Interactive Effects of Financial Leverage with Asset-Light Strategies: The Agency Theory Perspective

Dr. Kate Mingjie Ji
Senior Lecturer in Hospitality Finance and Revenue Management
Oxford School of Hospitality Management
Oxford Brookes University

Dr. Juanxi Wang
Senior Lecturer in Financial Economics
Oxford Brookes Business School
Oxford Brookes University

Mr. Luca Boccardo
Master Student in International Hotel and Tourism Management Program
Oxford School of Hospitality Management
Oxford Brookes University

Mr. Howard Brown
Programme Lead in Accounting and Finance
Business School
Oxford Brookes University

Professor IpKin Anthony Wong
Faculty of Business Administration
University of Macau

Miss Jiao Wu ***(Corresponding author)***
PhD student
School of Tourism Management, Sun Yat-Sen University
135 Xingangxi Road, Guangzhou, PR China. 510275
wujiao6@mail2.sysu.edu.cn

Interactive Effects of Financial Leverage with Asset-Light Strategies: The Agency Theory Perspective

Abstract

Existing research has overlooked the interaction of debt in the financial assessment of asset-light strategies. This research assesses how financial leverage (high or low long-term debt) interacts with management contracts as well as franchising to exert an impact on the value of hotel companies. Panel data of 195 observations in 2007-2019 were analysed with ordinary least square, robust regression, stepwise regression and quantile regression. The research findings clarify the impacts of asset-light strategies by differentiating the previously discovered U-shaped impact into a U-shape for management contracts and an inverted U-shape for franchising. Furthermore, when financial leverage is introduced, the above relationships hold at a low leverage level; but are weakened at a high level. Lastly, these U-shapes are asymmetrical, being more responsive to asset-light strategies than when there is no leverage interaction. This research hence clarifies agency costs and their relevance to asset-light strategies with varying financial leverage.

Keywords: asset-light strategies, management contract, franchise, financial leverage

1. Introduction

As the economic recovery post-pandemic continues, the hospitality industry, hotel owners, operators, and global brands are observed to be pursuing new opportunities and growing their portfolios with renewed aggression. The headline deals post-pandemic include Blackstone Group and Starwood Capital Group's acquisition of Extended Stay America with $6 billion; Highgate and Cerberus Capital Management's acquisition of CorePoint Lodging at $1.5 billion; and the merger of Pyramid Hotel Group and Benchmark Global Hospitality into Benchmark Pyramid with 210 hotels combined (Leffet, 2022). While these deals strengthen brand image, economies of scale and distribution systems, they also bring stronger dependence on asset-light strategies because they are highly relevant not only to the valuation of M&As for investments but also the value to be created to the hotel groups after the M&As (Carpentier & Collins, 2022).

The research on asset-light strategies, i.e. hotel management contracts (HMCs) and franchising, has received intense research inquiries (Hsu & Jang, 2009; Koh et al., 2018; Sohn, Tang & Jang, 2013; Sun & Lee, 2019). However, an analysis of this work shows the following gaps. Firstly, existing assessments of the asset-light strategies are solely concerned with the strategies themselves and do not include the impact of debts, although debts, particularly long-term debts coexist with these strategies (Norton, 1995; Park & Jang, 2017; Roh, 2002; Singal, 2015) and have long been established to impact firm value and profitability (e.g. Lemmon & Zender, 2010). It seems to be overlooked that the hospitality industry is heavily leveraged with financial leverage between 49%-65% for hotels, 44-54% for restaurants (Andrew et al., 2006) and 53% for casinos (Tsai & Gu, 2007). Most recently, Hyatt Hotel showed a high long-term debt balance of $3.8 million in June 2022, an increase of 137% from 2018. Further, the impact of financial leverage on profitability and firm value is mixed (Sheikh & Wang, 2013; Tang & Jang, 2007) but more negative evidence is associated with high financial leverage (e.g. Fama & French, 1998; Wald, 1999). Hence, although the impact of asset-light strategies is mostly confirmed as

positive (Hsu & Jang, 2009; Hua & Dalbor, 2013; Koh et al., 2018; Moon & Sharma, 2014; Seo & Soh, 2019; Sohn, Tang & Jang, 2013; Sun & Lee, 2019), once the interaction of financial leverage is introduced, this would change the existing conclusions on the impact of asset-light strategies. Therefore, it is essential to include the interaction of financial leverage into the assessment of asset-light strategies.

The second gap is that the existing research treats HMC and franchising as interchangeable and represents them as one variable (Hsu & Jang, 2009; Koh et al., 2018; Sohn et al., 2013; Sun & Lee, 2019). However, HMC and franchising are different models, a view which is supported by both agency theory (Eisenhardt, 1989; Erramilli et al., 2002; Shapiro, 2005; Solis-Rodriguez & Gonzalez-Diaz, 2012) and practical evidence (Collins & Perret, 2019; deRoos, 2010). Therefore, by conflating them, an inaccurate conclusion may have been drawn about the financial impacts of HMC. Furthermore, HMCs appears under-represented in the overall asset-light strategy research. In the hotel business, HMCs have been regarded as an inherent and essential element of the contemporary hotel industry (deRoos, 2010; Dev et al., 2002; Turner & Guilding, 2010). They have been widely used since the 1950s for growing international markets especially in Europe (Guilding & Ji, 2022). The American Hotel and Lodging Association estimated that 800 HMCs were managing 12,000 properties worldwide in 2006 (Collins & Perret, 2015). Major hotel chains such as Marriott, Hyatt and Radisson, favor HMCs over franchising (Collins & Perret, 2015).

The present research is the first to assess how financial leverage (i.e. high or low long-term debt) interacts with HMCs as well as franchising to exert an impact on the value of hotel firms. Through differentiating HMC from franchising, the findings bring clarity to the existing generic conclusion of the ‘U-shaped’ financial impacts of the asset-light strategies. Furthermore, by adding the interaction of financial leverage, the impacts are split into the condition of high and low debts. These nuanced findings provide hotel management with a clearer understanding of the

distinct impacts of HMC and franchising on firm value. The findings also suggest changes in these impacts in response to changes in debt levels.

This paper proceeds with a Literature Review on agency theory and its founding principles with the aim to differentiate HMCs and franchising. A review on financial impacts of long-term debt on firm value is followed to bring forward the interactive impacts of debts on asset-light strategies. Next, the Method section details the data collection procedure, model specification, and explanation of all variables of interest. Hypotheses testing, robustness test as well as descriptive statistics of the raw data are included in the Finding section. Theoretical contributions are detailed in the Discussion, which is followed by Conclusion that covers practical implications and research limitations as well as an executive summary of this research.

2. Literature review and hypothesis development

2.1 Agency theory: Hotel management contract vs franchising

Agency Theory, developed in the 1960s and early 1970s, was rooted in information economics when scholars explored risk sharing among individuals or groups. What Agency Theory added to the debate was the agency costs that arose for cooperating parties where one party (the principal) delegated work to another (the agent) who performed that work. The task of the theory was to resolve two agency problems (which consequently gave rise to agency costs): *the agency problem*, and *the problem of risk sharing*. *The agency problem* occurs when "(a) the desire or goal of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing" (Eisenhardt, 1989, p. 58). The concept was related to Moral Hazard (Solis-Rodriguez & Gonzalez-Diaz, 2012) and Adverse Selection (Shapiro, 2005). On the other hand, *the problem of risk sharing* occurred when the principal and the agent had different attitudes towards risks (Eisenhardt, 1989). Both types of problems were established on the assumption that

people were self-interested, had bounded rationality and were risk averse; and therefore organizations have goal conflict among members and information serves as a commodity to be purchased.

A means to resolve these Agency Theory problems was to govern the principal-agent relationship through an efficient contract. One method involved the principal investing in information systems and discovering the behavior of the agent using, such as, budgeting systems, reporting procedures, boards of directors and additional layers of management. Another method involved contracting the outcomes of the agent's behavior by co-alignment of the agent's preferences with those of the principal. Both methods gave rise to two types of contracts: *behavior-based* (such as hierarchical governance) and *outcome-based* (such as commissions, stock options, and transfer of property rights) contracts. It was proposed that *behavior-based* contracts depended more on information sharing between the principal and agent, and were favored when there was higher uncertainty associated with delivering the outcomes, higher goal conflict and higher task programmability (Eisenhardt, 1989). On the other hand, *outcome-based* contracts depended less on information sharing, and were favored when there was lower uncertainty associated with delivering the outcomes, lower goal conflict and lower task programmability.

Hotel asset-light strategies, in the form of franchises and HMCs, create a typical principal-agent relationship and hence agency problems. Under a *HMC*, a management company (or 'agent') takes over the operations of a property from the owner in exchange for a fee, providing direction, supervision, and expertise through established methods and procedures. The owner bears all risks (including employment contracts) and the operator focuses on operating issues. Owing to the 'client-facing' role of an operator relative to the 'back-stage' role of the owner, their goals and priorities are not always aligned (Collins & Perret, 2019). In comparison, under a *franchise arrangement*, a franchisee has the right to use a franchiser's brand, their distribution channels and

proprietary knowledge. The owner (or 'franchisee') retains all risks and liabilities of the business including operating the property (Collins & Perret, 2019).

