing, compared to equity. Modigliani and Miller (1963) suggest that a firm should be financed by debt in order to benefit from this tax deductibility of interest payments. However, interest payments are not the only source of tax deduction for firms. DeAngelo and Masulis (1980) argue that non-debt tax shields such as investment credits and depreciation are substitutes for

debt tax shields. As a consequence, the presence of non-debt tax shields has a negative effect on leverage in firms. Moreover, increasing debt results in an increased possibility of bankruptcy, especially for smaller firms. The increased bankruptcy costs imply that small firm should use less debt (McConnell and Pettit, 1984; Pettit and Singer, 1985).

H6L: Non-debt tax shield is negatively related to franchisor's leverage.
H6M: Non-debt tax shield is negatively related to franchisor's debt maturity.

The tangibility of assets is an important factor affecting debt financing. Several theories suggest a positive correlation between the assets' tangibility and leverage. More tangible assets may lead to more debt because tangible assets can be used to collateralize the debt which accordingly reduces bankruptcy costs. Furthermore, agency and asymmetric information theories also support the above relationship. Tangible assets can be used to lessen agency costs coming from the monitoring cost incurred by the debt holder and underinvestment problem due to information asymmetries. By raising debt secured by tangible assets, such costs can be reduced. Therefore, it is expected that firms which possess fixed assets with a high collateral value will have a higher level of leverage in their capital structure.

H7: Tangibility is positively related to franchisor's leverage.

Agency theory examines the interest conflicts, on one hand, between shareholders and debtholders, and on the other hand, between shareholders and managers. According to agency theory, a negative relation between growth and leverage is expected caused by moral hazard problems. This is due to the fact that equityholders can come into conflict with debtholders since the first intend to invest in project that only benefit themselves at the expense of the latter. Debtholders in turn will react with the use of covenants and monitoring devices. This is especially the case in growth firms since they have more flexibility in the choice of future investments (Titman and Wessels, 1988). Myers (1977) argues that the firm's investment in the assets with high growth opportunities is less likely to be financed with debt due to the severe problem of underinvestment,

which indicates a negative relationship between leverage and growth opportunity. Yet, Myers (1977) also suggests that the underinvestment problem can possibly be moderated by employing more short-term debt. Michaelas et al. (1999) found a positive relation between future growth opportunity and leverage. They argue that through raising short-term rather than long-term debt the agency problem and costs can be reduced. In the context of small firms, Michaelas et al. (1999)'s proposition is more applicable due to the nature that short-term debt is popular with small business.

H8La: Past growth is negatively related to franchisor's leverage.
H8Lb: Future growth opportunity is positively related to franchisor's leverage.

As Myers (1977) suggests that the underinvestment problem can possibly be moderated by employing more short-term debt; and in addition, Flannery (1986) proposes that firms can signal quality to the market through issuing short-term debt. As a consequence, the high information costs coming with long-term debt can be avoided. This leads to the prediction of a negative relationship between long-term debt and future growth opportunities. However, a positive relationship between the two variables is predicted by the liquidity risk argument. Diamond (1991) argues that firms with growth options can hedge against risks of inefficient liquidation by issuing long-term debt.

H8Ma: Future growth opportunity is negatively related to franchisor's debt maturity.
H8Mb: Future growth opportunity is positively related to franchisor's debt maturity.

Liquidity represents the ability of a firm to cover its short-term liabilities. And pecking order theory predicts that firms with high liquidity will borrow less. In addition, liquid assets can be maneuvered in favor of shareholders in the expense of debtholders, and the agency costs are accordingly increased (Deesomsak et al., 2004). Thus, a negative relationship between liquidity and leverage is expected.

H9: Liquidity is negatively related with franchisor's leverage

Small firms are observed to have less debt than large firms. This is due to several reasons. The main reason is that small firms may face severer problem of asymmetric information. Agency costs tend to be higher as bonding and monitoring are more difficult. Reduced ability to signal also increases the costs associated with solving the larger asymmetric information for small firms. Furthermore, small firms tend to be less diversified than large firms and thus increase the chance on financial distress. Large firms also have relatively lower direct cost of bankruptcy (McConnell and Pettit, 1984). Consequently, small firms can access less capital, or they are offered capital at considerably higher costs to large firms, which discourage the use of debt financing.