Agency theory provides three aspects for us to distinguish franchising from HMCs. Firstly, the agency problem is more prevalent to HMCs than franchising. Under an HMC, the management company is present onsite and therefore their behaviors are more exposed to the owner's observation. Consequently, the operator's goal misalignments are easier to be discovered by the owner. This is why HMCs rely on behavior-based measures and feature nuanced party responsibilities (Collins & Perret, 2019). In comparison, the feature of franchising is more distanced, obscured with less sharing of information (Dev, Erramilli & Agarwal, 2002). It does not mean franchising is free from agency costs – such as saving the costs associated with monitoring the franchisees' behavior and safeguarding the maintenance of brand image and service quality (Combs & Ketchen, 1999) – but these costs can be minimized by performance-based incentives (Shapiro, 2005).

Secondly, the problem of risk sharing is more acute to HMCs than franchising. Under HMCs, although the operator is accountable for daily operations, it is the owner's right to *approve* running operations, furniture, fixtures and equipment replacement; and to *determine* capital expenditure budgets and personnel decisions (Collins & Perret, 2019). The owner also has the ultimate right to terminate a HMC (Erramilli et al., 2002). As deRoos (2010) concludes, HMCs are by design in favor of the hotel owner. Furthermore, to limit liability and provide lenders with a clear foreclosure path in case the owner defaults on hotel loans, the management company is financially treated as a single-asset subsidiary of the hotel brand whereas the owner's hotel is operated on a bankruptcy remote mode (deRoos, 2010). On the contrary, under franchising, the operating and market risks belong to the franchisee. The franchisor earns royalty fees with little capital at stake, with no operating risk and low market risk (Gonzalez-Diaz & Solis-Rodriguez, 2012).

Thirdly, the overall costs of using HMCs are greater than franchising viewing the former's higher operating cost, market risks and agency cost. HMC requires base fees of typically 2%-3% of total revenues, plus incentive fees typically 6% to 8% of profit, i.e. GOP or EBITDA (Perret, Martin, & Balyozyan, 2017). In comparison, franchise fees are based on rooms revenue at 4%-5% (Carpentier & Collins, 2022). As such, HMCs offer a hotel group more profit but at higher operational risks which replicate some of the problems of having full hotel ownership (deRoos, 2010).

2.2 Distinct impacts of HMC and franchising on firm financial performance

The financial impacts of franchising have been widely tested on a hotel group's ('franchisee') value, and most support an inverted U-shaped impact (Hsu & Jang, 2009; Koh et al., 2009; Koh et al., 2018). They include reducing cash flow volatility and stabilizing long-term earnings (e.g. Hua & Dalbor, 2013; Seo & Soh, 2019). The U-shape denotes the existence of an optimal point of profitability, achieved by an optimal proportion of franchising in a hotel group's portfolio (or 'degree of franchising', [DOF]). Up to the optimal DOF, franchising can reduce fixed expenses associated with hotel properties, achieving economies of scale (Hsu & Jang, 2009; Seo & Soh, 2019; Sohn et al., 2014), and potentially increasing market share from the franchisors' perspective. Financial performance may also be benefited from collective resources pooled by both parties (Yu, 2018) as well as risk-sharing that attains operation certainty (Roh, 2002). However, after the optimal DOF and as it continues to increase, profitability slumps responding to growing agency costs to an extent of outweighing the financial benefits brought by franchising. These agency costs can be related to monitoring the behavior of the franchisees, in the form of travel expenses to the franchised units, the amount of learning about local conditions and whether the franchisees safeguard the brand image and service quality (Combs & Ketchen, 1999). Hence, we propose:

Hypothesis 1*: The degree of using hotel franchising creates an inverted U-shaped impact on a franchisor firm's value.*

Distinctively, this research proposes a U-shaped impact of HMCs on firm value, drawing from the earlier discussions on the different agency cost behavior of HMCs and franchising. As detailed earlier that the overall costs including the agency costs are higher for HMCs, as the proportion of HMCs (or 'degree of HMCs', [DOM]) continues to increase, the agency costs also grow and simultaneously reduce firm value to an extent of outweighing the financial benefits of HMCs, producing the lowest firm value. However, accompanying the increased costs is growing competence and expertise of the management hotel to manage the agency relationship, made possible by the information-sharing opportunities embedded in HMCs. This competence increasingly reduces agency costs and brings back firm value.

It is worth noting that the projection of the U-shaped impact by HMCs is the opposite of franchising (i.e. inverted U-shape). This is because for franchising the agency costs tend to occur and accumulate as the franchise proportion grows. Due to limited channels for information sharing between a franchisor and a franchisee, the agency costs only keep growing. In comparison, although the agency costs for HMCs are present in the early phase, yet the information-sharing opportunities enable both parties to management agency relationships reducing the agency costs.

Hypothesis 2*: The degree of using HMCs creates a U-shaped impact on the management hotel firm's value.*

2.3 Moderation of long-term debt on the financial performance of asset-light strategies

The popular employment of asset-light strategies does not preclude debt financing (Dalbor & Upneja, 2004; Norton, 1995; Park & Jang, 2017). Leases and other long-term debts are two main

forms of hotel financing means (Tang & Jang, 2007). In good times, hotel brands can retain more than they would have under a HMC as all profit after interest expenses and rent go straight to their bottom line (Collins & Perret, 2015). The disadvantages of debt are that it is disclosed as a liability and that the fixed rent payment obligation brings financial risks. Long-term debt is particularly relevant for HMCs because the operating hotel is often asked to invest as evidence of their commitment to a project; and they indeed invest strategically to gain favorable provisions or to limit the owners' ability to terminate the contract. Long-term debt can back up one or a combination of the following investments related to HMCs: 1) key money; 2) second mortgage loan; 3) mezzanine loan; 4) cash flow guarantees; and the least favored by the owner 5) equity investment (detailed explanation of these terms are included in Collins & Perret, 2015). Hence, it is inferred that a hotel brand under a HMC is likely to borrow more than under franchising.

The existing literature argues that high levels of debt can lead to financial and operational damage to the borrowing firm. Firstly, debt financing is considered to be costlier than asset-light strategies (Gonzalez-Diaz & Solis-Rodriguez, 2012; Lemmon & Zender, 2010). As debt holders have no access to the management of a business and are subject to information asymmetry, they are faced with higher risks and agency monitoring costs and hence demand a higher rate of return than that of asset-light strategies. Consequently, as borrowing increases, so do the agency costs and financing costs. High debt also increases the riskiness of a firm's assets as they serve as collateral. And for the hotel industry, assets are the key resources. Secondly, bankruptcy can result when a firm cannot meet a current payment on a debt obligation, or other indenture provisions providing for bankruptcy is violated by the firm (Lemmon & Zender, 2010). Furthermore, bankruptcy involves an adjudication process which itself consumes the remaining value of the assets of the firm. Thirdly, the probability of bankruptcy will adversely affect operating costs and revenues, such as by paying higher salaries to induce executives to accept a higher risk of unemployment.

In terms of the specific impact of debts on firm value and profitability, most support a negative impact (Lemmon & Zender, 2010). Friend and Lang (1988) and Kester (1986) find a significantly negative relationship between profitability and debt/asset ratios. So did Rajan and Zingales (1995) and Wald (1999). Furthermore, Fama and French (1998), analyzing the relationship between taxes, financing decisions, and the firm's value, maintain that debt does not bring tax benefits. They argue that high leverage can create agency problems for shareholders and creditors, and these negative impacts impair profitability and consequently negate the tax benefit of debt.

A high level of debt and stringent debt covenants also arguably bring financial and operational benefits. Apart from the tax-shield benefit, high debt mitigates the management control of free cash flow, restraining misuse for their own interests (Tang & Jang, 2007). Higher leverage is associated with improved efficiency across a variety of industries (Margaritis & Psillaki, 2007). Meeting debt obligation can serve as an incentive to increasing work morale, consuming fewer perquisites and making more informed investment decisions (Sheikh & Wang, 2013). Furthermore, high debt levels increase the managers' risk aversion and reduce their willingness to invest in a risky (albeit profitable) investment. A high debt level can also arguably signal a strong managerial ability or demonstrate the "unobservable qualities" which can be helpful when seeking additional borrowings or other types of external financing (Norton, 1995, p.91).

Yet the above studies solely investigate the impact of debt; it remains unknown how debt would interact with asset-light strategies. Although these strategies are confirmed to increase firm value, how this result would be moderated by debt is unanswered. What makes this question more complex is that Roh, Tarasi and Popa (2013) proposed a negative relationship because franchising provides firms with more cash flow which subsequently reduces the need for borrowing. Viewing the majority conclusion on the negative impacts of debts, it is projected that:

Hypothesis 3*: The level of debt (i.e. low or high) negatively moderates the impact of asset-light strategies (i.e. management contract and franchising) on a firm's value (i.e. a management hotel and franchisor respectively).*

3. Methodological procedures

3.1 Data and sample selection

The sample of this study consists of publicly-held hotel firms, collected in 2021, mainly from the *Orbis* database using the Standard Industry Classification (SIC) 7011 (Hotels and Motels) (Moon & Sharma, 2014). The sample period was 2007-2019 because this period observed rapid hotel expansions through asset-light strategies, mergers and acquisitions. For example, M&A increased from $20 billion in 2009 to $70 billion in 2019 (Zhang et al., 2020). Further, data collection took place in January 2021, amid Covid travel bans, so no comparable hotel financial information was available during 2020-2021. 27 firms were initially identified from which five casino hotels and two hotel investment companies were removed to ensure comparability of the businesses. Furthermore, unavailable data in the database, such as the number of franchised, managed or owned properties and share price were manually collected from these companies' Annual Reports and national Stock Exchanges including the New York Stock Exchange and NASDAQ. Due to no disclosure of franchise and management contracts, another four firms had to be removed from the sample.