H10: ChainSize/FirmSize is positively related to franchisor's leverage.

Theories on asymmetric information predict that firm age is negatively related with leverage. Aged firms will have more retained earnings than younger firms and will thus prove their credibility by financing new investment with the accumulated earnings rather than borrowing. Petersen and Rajan (1994) confirmed the above proposition by finding out that older firms have less debt. Whereas, agency theory suggests a reversed relationship between firm age and leverage. It is suggested that aged firms' information asymmetry was largely reduced and consequentially agency costs. Petersen and Rajan (1994) propose that if a firm has a more established relationship with financial institutions the availability of finance is increasing and reduce the costs of credit to firms. Thus:

H11La: Firm age is negatively related to franchisor's leverage.
H11Lb: Firm age is positively related to franchisor's leverage.

H11Ma: Firm age is negatively related to franchisor's debt maturity.
H11Mb: Firm age is positively related to franchisor's debt maturity.

According to the arguments from capital scarcity in franchising literature, firms franchise in order to access scarce resources, mainly financial and managerial resources, in order to expand rapidly. Franchisees are deemed as a

cheap financing resource, they supply capital through franchise fee and their investment in individual outlets. Combs & Ketchen (1999) argue that franchisee capital can be even cheaper than the capital form financial markets due to the problem of adverse selection, which generate agency costs. If the above argument is true, franchisors with more franchised outlets would keep a lower level of debt.

H12L: Number of franchised outlets is negatively related to franchisor's leverage.
H12M: Number of franchised outlets is negatively related to franchisor's debt maturity.

2.3. Interaction Between Franchisor's and Franchisee's Capital Structure

As a stylized fact that franchisors usually explicitly require their franchisees a specific amount of personal financial investment, and in turn leave the franchisees limited space for debt financing. This phenomenon was explained by Williamson (1989) from the perspective of one-sided moral hazard, where equity financing is used as a device against quality cheating by franchisees. He argues that the franchisee can damage brand image by not maintaining quality level agreed with the franchisor when quality is non-contractible. Therefore the franchisor will require the franchisee to finance a specific investment by personal resources. The franchisor can punish the franchisee when he cheats by early terminating the contract. If the franchisee is allowed to borrow a lot of debt, this cost of termination goes to the debt lender instead of the franchisee. Fraja & Piga (2004) explicitly illustrate this case by arguing that the upstream party imposes a limit on the downstream party's borrowing. This is due to the reason that debt financing can increase the downstream party's bankruptcy risk and consequentially reduce the upstream party's expected profit. On the other hand, debt is suggested to have a positive effect. Norton (1995) argues that debt level incurred by franchisees can be used as a screening and bonding device by franchisor to distinguish the high quality applicants from the low quality ones and limit the incentive to free-ride. According to Ross (1977)'s signaling theory, potential franchisees can signal their capability to the franchisor by raising debt. And accordingly the threat of business failure induced by high debt level motivates franchisees not to shirk (Grossman & Hart, 1982).

One thing noticeable is that the above studies focus merely on how and why franchisee's leverage can be affected negatively or positively, but they all miss the fact that franchisor's leverage can also be altered according to the decision/policy on franchisee's financial structure. We here suggest that the franchisor's capital structure can be interactively related to the franchisee's capital structure. But we hypothesize that this relationship can be either negative or positive. According to Williamson (1989) and Fraja & Piga (2004)'s arguments, franchisee's debt ratio should be restricted, and therefore franchisor can secure his business risk and profit. When franchisee's maximum leverage is set below the optimal level, franchisor may accordingly raised his own leverage in order to take tax advantage. Thus, we predict that the lower the franchisee's leverage below the optimal level, the higher the franchisor's leverage, and the more the franchisor benefits.