The relative small sample size reflects the fact that the hotel business has been a highly concentrated industry with a few dominant companies. This fact represents one of the most recognized yet un-bridgeable limitations for hotel asset-light research. For example, among others, Moon and Sharma (2014) collected 21 hotel firms that included 10 with no use of asset-light strategies. The data were organized as a balanced panel and was composed of US dollar-based

hotel firms to minimize the bias caused by currency exchange rates. Variables are winsorized at 1% and 99% in both tails of the distribution.

3.2 Construction of variables

3.2.1 Dependent variables

Firm value, measured by Tobin's Q, is computed using the modified formula suggested by Chung and Pruitt (1994). As shown below, it is calculated as the market value of the firm divided by its total assets. The estimation of Q assumes that the replacement costs of fixed assets are equivalent to their book value (Chung & Pruitt, 1994). Tobin's Q has been widely used by extant research to assess the financial performance of asset-light strategies (e.g. Hsu & Jang, 2009; Sohn et al., 2014; Sohn et al., 2013).

$$\text{Tobin's Q} = \frac{MVE + PS + Debt}{TA}$$

Where: MVE = (Share price) × (Number of common stock outstanding); PS = liquidating value of the firms' outstanding preferred stock; Debt = (Short-term liability – Short-term asset) + Book value of long-term debt; and TA = Book value of total assets (Chung & Pruitt, 1994).

3.2.2 Independent and control variables

DOM is calculated by dividing the total number of properties under an HMC by the total number of properties of a hotel chain (Hitt et al., 2001; Koh et al., 2009; Koh et al., 2018; Sohn et al., 2013). The square term of DOF and DOM is used to capture the curvilinear impact on financial performance.

Debt-to-Equity (DEBT) is used to measure financial leverage as commonly adopted in existing research (see Table 1 for formula). As detailed in the Literature Review, there has been no agreement on the impacts of financial leverage on firm values, albeit most supporting negative

impacts. The positive impacts include corporate-tax deductibility, avoidance of the free cash flow problem and increased risk aversion of the management (Li & Singal, 2019; Sheikh & Wang, 2013; Tang & Jang, 2007). The negative impacts involve increased firms' asset riskiness, growing financing costs and difficulties in borrowing more or sourcing other external funds, and increased likelihood of bankruptcy (Lemmon & Zender, 2010). This study predicts a negative interaction of financial leverage, i.e. a weakening effect, with asset-light strategies.

Firm Size (SIZE). A number of studies have confirmed a positive impact of firm size on profitability (Aissa & Goaied, 2016; Hsu & Jang, 2009; Koh et al., 2018; Lin & Huang, 2011; Sohn et al., 2014; Sohn et al., 2013). This is because large firms can develop economies of scale enabling them to gain purchasing power and cost savings in labor and marketing. Furthermore, larger companies tend to have greater debt capacity and find favor with lenders compared to smaller firms (Li & Singal, 2019) hence reducing financing costs.

Advertising (AD). The impacts of advertising have been confirmed in terms of enhancing brand recognition, intangible value and firm performance (Hsu & Jang, 2009; Moon & Sharma, 2014; Sun & Lee, 2019); and some support a U-shaped impact (Kim et al., 2019). This is because advertising can boost sales and improve cash flow, increase branding awareness and lift the share price and market value of hotel firms (Chen, 2015). In hotels, the effectiveness of advertising is found to be related to hotel size, financial stability and operation scale (Assaf et al., 2015).

Age (AGE), defined as years in business, measured by the number of years a hotel chain has existed up to 2019. Its impact on profitability has been confirmed by extant research, albeit with inconsistency around whether the impact is positive or negative. The positive view holds that hotels gain organizational resources such as brand awareness, reputation, experience and economies of scale with increasing years of operation. Others counter-argue that older hotels have more disadvantages, due to falling behind in upgrading to new technologies, lower service

innovation and slow reaction to new market segments (Aissa & Goaied, 2016). Sun and Lee (2019) extended the age concept to prior specific experience in franchising.

Book-to-Market Value (BMV). BMV is widely regarded as a dominant factor affecting financial leverage and firm value (Golubov & Konstantinidi, 2019; Öztekin, 2015) although this relationship is insignificant in some studies (e.g. Frank & Goyal, 2009). Fama and French (1993) showed that BMV was able to explain cross-sectional variation in stock returns on NYSE, Amex and NASDAQ stocks. Their study and Chen and Zhang's (1998) found that firms with high BMV have persistently lower earnings, higher financial leverage, more earnings uncertainty, and are more likely to cut dividends compared to low BMV firms. However, a moderate BMV can be associated with high capital and research and development expenditure so these firms can still generate high sales growth (Griffin & Lemmon, 2002).

Variables	Description of variables
Tobin's Q	(MVE + PS + Short-term liability-short-term asset + book value of long-term debt)/Total Asset
DOF^2	(Franchised Properties /Total Properties)^2
DOM^2	(Managed Properties/Total Properties)^2
DEBT	Long-term Debt/Total Equity
SIZE	Total assets
AD	Advertising Expenditure/Total Assets
AGE	Age of The Hotel Operator
BMV	(Shareholders' Equity - Preference Shares)/ (Share Price × Shares Outstanding)

Table 1. Description of variables

3.3 Model specification

Model 1 below expresses the purpose of the present research, that is, to assess the interaction of financial leverage with HMCs as well as franchising on the value of hotel firms. Quadratic variables in the equation test the U-shaped relationship; the interaction of debt is expressed as $DOF^2 \times DEBT$ and $DOM^2 \times DEBT$ on franchising and HMCs respectively.

$$Tobin's\ Q_{it} = \alpha_i + \beta_1 DOF_{it} + \beta_2 DOF_{it}^2 + \beta_3 DOM_{it} + \beta_4 DOM_{it}^2 + \beta_5 DOF_{it}^2 \times DEBT_{it} + \beta_6 DOM_{it}^2 \times DEBT_{it} + \beta_7 SIZE_{it} + \beta_8 DEBT_{it} + \beta_9 AD_{it} + \beta_{10} AGE_{it} + \beta_{11} BMV_{it} + \varepsilon_{it} \quad (1)$$

where the dependent variable $Tobin's\ Q_{it}$ is used to measure the firm value, i = 1,…,n and t = 1,…,T, which denote the company and time respectively. α_i represents the intercept. β_s is the coefficients of the explanatory variables. ε_{it} denotes the error term. The quadratic terms are DOF_{it}^2 and DOM_{it}^2, as indicated by figure 1-4.

For robustness purpose, quantile regression was used. It models the relationship between a set of predictor variables and specific percentiles of a dependent variable (Mehmood, Mohd-Rashid & Ahmad, 2020). In this study 50th, 75th and 90th quantile of Tobin's Q was used (Ong, Mohd-Rashid & Mehmood, 2021), giving the following equations:

$$Q_{0.50} Tobin's\ Q'_{it} = \alpha'_{0.50,i} + \beta'_{0.50,1} DOFM_{it} + \beta'_{0.50,2} DOFM^2{}_{it} + \beta'_{0.50,3} DOFM^2{}_{it} \times DEBT_{it} + \beta'_{0.50,4} SIZE_{it} + \beta'_{0.50,5} DEBT_{it} + \beta'_{0.50,6} AD_{it} + \beta'_{0.50,7} AGE_{it} + \beta'_{0.50,8} BMV_{it} + \varepsilon'_{it} \quad (2)$$

$$Q_{0.75} Tobin's\ Q'_{it} = \alpha'_{0.75,i} + \beta'_{0.75,1} DOFM_{it} + \beta'_{0.75,2} DOFM^2{}_{it} + \beta'_{0.75,3} DOFM^2{}_{it} \times DEBT_{it} + \beta'_{0.75,4} SIZE_{it} + \beta'_{0.75,5} DEBT_{it} + \beta'_{0.75,6} AD_{it} + \beta'_{0.75,7} AGE_{it} + \beta'_{0.75,8} BMV_{it} + \varepsilon'_{it} \quad (3)$$

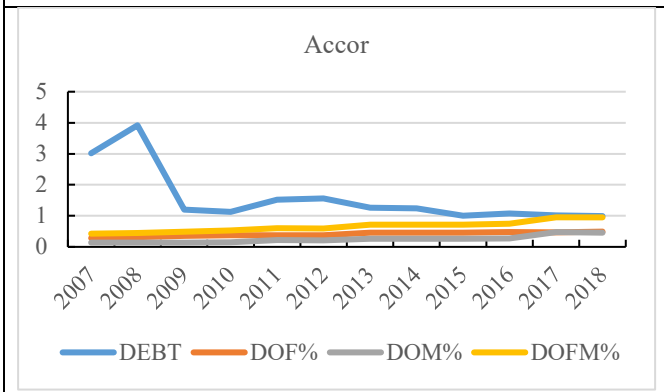
$$Q_{0.90} Tobin's\ Q'_{it} = \alpha'_{0.90,i} + \beta'_{0.90,1} DOFM_{it} + \beta'_{0.90,2} DOFM^2{}_{it} + \beta'_{0.90,3} DOFM^2{}_{it} \times DEBT_{it} + \beta'_{0.90,4} SIZE_{it} + \beta'_{0.90,5} DEBT_{it} + \beta'_{0.90,6} AD_{it} + \beta'_{0.90,7} AGE_{it} + \beta'_{0.90,8} BMV_{it} + \varepsilon'_{it} \quad (4)$$

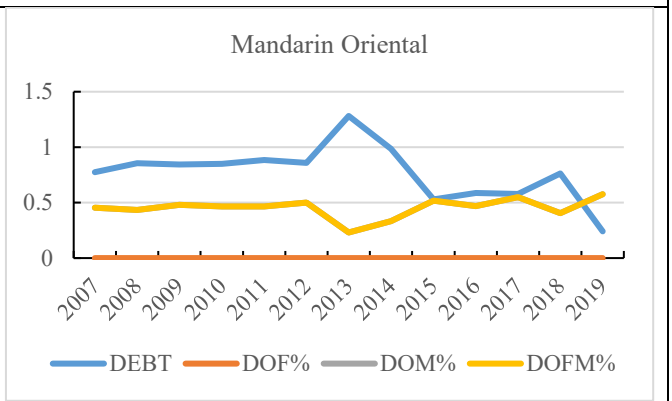
4. Estimation results and findings

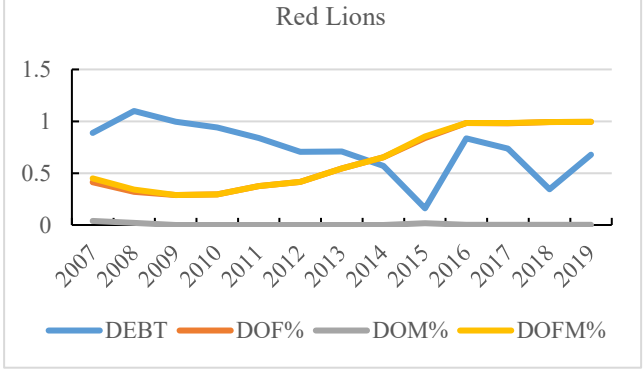
4.1 Hypothesis testing

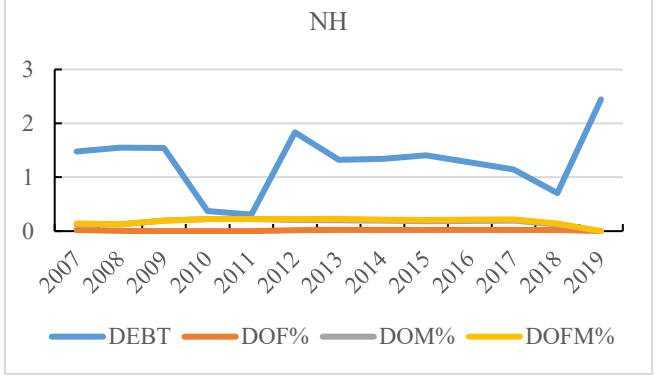
Table 2 shows the descriptive statistics for the raw data. The average of DOF and DOM is 29.6% (max 99.4%) and 21.6% (max 76.8%) respectively, indicating that franchising appears more popular than HMC as a hotel asset-light strategy. The mean debt-to-equity ratio (or 'DEBT') shows that debt is 16.822 times higher than equity and with high standard deviation (223.31). This confirms that debt still constitutes the major financing source in the hotel industry (Zhang et al., 2020; Guilding & Ji, 2022). The mean value of total assets ('SIZE') is USD5,283.965 million. In terms of the advertising expense ('AD'), it takes 8.5% of a hotel's total assets. Furthermore, the average age of the hotels is 52.5 years ranging from 11 to 110 years. The mean book-to-market value ('BVM') is negative 0.869 times, as the result of some negative shareholders' equity. Lastly, Tobin's Q ('TQ') averages 1.005, which is similar to Moon and Sharma's finding (2014) of 1.01. Furthermore, Chart 1 illustrates two relationships between the sample hotel groups' changing financial leverage ('DEBT'), degree of franchise ('DOF'), degree of management contracts ('DOM') and degree of overall asset-light strategies ('DOFM'). The first is a negative relationship, that is, as DOFM decreases, DEBT increases which confirms Roh et al. (2013). Typical examples are Mandarin Oriental and Hyatt. The rest shows no clear relationship between DOFM and DEBT.

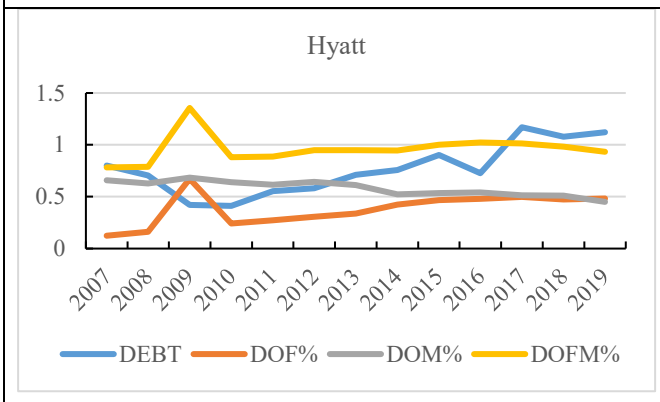
Negative relationship between financial leverage ('DEBT') and asset-light strategies ('DOFM%')

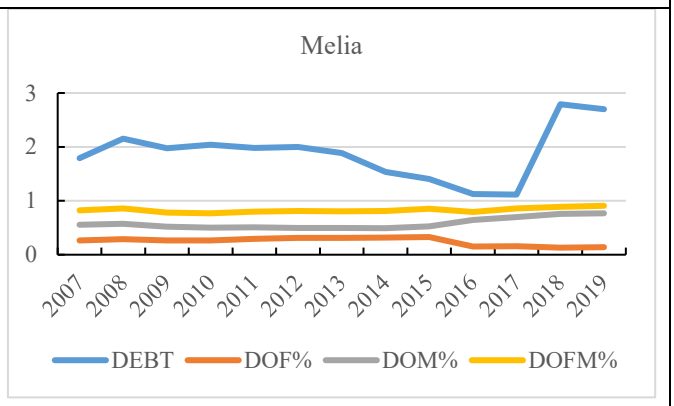


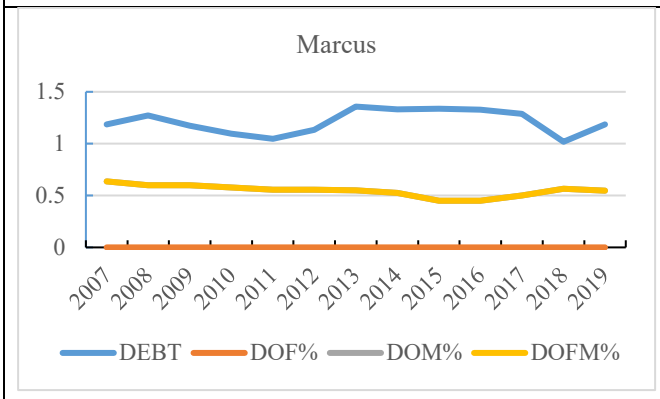


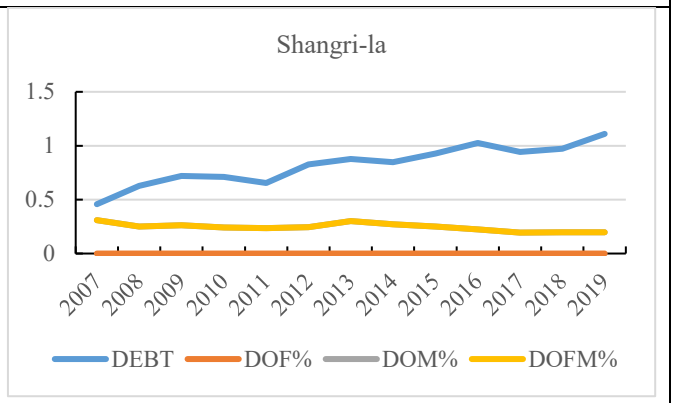




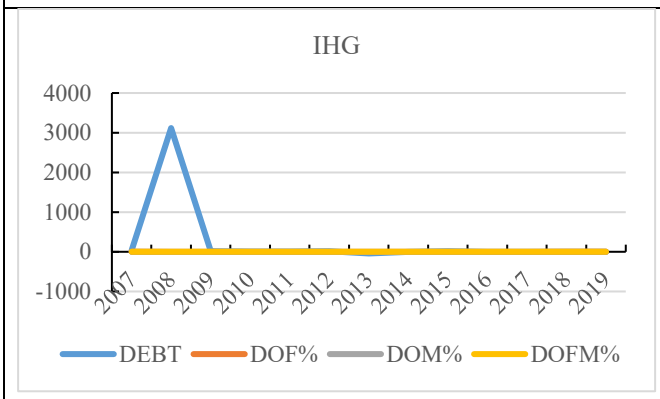


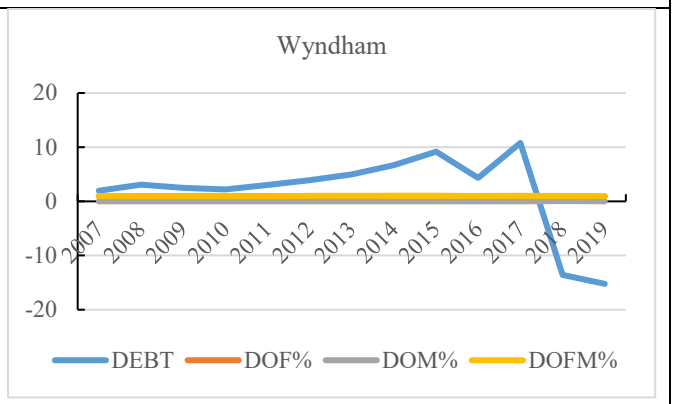






No relationship between financial leverage (‘DEBT’) and asset-light strategies (‘DOFM%’)