H13La: Deviation between franchisee's actual leverage and optimal level is negatively related to franchisor's leverage.
H13Ma: Deviation between franchisee's actual leverage and optimal level is negatively related to franchisor's maturity.

If debt is deemed as a positive role like a screening or bonding device, we predict that franchisor's leverage is positively related to the franchisee's. This is because franchisor can also use high debt to signal franchisees his quality and credible commitment to the brand name capital. And the higher failure risk induced by debt also motivates the franchisor to tightly tie his profit with the chain's performance. When the franchisor requires the franchisee to have a higher debt in order to bond him with the outlet's performance, the franchisor also needs to remain a higher leverage to show his commitment. Therefore, we predict that the higher the franchisee's leverage above the optimal level, the higher the franchisor's leverage.

H13Lb: Deviation between franchisee's actual leverage and optimal level is positively related to franchisor's leverage.
H13Mb: Deviation between franchisee's actual leverage and optimal level is positively related to franchisor's maturity.

3. DATA AND VARIABLES

3.1. Data

Our paper uses tow data sources. The first consists of information about profiles of franchising firms operating in the Netherlands. This is obtained from the book "De Nationale Franchise & Formulegids 2005", which gives detailed franchisor profile in 2004. The book covers 650 Dutch franchise chains, providing information on franchise fee, royal rate, advertising rate and etc. The second data source is the REACH, which contains the financial accounts of 1.7 million Dutch organizations. We use REACH to complement the financial information of the above firms and 438 firms in the book are identified in REACH. Whereas due to the problems of missing values and mismatch, finally 167 firms are left in the common sample. Since we limit our study to the category of SMEs and capital structure, we further remove the firms meeting the following criteria: (1) more than 500 employees [1]; (2) financial firms [2] (such as banks and insurance companies); (3) cooperatives. At the end, the definitive number of firms that makes up our sample amounts to 122 (81 if franchise fee and yearly fee are included), for which we have financial data for the year of 2004.

3.2. Variable

We measure maximum franchisee's leverage (*MaxLeverage*) as outlet's total investment minus required franchisee's equity over outlet's total investment. And the variables that determine franchisee's leverage are defined as follows. *OutletSize*: is measured as natural logarithm of outlet's total investment. *FranchiseAge:* is measure as the number of years the company has been in franchising. *EntryFee:* is measured as the natural logarithm of the amount of the up front fee that the franchisee must pay to the franchisor to buy the franchise outlet. *YearlyFee*: is measured as the percentage of sales (including advertising fees) that franchisees pay to the franchisor. *Franchising Type*: dummy variable of hard or soft franchising. *Location*: dummy variable of top locations or not. *Industry* is included as a control variable, and we define it based on the

[1] According to the United States Small Business Administration (SBA), the definition of a small firm is one with fewer than 500 employees.
[2] Firms in the financial industry have a quite different asset mix in comparison to other firms due to their nature.

classification of NFV (Netherlands Franchise Association). Five categories are defined: food retailing, non-food retailing, service, catering and other industries.

We measure franchisor's capital structure from two aspects. Firstly, a firm's capital structure is described by its L*everage*, which we define as total debt over the book value of total assets. Secondly, in order to highlight the differences between long-term and short-term debt, we also consider the following measuring: *Debt Maturity*. We measure debt maturity as the ratio of long-term debt to total debt, which separates the debt maturity decision from the leverage decision (Barclay and Smith, 1995). The variables that determine franchisor's capital structure are defined as follows. *FirmAge:* is measured as the natural logarithm of the number of years since incorporation. *FirmSize*: is measured as the natural logarithm of the book value of total assets. *PastGrowth*: is measured as the percentage change of total assets compared to the previous year. *FixedAssets*: is measured as the ratio of fixed assets to total assets. *FutureGrowth*: is measured as the ratio of intangible assets to total assets. NDTS (none-debt tax shields): is measured as the ratio of provisions[3] to total assets. *Liquidity*: is measured as the ratio of current assets to current liabilities. *ChainStructure*: is measured as the ratio franchised outlets to total number of outlets. *Deviation* measures the difference between the actual franchisee debt level and the optimal leverage, which equals: $Deviation = \frac{ActualLeverage - \Pr edictedLeverage}{\Pr edictedLeverage}$

4. Empirical results

4.1. Summary Statistics

Table 1 provides the summary statistics of the variables in our study. [4] The average maximum franchisee leverage is 0.679, which means that on average 67.9 percent of the initial total investments is allowed to be financed by debt. And the average total investment for opening an outlet is 188905 euros. The franchisors' average experience in franchising is 12.83 years. A franchisee needs to pay a franchisor on average 7486 euros in order to be granted with authorization. The

[3] In the Netherlands, provision for bad debt and pension liability is fully deductible against the corporate income, and therefore can be seen as an important non-debt tax shield.

[4] A problem in our sample is the presence of outlier observations (such as an asset growth of 196 percent in one year). To minimize the influence of these outliers in our analysis, we cap the outliers at three times standard deviation from their means.

Table 1: Definitions of Variables and Summary Statistics

Variable name	Variable description	Mean	Median	Std. Deviation
Outlet Characteristics				
Max Leverage	Maximum franchisee debt ratio, which is defined as outlet total investment minus franchisee's equity over outlet total investment	0.679	0.750	0.214
OutletSize	Outlet total investment	188904.724	125000.000	212465.715
FranchiseAge	The number of years the company has been in franchising	12.83	10.00	8.744
EntryFee	The amount of the up front fee that the franchisee must pay to the franchisor to buy the franchise outlet (106 observations)	7485.908	5000.000	7226.175
YearlyFee	Ongoing percentage of sales (including advertising fees) that franchisees pay to the franchisor (86 observations)	0.038	0.030	0.031
Hard	Dummy variable for hard franchising	0.525	1.000	0.501
Soft	Dummy variable for soft franchising	0.475	0.000	0.501
Location	Dummy variable for top locations	0.730	1.000	0.446
RT-Food	Industry dummy of retail food	0.148	0.000	0.356
RT-Nfood	Industry dummy of retail non-food	0.500	0.500	0.502
Service	Industry dummy of Service	0.156	0.000	0.364
Catering	Industry dummy of Catering	0.131	0.000	0.339
Other	Industry dummy of Other industries	0.066	0.000	0.249
Chain Characteristics				
Leverage	Total debt over the book value of total assets	0.849	0.704	0.651
Maturity	Ratio of long-term debt to total debt	0.174	0.051	0.242
Age	The number of years since incorporation	19.12	14.50	18.951
FirmSize	Book value of total assets	8248.18	1794.50	16746.205
PastGrowth	Percentage increase of total assets	0.573	0.048	2.247
FixedAssets	Ratio of fixed assets to total assets	0.303	0.253	0.245
FutureGrowth	Ratio of intangible assets to total assets	0.039	0.000	0.071
NDTS	Ratio of provisions to total assets	0.040	0.000	0.088
Liquidity	Ratio current assets to current liabilities	1.707	1.241	2.359
ChainStructure	Ratio franchised outlets to total number of outlets	0.804	0.947	0.285

Note: This table provides the abbreviations, definitions, averages, medians and standard deviations of the variables in our data set. The full sample contains 122 observations except that EntryFee and YearlyFee respectively contain 106 and 86 observations.

franchisee also needs to pay 3.8 percent of the annual sales (including advertising fee) to the franchisor. On the other hand, the capital structure of the franchisors shows that on average the assets are financed with 84.9 percent of debt; and the

average firm has 17.4 percent of its total debt maturing in more than one year. This indicates that the assets of the firms in our sample are largely financed by debt, but mostly by short-term debt instead of long-term. The average firm age is 19 years and the average firm size is 8248 euros in term of assets, which indicates that the firms in the sample are generally young and small. And on average 80.4 percent of the outlets are franchised.