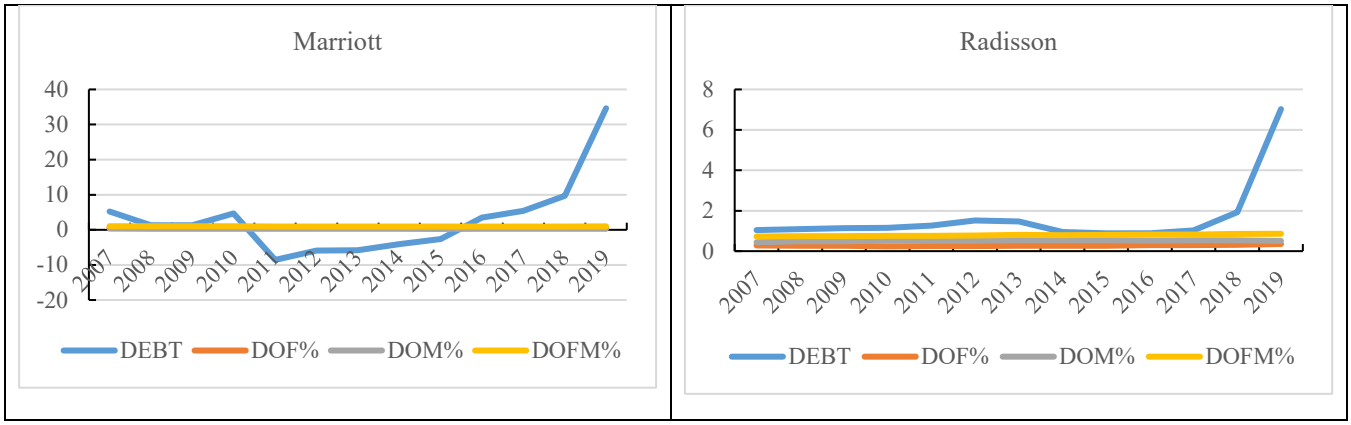


Chart 1. Descriptive relationship between leverage and asset-light strategies.

Table 3 shows Pearson correlations among variables, with the majority of the correlations around 0.5 and below the cut-off point of 0.7. To a great extent, these results are consistent with previous studies using similar variables (Chen, 2015; Li & Singal, 2019; Sohn et al., 2014). Further, the study analyzed VIF (Table 2) with the average score being 1.62, confirming there are no multi-collinearity issues. However, structural multicollinearity does exist between DOF and DOF^2 and between DOM and DOM^2, i.e., between a variable and its quadratic term. Ganzach (1997) suggested that the quadratic terms still be included provided that the relationships are supported by theories. Similarly, Lubinski and Humphreys (1990) warned that failing to include quadratic terms as theories suggested may lead to a Type I error. Furthermore, the nonlinear model is less affected by multicollinearity than the linear one. When it has an effect, multicollinearity only affects the significance of the variables that are correlated with each other, but does not change the goodness of model fit. We tested for the endogeneity of suspect independent variables using a Hausman test. Taking DOF and DOM as instrumental variables with a one-period lag, the *p* values of the Hausman test is 0.100 and 0.143, indicating that there is no endogeneity.

Variables	Obs	Mean	Std. Dev.	Min	Max	VIF
DOF	195	.296	.343	0	.994	1.38
DOM	195	.216	.222	0	.768	1.79
DEBT	195	16.822	223.306	-59.98	3117	1.22

SIZE	195	5283.965	5072.791	10.531	25051	1.39
AD	195	.085	.179	.005	1.025	1.64
AGE	195	52.533	24.445	11	110	2.12
BMV	195	.869	17.041	-203.8	59.624	1.80
TQ	195	1.005	1.255	-0.038	8.156	

Table 2. Descriptive statistics

	TQ	DOF	DOM	DEBT	SIZE	AD	AGE
DOF	.003						
DOM	-.285***	-.061					
DEBT	-.176**	.042	.041				
SIZE	.069	.225***	-.072	.089			
AD	.786***	-.101	-.229***	-.237***	-.213***		
AGE	.206***	.241***	.456***	-.089	-.330***	.238***	
BMV	-.428***	.151**	.136*	.396***	.368***	-.598***	-.181**

Table 3. Pearson correlation matrix. *** *p<.01,* ** *p<.05,* * *p<.1*

We used ordinary least square (OLS), robustness regression and stepwise regression to analyze the data. Robust regression is advanced from OLS. It removes outliers in datasets and provides better regression coefficient estimates (Mehmood et al., 2022). Stepwise regression is the step-by-step iterative construction of a regression model that involves the selection of independent variables to be used in a final model (Mehmood et al., 2023). All regression results are consistent, with Table 4 showing the results of OLS and robustness, and Appendix 1 the stepwise regression. Using the OLS results to present the findings, it is confirmed that the impact of DOF on Tobin's Q is in an inverted U-shape (coefficient = -4.753, $p < .01$). Hypothesis 1 is supported and this finding is also consistent with existing research (e.g. Hsu & Jang, 2009). The optimal DOF is calculated as 55% of total properties which is the same as Moon and Sharma (2014). Furthermore, as Figure 1 shows, the inverted U shape is asymmetrical, not symmetrical as assumed by existing studies. It is observed that with no franchising Tobin's Q is about 0.1; as

DOF rises, it increases to, over 1, and falls to -0.25 at 100% franchising. This suggests 100% franchising generate additional agency costs although these costs may have emerged before that.

As Table 4 shows, the impact of HMCs on Tobin's Q is U-shaped and significant (coefficient = 4.936, $p < .01$), hence supporting Hypothesis 2. The optimal DOF is calculated as 44%. This U-shape appears to have relatively low convexity (in Figure 2) but this is because the maximum DOM in the dataset is 76.8%. Furthermore, compared with franchising, HMC exerts a wider range of firm value (from 0.8 to 2), although such value can be more volatile.

Financial leverage is found to be significant in moderating and weakening the effects of asset-light strategies on firm value (Table 4), with DOF^2 (coefficient = 2.646, $p < .01$) and DOM^2 (coefficient = -2.262, $p < .01$). As displayed in Figure 3 and 4, in the case of low financial leverage, the impacts of inverted U-shape for franchising and U-shape for HMCs are both sustained. In the case of high financial leverage, both shapes are flipped. Negative firm values (from 0 to -4) are caused by DOF but positive firm values (from 0~3) by DOM. This suggests that as financial leverage increases, the associated costs overtake the associated benefits to franchising; and the opposite for HMC. More considerations are included in the Discussions.

Model 1	OLS			Robust regression		
	Coef.	St.Err.	t-value	Coef.	St.Err.	t-value
DOF	4.327	1.005	4.31***	4.327	.911	4.75***
DOF^2	-4.753	1.021	-4.66***	-4.753	.896	-5.30***
DOM	-4.33	1.184	-3.66***	-4.33	.844	-5.13***
DOM^2	4.936	1.768	2.79***	4.936	1.551	3.18***
DOF × DEBT	-2.669	.919	-2.90***	-2.669	.802	-3.33***
DOM × DEBT	2.985	1.047	2.85***	2.985	.939	3.18***
DOM^2 × DEBT	-4.262	1.51	-2.82***	-4.262	1.532	-2.78***
DOF^2 × DEBT	2.646	.913	2.90***	2.646	.793	3.33***
DEBT	.01	.011	0.91	.01	.006	1.75*
SIZE	0	0	7.08***	0	0	6.28***
AD	5.764	.436	13.23***	5.764	1.089	5.29***

AGE	.004	.003	1.47	.004	.003	1.34
BMV	-.022	.018	-1.28	-.022	.028	-0.79
Constant	.122	.133	0.91	.122	.135	0.90
Mean dependent var			0.914			0.914
R-squared			0.743			0.743
F-test			37.964			19.287
Akaike crit. (AIC)			314.819			314.819
SD dependent var			1.038			1.038
Number of obs			185			185
Prob > F			0.000			0.000
Bayesian crit. (BIC)			359.904			359.904

Table 4. Interactive effects of financial leverage with DOF and DOM on Tobin's Q. *** *p<.01,* ** *p<.05,* * *p<.1*

4.2 Robustness test

This study examined the robustness of the empirical results with quantile regression (Table 5). The findings are consistent with OLS and others used in the study, confirming the respective significant impacts of DOM^2 and DOF^2 on Tobin's Q as well as the moderating effects of financial leverage. The difference is that in the quantile regression almost all the control variables become significant compared with other regression analysis methods. This may be caused by using individual medians for each quantile instead of the minimum, maximum and mean used in OLS (Abbas, Ahmad-Zaluki & Mehmood, 2023; Wei, Mohd-Rashid & Mehmood, 2021).