4.2. Determinants of the Franchisee's Maximum Debt Ratio

We firstly aim to investigate the role of outlet's characteristics in determining the franchisee's leverage by estimating the following ordinary least squares (OLS) regression:

$$MaxLeverage = \beta_0 + \beta_1 OutletSize + \beta_2 FranchsieAge + \beta_3 Type + \beta_4 Location + \beta_5 EntryFee + \beta_6 YearlyFee + \beta_7 Industry + \varepsilon$$

Table 2 contains the hypotheses and regression results. In model (1) we run regression of outlet characteristics on franchisee's leverage. *OutletSize* shows a strong (P=0.001) and positive effect on the franchisee's leverage, which supports our H1b; whereas our H1a is rejected. Thus, our result supports the conventional arguments that debt increases with firm size due to the fact that larger firms facing lower financing transaction costs, less financial distress and bankruptcy costs; whereas the argument that larger franchising outlet may have lower debt due to the increased investment in specific assets is not supported by our data. A positive and strong (P=0.007) correlation is found between *Hard Type* franchising and franchisee's leverage, where our H2a is supported and H2b is rejected. This finding corroborates our hypothesis that outlets under hard franchising face less risk and more security, and therefore may have more debt. *FranchiseFee* and *YearlyFee* don't show any significant impact on franchisee's leverage. Therefore H3a and H3b are both rejected, and we conclude that franchise fee and yearly fee don't influence franchisee's financing decision. Furthermore, we don't find any statistically significant result for the variable *FranchiseAge*, and H4 is not supported either by our data. This means that the franchise chain's experience doesn't give franchisees more security or more access to the financial market, and accordingly doesn't lead franchisees to a higher leverage. And *Location* doesn't

Table 2: Regression results for Maximum Franchisee Leverage

Dependent variable: MaxLeverage			
	H	**(1)**	**(2)**
(Constant)		-0.522 (0.104)	-0.285 (0.248)
OutletSize	+/-	0.084 (0.001)***	0.073 (0.000)***
FranchiseAge	+	0.032 (0.315)	0.006 (0.791)
Hard	+	0.131 (0.007)***	0.065 (0.091)*
Location	+	0.026 (0.633)	-0.001 (0.977)
RT-Food		0.133 (0.111)	0.094 (0.196)
RT-Nfood		0.128 (0.070)*	0.109 (0.065)*
Service		-0.066 (0.441)	-0.022 (0.756)
Other		-0.004 (0.974)	0.011 (0.901)
EntryFee	-	0.001 (0.938)	
YearlyFee	+	-0.751 (0.311)	
Adjusted R^2		.244	.146
Observations		81	122

Note: This table presents the hypotheses and regression results for the determinants of the maximum franchisee debt ratio. All variables are defined in Table 1. The column denoted 'H' contains the hypotheses, where '+' implies a positive effect and '-' implies a negative effect. The regressions are Ordinary Least Squares regressions and we report the coefficients and the *p*-values (in parentheses). '***', '**' and '*' denote significance at the 1%, 5% and 10% level, respectively.

affect franchisee's leverage either, H5 is therefore rejected. Top location doesn't lead to more debt. At last, as a control variable, *None-food retailing industry* shows a positive and significant (P=0.07) effect on franchisee's leverage. A possible explanation is that firms in the none-food retailing industry have a higher degree of tangible assets and lower asset specificity compared with other industries, therefore lenders will lend them more debts.

In model (2), we exclude franchisee fee and yearly fee. This is for two purposes: one is to test the model's robustness; and the other is to improve the sample size. After removing the two variables, the model is stable, the coefficients and the significance level of the remaining variables are quite similar as in model (1). Furthermore, after removing these two variables, the sample size is notably

increased from 81 to 122. In order to test the hypotheses on the interaction between franchisor's and franchisee's capital structure, we need to predict the optimal franchisee's leverage. We separately predicted the franchisee's optimal leverage based on model (1) and (2), and did a pair sample t-test. We found no statistically significant difference between the two predicted leverages. We therefore decided to continue with model (2) for further analysis because of the larger sample.

Our results for franchisee's leverage show that outlet size, hard type franchising and none-food retailing industry may lead to higher debt level, while other factors have no effect on franchisee's leverage. Our results give a preliminary understanding of how franchisee's capital structure is affected by the outlet's characteristics.

4.3. Determinants of the Franchisor's Capital Structure

In this section we perform regression analyses of chain/firm characteristics on franchisor's capital structure based on standard capital structure theories. We will firstly discuss the results of franchisor's leverage and then franchisor's maturity. For estimating franchisor's leverage, we use the following regression model:

$$\begin{aligned} FranchisorLeverage = {} & \beta_0 + \beta_1 FirmAge + \beta_2 FirmSize + \beta_3 PastGrowth + \\ & \beta_4 Tangibility + \beta_5 FutureGrowth + \\ & \beta_6 None\text{-}debt\ tax\ shields + \beta_7 ChainStructure + \\ & \beta_8 Deviation + \varepsilon \end{aligned}$$

Table 3 contains the hypotheses and regression results regarding franchisor's leverage. In model (1) we run a full-model regression of chain/firm characteristics on franchisor's leverage. As we expected, *none-debt tax shields* showes a negative impact on franchisor's leverage, but this influence is not significant. This means that the use of provisions doesn't lower the firm's total debt level. Therefore, H6L is rejected. The coefficient of *Tangibility* is statistically significant (P=0.039) and consistent with our hypothesis H7. As predicted, tangible assets can be used as collaterals and mitigate lender's risks of suffering agency costs and bankruptcy costs, which leads to more debt. A positive and strong (P=0.007) correlation is found for *PastGrowth.* This finding supports our hypothesis H8La, where

Table 3: Regression results for Franchisor Leverage

Dependent variable: Leverage				
	H	**(1)**	**(2)**	**(3)**
(Constant)		1.610 (0.000)***	1.610 (0.000)***	1.491 (0.000)***
FirmAge	+/-	-0.070 (0.320)	-0.071 (0.306)	
ChainSize	+	-0.073 (0.039)**	-0.073 (0.039)**	-0.085 (0.009)***
PastGrowth	-	-0.075 (0.007)***	-0.074 (0.007)***	-0.070 (0.008)***
Tangibility	+	0.512 (0.039)	0.514 (0.037)**	0.500 (0.029)**
FutureGrowth	+	-0.370 (0.652)	-0.409 (0.617)	
NDTS	-	-0.058 (0.934)	-0.040 (0.954)	
Liquidity	-	-0.065 (0.014)**	-0.064 (0.015)**	-0.067 (0.005)***
ChainStruture	-	-0.015 (0.943)	-0.013 (0.948)	
Deviation	+/-	0.108 (0.492)		
Adjusted R^2		.136	.140	.161
Observations		122	122	122

Note: This table presents the hypotheses and regression results for the determinants of franchisor's leverage. All variables are defined in Table 1. The column denoted 'H' contains the hypotheses, where '+' implies a positive effect and '-' implies a negative effect. The regressions are Ordinary Least Squares regressions and we report the coefficients and the *p*-values (in parentheses). '***', '**' and '*' denote significance at the 1%, 5% and 10% level, respectively.

franchisor's past growth is predicted to be negatively related to leverage due to the moral hazard problem. Whereas we find no evidence supporting our hypothesis H8Lb, where firm's future growth opportunity is expected to be positively related to leverage. The result of *Liquidity* supports our hypothesis as well. H9 predicts that *Liquidity* is negatively related with franchisor's leverage according to pecking order theory. And this relation is found negative and strong (P=0.014) in our result. As for the *Chain/FirmSize*, we found a significant but negative coefficient, which contradicts our hypothesis H10 that firm size is positively related with leverage since large firms are more diversified and face less financial distress and bankruptcy risks. One possible explanation is that larger firms are more profitable; and they prefer internal financing to external financing according to the pecking order theory. Therefore, we observe less debt in larger firms. We predict that