	50^{th} Quantile		75^{th} Quantile		90^{th} Quantile	
Variable	Coefficient	Prob	Coefficient	Prob	Coefficient	Prob
DOF	2.13847	0.00003***	2.23452	0.0000***	1.90923	0.0000***
	4.02007		4.33418		6.52060	
DOF^2	-4.48054	0.0000***	-5.07051	0.0000***	-6.98902	0.0000***
	-2.19165		-2.51459		-1.89437	
DEBT×DOF	-2.30174	0.0111**	-3.14822	0.00009***	-4.52274	0.0000***
	-0.93805		-1.77329		-0.27080	
$DEBT×DOF^2$	0.95725	0.0120**	1.71358	0.0001***	0.26442	0.0000***

	2.27544		3.06756		4.43598	
DOM	-4.12536	0.00007***	-6.90136	0.0000***	-7.86764	0.0000***
	-2.71688		-3.40299		-2.22365	
DOM^2	3.17606	0.0013***	3.34631	0.0000***	0.57598	0.0001***
	5.11547		8.75057		9.49023	
DEBT×DOM	1.29782	0.0093***	2.11902	0.00002***	-0.15476	0.0000***
	2.66341		3.73191		5.40210	
$DEBT×DOM^2$	-3.45154	0.0027***	-5.34167	0.0000***	-6.70105	0.0000***
	-1.74965		-2.76709		-0.12125	
DEBT	-0.07127	0.0927•	-0.08853	0.00896***	-0.06013	0.0043**
	0.01446		0.04338		0.02385	
SIZE	0.00005	0.0000***	0.00008	0.0000***	0.00006	0.0000***
	0.00010		0.00010		0.00015	
AD	5.01067	0.0000***	5.53807	0.0000***	5.20914	0.0000***
	7.21085		7.97027		9.60748	
AGE	-0.01048	0.3243	-0.00283	0.0000***	-0.00765	0.0005***
	0.00792		0.02014		0.02643	
BMV	-0.00976	0.0019**	-0.02356	0.00336**	-0.17430	0.0296**
	0.02205		0.01671		0.00178	

Table 5. Quantile regression. *** *p<.01,* ** *p<.05,* * *p<.1*

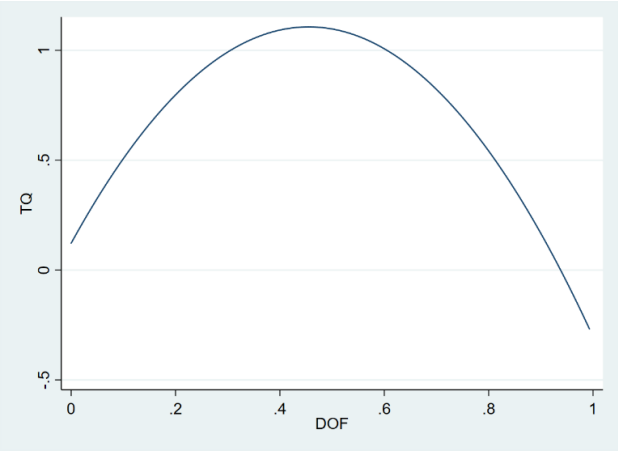


Figure 1. The direct impacts of DOF on Tobin's Q

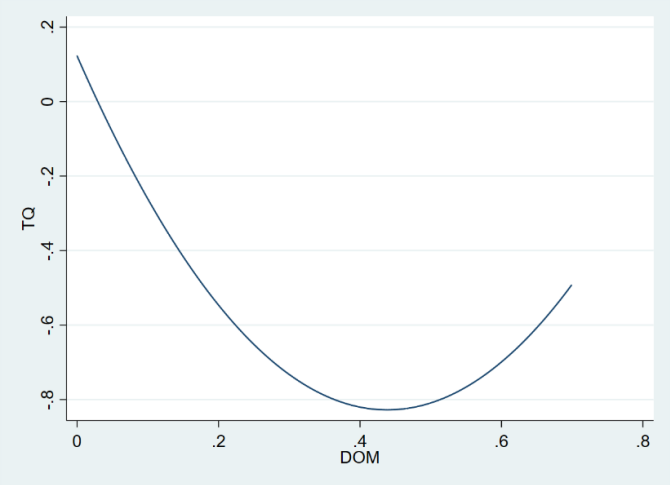


Figure 2. The direct impacts of DOM on Tobin's Q

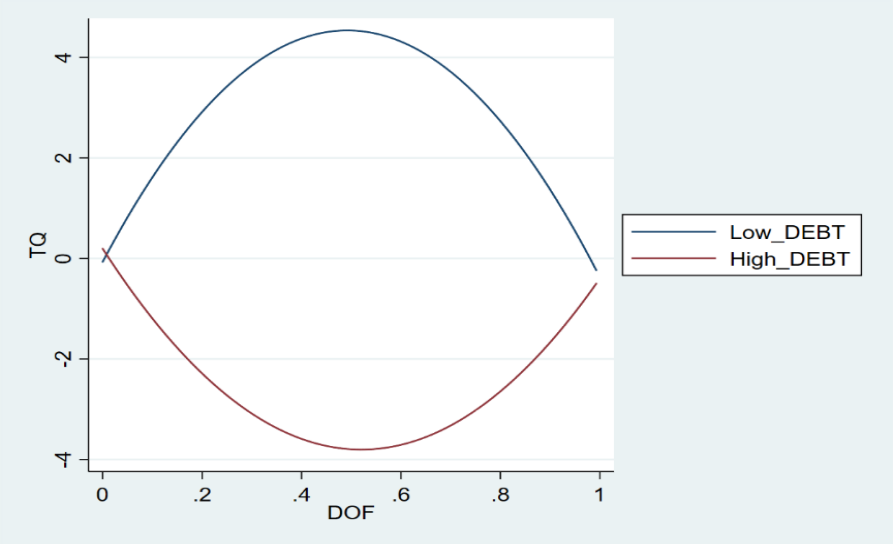


Figure 3. Moderation effects of leverage with DOF on Tobin's Q

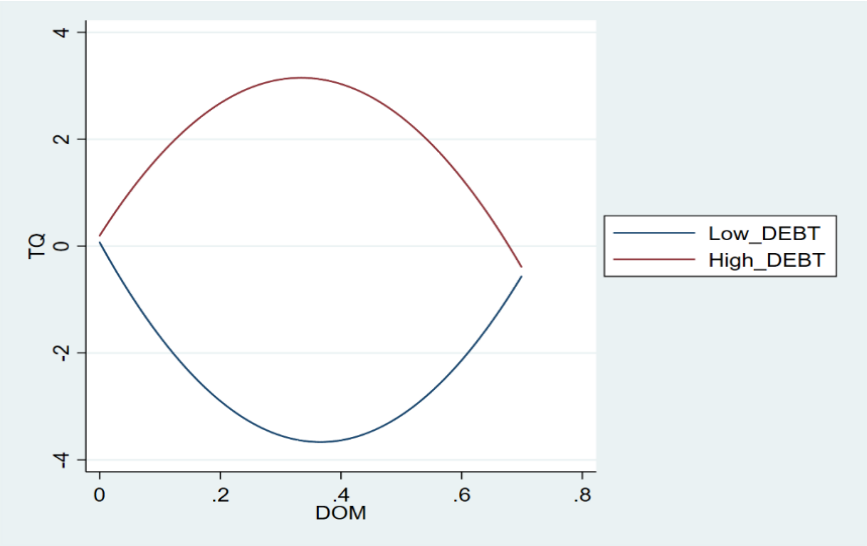


Figure 4. Moderation effects of leverage with DOM on Tobin's Q

4.3 Tobin's Q versus ROA and ROE

As ROA and ROE frequently appear to measure profitability and efficiency, this study also examines the impacts of asset-light strategies on them in addition to Tobin's Q. ROA measures a company's ability to turn assets into profits by comparing net profit with total investments while ROE measures a company's return on its investment by owners (Guilding & Ji, 2022). Table 5 shows that the impacts of the asset-light strategies all become insignificant. Several differences merit attention. Firstly, although the positive impacts of asset-light strategies on ROE and ROA are well-known, they are mostly referred to the restaurant context (Hsu & Jang, 2009; Koh et al., 2018; Sohn, Tang & Jang, 2013; Sun & Lee, 2019). As hotels' capital investment in asset-light strategies are more significant than restaurants', it appears invalid to make comparisons (Roh et al., 2013). Moon and Sharma (2014) are among the few applying ROA and ROE to the hotel context but their study did not find a relationship for HMCs. Secondly, ROA and ROE are both accounting measures and establish profitability from historical cost, replacement cost or current market value prices (Moon & Sharma, 2014). They do not capture the value of intangible assets such as brand image, employee skills, customer loyalty, and effective distribution networks. However, these unmeasured factors are precisely those that hotels are motivated to access through asset-light strategies. As these values are better captured by Tobin's Q, it serves as a more pertinent measure of profitability than ROA and ROE in the analysis of asset-light strategies.