FirmAge can either positively or negatively affect leverage, but we found no significant result in our regression analysis. The sign of the *FirmAge's* coefficient is negative, which is in line with our hypothesis H11La even though it is not significant. Thus, H11La and H11Lb are both rejected. We also hypothesize that the number of franchised outlets may also negatively affect franchisor's leverage according to the arguments from capital scarcity in franchising literature. The coefficient of this variable is not significant even though the sign is negative. Our finding supplies another evidence that franchisor actually doesn't use franchisee as a cheap financing resource. Therefore Combs & Ketchen (1999)'s argument and H12L are rejected by our data.

As for our arguments on the interaction between franchisor's and franchisee's leverage, we found no evidence supporting our hypotheses. The coefficient of *Deviation* is positive, which is in line with H13Lb, but insignificant. Therefore, the franchisor's total debt level is not affected by the setting of franchisee's debt level. More deviation from the franchisee's optimal leverage can't lead to the change of franchisor's leverage. In model (2), we removed the variable *Deviation*, leaving exclusively the variables of chain characteristics in the regression, to test the robustness of the model. The results remain largely the same as in model (1). In model (3), we omit all the insignificant variables in model (1) and (2), and the coefficient and significance level of the variables still remain stable.

In the following parts, we will discuss the results of franchisor's maturity. Besides the normal firm characteristics, firm leverage is also considered as an important determinant of firm maturity. For example, Leland and Toft's (1996) argue that the optimal capital and maturity structure are determined simultaneously. And according to Stohs and Mauer (1996), they find strong evidence supporting that the debt maturity and leverage are highly interrelated. Stohs and Mauer (1996) use leverage as a control variable and find that it is an important determinant of debt maturity—firms with greater financial leverage also use longer-term debt. But one problem involved in these analyses is that leverage is frequently found to be an endogenous variable. Many of the principal factors that influence the debt financing decision also affect the decision of maturity. We therefore control for leverage in the franchisor's debt maturity equation and we apply two-stage estimation as in Barclay, Marx, and Smith (2003). We use predicted value of leverage in the debt maturity regression.

In the first-stage estimation, we use the variables that are significant in the regression model of franchisor's leverage to determine the predicted leverage ratio which is then used in the second-stage maturity analysis. The second-stage regression model of franchisor maturity is as follows:

$$FranchisorMaturity = \beta_0 + \beta_1 FirmAge + \beta_2 FutureGrowth + \beta_3 None\text{-}debt\ tax\ shields + \beta_4 ChainStructure + \beta_5 Deviation + \beta_6 Leverage(predicted) + \varepsilon$$

Table 4 contains the hypotheses and regression results regarding franchisor's maturity. In model (1), we run regression of standard firm characteristics on maturity without considering *Deviation* and *Leverage*. *None-debt tax shields* showes a strong and positive impact on franchisor's maturity.

Table 4: Regression results for Franchisor Maturity

Dependent variable: Maturity				
	H	**(1) OLS**	**(2) OLS**	**(3) 2SLS**
(Constant)		.149 (0.109)	.145 (0.115)	.003 (0.983)
Age	+/-	.008 (0.744)	.010 (0.685)	.023 (0.348)
FutureGrowth	+/-	.545 (0.080)*	.588 (0.056)*	.588 (0.041)**
NDTS	-	.723 (0.005)***	.693 (0.006)***	.719 (0.002)***
ChainStruture	-	-.058 (0.443)	-.060 (0.418)	-.043 (0.536)
Deviation	+/-		.123 (0.042)**	.116 (0.041)**
Leverage (predicted)	+			.111 (0.141)
Adjusted R^2		.062	.087	.111
Observations		122	122	122

Note: This table presents the hypotheses and regression results for the determinants of franchisor's maturity. All variables are defined in Table 1. The column denoted 'H' contains the hypotheses, where '+' implies a positive effect and '-' implies a negative effect. The regressions are Ordinary Least Squares regressions and Two Stage Least Square Regression using leverage predicted in the first stage regression. We report the coefficients and the *p*-values (in parentheses). '***', '**' and '*' denote significance at the 1%, 5% and 10% level, respectively.

This finding contradicts with our hypothesis H6M that *None-debt tax shields* is negatively related to maturity. Michaelas et al. (1999) also found a positive relation between the two variables; they argued that tax effects may not be a factor considered by small firms in their short term capital structure decisions, but more

important in the long term capital structure decisions. We find a significant and positive coefficient for the variable *FutureGrowthOpportunity*, which corroborates our hypothesis H8Mb but rejects H8Ma. Our result confirms Diamond (1991)'s arguement that firms with growth options would like to hedge against risks of inefficient liquidation by issuing long-term debt. Same as the results above, *FirmAge* doesn't affect maturity either, thus H11Ma and H11Mb are both rejected. And *ChainStructure* also doesn't show any significant effect on maturity, which indicates that the number of franchised outlets is not related with firm's capital structure. Therefore the argument of capital scarcity is not corroborated by our results. In model (2), we include the variable *Deviation* to test the hypothesis on the interaction between franchisee's and franchisor's capital structure. As we expected, *Deviation* has a significant (P=0.042) and positive impact on the franchisor's capital structure decision, especially on the long-term debt decision. This result confirms our argument that franchisor uses debt as a screening tool and commitment device. And this effect is more apparent with long-term debt. Model (3) shows the 2SLS regression results for debt maturity. We added predicted *Leverage* as a control variable. And coefficient of the variable has a positive sign, which is in accordance with our prediction, the not significant. Furthermore, through model (1) to (3), we added variables step by step, the results across the three models remain stable. Therefore, we believe our model is robust.

5. CONCLUSIONS

In this paper, we initially study the capital structure problem in franchising firms. The primary goal of this study is to examine what factors affect franchisee's and franchisor's capital structure decisions, and how these decisions are interrelated. On one hand, we examine whether and how outlet-specific characteristics affect franchisee's capital structure; on the other hand we empirically tested the standard capital structure theories under the franchising setting. Finally, we study how franchisor's capital structure is affected by the setting of franchisee's capital structure.

We find that the outlet-specific factors like outlet size, hard type franchising and none-food retailing industry may significantly affect franchisee's optimal leverage ratio. Larger outlet size, hard type franchise and none-food retailing

industry can lead to higher debt level. Our results supply a preliminary understanding of the determinants of franchisee's capital structure.

As for the franchisor's leverage, our study corroborates the predictions of standard capital structure theories. We find that the impact of firm-specific factors like tangibility, past growth and liquidity is significant and consistent with the prediction of conventional capital structure theories. As for the franchisor's maturity, we find that it is positively affected by future growth opportunity. We also find that none-debt tax shields also positively affect franchisor's maturity choice, but this contradicts with our prediction.

We find evidence supporting our primary prediction that franchisor's capital structure is interrelated the franchisee's capital structure decision. We find that franchisor's maturity is positively related to deviation between franchisee's actual leverage and his optimal leverage. As franchisor set a high requirement of franchisee's debt level in order to screen capable franchisees, the franchisor also increase his debt level to signal his credible commitment. Therefore, the more the franchisee's leverage exceeds the optimal leverage, the more the franchisor's leverage is. This effect is more evident with long-term debt decision.

Our study is not without limitations. Firstly, panel data may be more appropriate for this study, because the factors that determine the capital structure can be influenced by some long-term effects. The second limitation is the potential of measurement error. For example, the proxy for none-debt tax shields used in this study may be subject to such problem. This could be one of the explanations why we find an opposite coefficient sign as we predicted. The last important limitation of our study is missing variable problem. Some variables those are essential in the standard capital structure theories are missing in our study due to the unavailability of proxies. For example, risk and profitability are missed in our paper because we don't have any information regarding the profit and loss accounts.

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