	ROA			ROE		
	Coef.	St.Err.	t-value	Coef.	St.Err.	t-value
DOF	-10.358	10.151	-1.02	-17.125	17.312	-0.99
DOF^2	15.43	15.042	1.03	25.397	25.652	0.99
DOM	11.823	11.523	1.03	19.786	19.653	1.01
DOM^2	-16.277	15.88	-1.02	-25.817	27.076	-0.95

DOF × DEBT	3.854	4.141	0.93	5.793	7.065	0.82
DOM × DEBT	-4.256	4.589	-0.93	-5.917	7.834	-0.76
DOM^2 × DEBT	-3.858	4.139	-0.93	-5.843	7.061	-0.83
DOF^2 × DEBT	5.346	5.79	0.92	6.61	9.915	0.67
DEBT	.012	.032	0.39	.132	.052	2.55**
SIZE	3.9	3.653	1.07	5.946	6.238	0.95
AD	-.026	.026	-1.00	-.042	.044	-0.94
AGE	-.026	.033	-0.79	-.053	.059	-0.89
Constant	0	0	0.95	0	0	1.09
Mean dependent var	-0.247			-0.488		
R-squared	0.069			0.077		
F-test	0.147			4.549		
Akaike crit. (AIC)	1073.664			1273.942		
SD dependent var	4.119			7.064		
Number of obs	187			187		
Prob > F	1.000			0.000		
Bayesian crit. (BIC)	1118.900			1319.178		

Table 6. Interactive effects of financial leverage with asset-light strategies on ROA and ROE. *** *p<.01,* ** *p<.05,* * *p<.1*

Discussion

The purpose of the present research is to assess how financial leverage (high or low long-term debt) interacts with HMCs and franchising to exert an impact on the value of hotel firms. As the findings are established based on a differentiation of franchising and HMCs, both an inverted U-shape and a U-shape are identified. This finding refines the existing research that generally recognizes an inverted U-shaped financial impact of asset-light strategies as a result of treating HMCs the same as franchising. The second contribution is related to the finding of the negative interactive effects of debt on asset-light strategies in which a high debt level can flip a U-shape compared with a low debt condition. The third contribution is that these U-shapes are revealed as

asymmetrical when there is no interaction of financial leverage. This overall raises questions about the assumptions behind agency theory and agency costs. Details are as follows.

Firstly, the impacts of HMCs and franchise arrangements on firm values differ, as revealed by the present study, being U-shaped and inverted U-shaped respectively. This suggests that different propositions of agency costs should be applied to each case. The 'agency costs' under Agency Theory were rooted in the risk-sharing problem that arises when cooperating parties have different attitudes towards risks (Eisenhardt, 1989). There are two main agency problems: (a) the conflicting desire or goals of the principal and the agent, and the difficulty or expense of verifying the agent's behavior; (b) different attitudes of the principal and the agent towards risks, leading to different actions or decisions. As HMCs and franchising arrangements involve external parties, both HMCs and franchising are exposed to conflicting goals but for HMCs, the primary agency problem is associated with monitoring the behavior of the agents, that is, whether the hotel operators behave in compliance with the agreement, but the maintenance of brand value and service quality is not a concern. On the other hand, in franchising, the core of the agency problem is to ensure the maintenance of brand value and service standards by the franchisees but the specific behavior of the franchisees is not a concern.

Furthermore, in contrast to franchising, as HMCs open up opportunities through detailed contractual clauses for information sharing, both parties are more involved with each other. Thus while behavior is more exposed to the scrutiny of the other, this consumes more monitoring resources on both sides than with franchising. On the other hand, as such an information sharing mechanism does not apply to franchising, monitoring costs under franchise arrangements are relatively smaller but such arrangements offer few channels to monitor or investigate the franchised unit. In addition, the flat fee structure associated with franchising is outcome-based and itself can serve as a mechanism to minimize the agency costs (Combs & Ketchen, 1999). In

contrast, as the hotel operator under a HMC is committed to day-to-day operations, their goals and interests are more likely to diverge from those of the owner.

As observed from the findings of this study, the different nature of the agency problems affects agency costs, consequently bringing distinctive financial impacts for HMCs and franchising with different degrees of adopting an asset-light strategy. That is, the agency costs for an HMC are highest at the *beginning* of adopting the strategy and declines as management experience grows. For franchising the agency costs is low at the *start* but grows and eventually outweighs the value created. Furthermore, this study shows that the firm value created by HMCs is on a higher and wider range than that of franchising. On the one hand, this accords with the argument that HMCs have a more complex agency problem and incur higher agency costs and hence higher returns. On the other hand, the firm value created by HMCs is more volatile than with franchising.

Secondly, the present study is the first to assess how the impact of asset-light strategies on firm values is moderated by financial leverage. It advances the existing hotel management research that only confirms the negative impacts of debt on profitability, in isolation from the impacts of asset light strategies (Dalbor & Upneja, 2004; Friend & Lang, 1988; Kester, 1986; Tang & Jang, 2007). As discussed earlier, this study finds that in the case of no classification of debt levels, DOF shows an inverted U-shaped impact and DOM a U-shaped impact on firm value. However once low and high debt interaction is introduced, the firm value created by asset-light strategies becomes differentiated. In the case of DOF and low debt, the impact of DOF is in line with no such interaction but firm value created is higher (0.25~1 versus 0~4). When debt is high, the negative impacts of debt appear to dominate. It suggests at a low debt level, the benefits of debt dominate and contribute to creating higher firm value; at a high debt level, the costs of debt dominate and contribute to creating lower firm value. In contrast, an opposite finding is observed for DOM. At a low debt level, the impact of DOM is in line with no interaction of debts but firm

value created is lower (-8~2 versus -3.5~0). When financial leverage is high, the positive impacts of debt appear to dominate. It suggests at a low debt level, the cost of debt dominates and contributes to creating lower firm value; at a high debt level, the benefits of debt dominate and contribute to creating higher firm value.

The above variations overall suggest that as debt grows, it brings additional costs to DOF's impacts but additional benefits to DOM's. Such interaction with DOF is congruent with the existing research that confirms a negative impact of high financial leverage (details in the literature review) with financial distress overtaking financial benefits (e.g. Fama & French, 1998; Wald, 1999). The latter, the interaction with DOM however is consistent with the positive impacts of high financial leverage (details in the literature review). As the management hotels under HMCs actually operate the hotels and as they borrow more to finance the operation, the management are more likely to take on the positive impacts such as avoidance the problem of free cash flow and an increase in their risk averse for investment decision makings (Li & Singal, 2019; Sheikh & Wang, 2013; Tang & Jang, 2007).

Thirdly, the present study highlights the asymmetrical feature of the U-shaped relations, clarifying the existing assumption of a symmetrical pattern (e.g. Hsu & Jang, 2009; Moon & Sharma, 2014). As observed from the findings, the firm value created by 100% franchising is lower (negative in this case) than no franchising. This suggests that the agency costs do not grow in proportion to the asset-light strategies; rather they either accelerate or erupt after a certain proportion of the asset-light strategies. This study unfortunately does not present an opportunity to verify these important questions and we await future research on them. Furthermore, as the interaction of debt is introduced, the impact of the asset-light strategies becomes smoothed and becomes closer to asymmetrical relationship.

4. Conclusion

This study examines the moderating effect of financial leverage with asset-light strategy on firm value. While the impacts of financial leverage and an asset-light strategy are individually widely researched, this study builds on the fact that debt co-exists with asset-light strategies and brings novelty in assessing the moderating effect of debt with an asset-light strategy. The findings differentiate the U-shaped impacts, with HMCs being U-shaped and franchising having an inverted U-shape. Hence, this adds clarity to the existing U-shaped assertion of asset-light strategies that treat HMCs and franchises the same. Through visual representation, the asymmetrical nature of these U-shapes is revealed. Furthermore, inclusion of the moderation of financial leverage has shown there is a negative impact on asset-light strategies. It hence reinforces the importance and relevance of assessing asset-light strategies with the presence of debts.

While the theoretical contributions are included in the Discussion, the findings of this study support hotel management with renewed insight into firm valuation after they use asset-light strategies. Firstly, hotel management should be aware that HMCs create higher firm value than franchising. Furthermore, with no debt interaction, the impacts of the asset-light strategies on firm values are different, being inverted U-shaped for franchising and U-shaped for HMCs, with optimal proportion of 55% and 44% respectively. Secondly, debt levels moderate the impact of the asset-light strategies significantly. While debt in general weakens the impact, as a hotel firm borrows more, the negative impacts of debt can wipe out the value created by franchising. On the opposite, the positive impacts of debt can be taken on board by HMCs. Thirdly, the management should watch the changing debt leverage as it could alter firm value as debt moves in either direction.

A limitation of this research is that the data on asset-light strategies are not always disclosed. Another limitation is that the firm value created is solely assumed to be drawn from the asset-light strategies but it could be accompanied by a hotel firm’s existing businesses.

Furthermore, this study does not distinguish different brands under the same group (such as economic versus luxury) and potentially brand categories may generate varied firm value even when the same asset-light strategies are used. While future studies can improve these limitations, they can also examine the disproportionate agency costs behavior that have occurred as debt increases. Nonetheless, the thoughts provoked by this study highlight a range of critical issues and open new directions for the currently saturated research on asset-light strategies.

References

Abbas, Y. A., Ahmad-Zaluki, N. A., & Mehmood, W. (2023). Community and environment disclosures and IPO long-run share price performance. *Journal of Financial Reporting and Accounting*. DOI 10.1108/JFRA-07-2022-0244

Andrew, W.P., Damiatio, J.W., Schmidgall, R.S. (2006). Financial Management for the Hospitality Industry. New Jersey: Pearson Education.

Aissa, S. B., & Goaied, M. (2016). Determinants of Tunisian hotel profitability. *Tourism Management*, *52*, 478-487.

Assaf, A. G., Josiassen, A., Mattila, A. S., & Cvelbar, L. K. (2015). Does advertising spending improve sales performance? *International Journal of Hospitality Management*, *48*, 161-166.

Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance*, *56*(1), 87-130.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*(1), 57-74.

Carpentier, C., & Collins, S. (2022). Hotel Franchising in Europe – The Push Continues for New Ways to Expand. Retrieved February 2022 on https://www.hvs.com/article/9474-hotel-franchising-in-europe-the-push-continues-for-new-ways-to-expand

Chen, M.-H. (2015). Cyclical effects of advertising on hotel sales, risk and return. *International Journal of Hospitality Management, 46*, 169-179.

Chen, N. f., & Zhang, F. (1998). Risk and return of value stocks. *The Journal of Business*, *71*(4), 501-535.

Chung, K. H., & Pruitt, S. W. (1994). A Simple Approximation of Tobin's q. *Financial Management*, *23*(3), 70-74.

Collins, S., & Perret, S. (2015). Decisions, Decisions... Which Hotel Operating Model is Right for You? HVS. Retrieved April 2022 from https://hvs.com/StaticContent/3672.pdf.

Collins, S., & Perret, S. (2019). Hotel Franchising in Europe 2019 – The Push Continues for New Ways to Expand. Retrieved April 2022 from https://www.hvs.com/article/8505-hotel-franchising-in-europe-2019-the-push-continues-for-new-ways-to-expand.

Combs, J. G., & Ketchen, Jr, D. J. (1999). Explaining interfirm cooperation and performance: toward a reconciliation of predictions from the resource-based view and organizational economics. *Strategic Management Journal*, *20*(9), 867-888.

Dalbor, M. C., & Upneja, A. (2004). The investment opportunity set and the long-term debt decision of US lodging firms. *Journal of Hospitality & Tourism Research*, *28*(3), 346-355.

deRoos, J. A. (2010). Hotel management contracts—Past and present. *Cornell Hospitality Quarterly*, *51*(1), 68-80.

Dev, C. S., Erramilli, M. K., & Agarwal, S. (2002). Brands across borders: Determining factors in choosing franchising or management contracts for entering international markets. *Cornell Hotel and Restaurant Administration Quarterly*, *43*(6), 91-104.

Erramilli, M. K., Agarwal, S., & Dev, C. S. (2002). Choice between non-equity entry modes. *Journal of International Business Studies*, *33*(2), 223-242.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3-56.

Fama, E. F., & French, K. R. (1998). Value versus growth: The international evidence. *The Journal of Finance*, *53*(6), 1975-1999.

Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: which factors are reliably important? *Financial Management, 38*(1), 1-37.

Friend, I., & Lang, L. H. (1988). An empirical test of the impact of managerial self-interest on corporate capital structure. *The Journal of Finance*, *43*(2), 271-281.

Ganzach, Yoav. (1997). Misleading Interaction and Curvilinear Terms. *Psychological Methods, 2*, 235-247.

Golubov, A., & Konstantinidi, T. (2019). Where is the risk in value? Evidence from a market-to-book decomposition. *The Journal of Finance, 74*(6), 3135-3186.

Gonzalez-Diaz, M., & Solis-Rodriguez, V. (2012). Why do entrepreneurs use franchising as a financial tool? An agency explanation. *Journal of Business Venturing*, *27*(3), 325-341.

Graham, J. R. (2000). How big are the tax benefits of debt? *The Journal of Finance*, *55*(5), 1901-1941.

Griffin, J. M., & Lemmon, M. L. (2002). Book-to-market equity, distress risk, and stock returns. *The Journal of Finance*, 57(5), 2317-2336.

Guilding, C., & Ji, M. (2022). Accounting essentials for hospitality managers (4th ed.). UK: Routledge.

Hausman, J.A. (1978). Specification tests in econometrics. *Econometrica, 46*(6)*,* 1251–1271.

Hitt, M. A., Ireland, R. D., Camp, S. M., Sexton, D. L., Sorenson, O., & Sørensen, J. B. (2001). Finding the right mix: franchising, organizational learning, and chain performance Research Note. *Strategic Management Journal*, *22*(6-7), 713-724.

Hsu, L.-T. J., & Jang, S. S. (2009). Effects of restaurant franchising: does an optimal franchise proportion exist? *International Journal of Hospitality Management*, *28*(2), 204-211.

Hua, N., & Dalbor, M. C. (2013). Evidence of franchising on outperformance in the restaurant industry. *International Journal of Contemporary Hospitality Management*, *25*(5), 723-739

Kester, W. C. (1986). Capital and ownership structure: A comparison of United States and Japanese manufacturing corporations. *Financial management*, *15*(1), 5-16.

Kim, J., Jun, J., & Tang, L. R. (2019). How well does advertising work on restaurant performance? A dynamic and quadratic approach. *International Journal of Hospitality Management*, *81*, 11-20.

Koh, Y., Lee, S., & Boo, S. (2009). Does franchising help restaurant firm value? *International Journal of Hospitality Management*, *28*(2), 289-296.

Koh, Y., Rhou, Y., Lee, S., & Singal, M. (2018). Does franchising alleviate restaurants' vulnerability to economic conditions? *Journal of Hospitality & Tourism Research*, *42*(4), 627-648.

Leffet, C. (2022). Mergers & Acquisitions, last access 31 July 2023, retrieved from https://www.hvs.com/article/9252-Mergers-Acquisitions

Lubinski, D. and Humphreys, L.G., 1990. Assessing spurious "moderator effects": Illustrated substantively with the hypothesized ("synergistic") relation between spatial and mathematical ability. *Psychological Bulletin*, *107*(3), 385-393.

Leibowitz, M. L., & Kogelman, S. (1991). The franchise factor for leveraged firms. *Financial Analysts Journal*, *47*(6), 29-43.

Lemmon, M. L., & Zender, J. F. (2010). Debt capacity and tests of capital structure theories. *Journal of Financial and Quantitative Analysis*, *45*(5), 1161-1187.

Li, Y., & Singal, M. (2019). Capital structure in the hospitality industry: The role of the asset-light and fee-oriented strategy. *Tourism Management*, *70*, 124-133.

Li, H., Ji, H., Liu, H., Cai, D., & Gao, H. (2022). Is a picture worth a thousand words? Understanding the role of review photo sentiment and text-photo sentiment disparity using deep learning algorithms. *Tourism Management, 92*, 104559.

Lin, C.-S., & Huang, C.-P. (2011). Measuring competitive advantage with an asset-light valuation model. *African Journal of Business Management*, *5*(13), 5100-5108.

Margaritis, D., & Psillaki, M. (2007). Capital structure and firm efficiency. Journal of Business Finance & Accounting, *34*(9-10), 1447-1469.

Mehmood, W., Mohd-Rashid, R., & Ahmad, A. H. (2020). Impact of pricing mechanism on IPO oversubscription: evidence from Pakistan stock exchange. *Pacific Accounting Review*, *32*(2), 239-254.

Mehmood, W., Mohd-Rashid, R., Ahmad, A. H., & Amin, S. (2022). Sponsor ownership and IPO initial return: evidence from Pakistan stock exchange. *Pacific Accounting Review, 34*(1), 105-126.

Mehmood, W., Mohd-Rashid, R., Ahmad, A. H., & Tajuddin, A. H. (2023). IPO initial return in Pakistan: Influence of country-level institutional quality. *South Asian Journal of Business Studies, 12*(1), 1-24.

Moon, J., & Sharma, A. (2014). Franchising effects on the lodging industry: optimal franchising proportion in terms of profitability and intangible value. *Tourism Economics*, *20*(5), 1027-1045.

Norton, S. W. (1995). Is franchising a capital structure issue? *Journal of Corporate Finance*, *2*(1-2), 75-101.

Ong, C. Z., Mohd-Rashid, R., Mehmood, W., & Tajuddin, A. H. (2021). Does disclosure of earnings forecasts regulation affect the valuation of IPOs? Evidence from an emerging country. *Asian Review of Accounting, 29*(4), 558-578.

Öztekin, Ö. (2015). Capital structure decisions around the world: which factors are reliably important?. Journal of Financial and Quantitative Analysis, *50*(3), 301-323.

Park, K., & Jang, S. S. (2017). Is restaurant franchising capital a substitute for or a complement to debt? *International Journal of Hospitality Management*, *63*, 63-71.

Perret, S., Martin, C., & Balyozyan, D. (2017). An overview of hotel management contracts in Europe. Retrieved February 2023 on https://hvs.com/article/7993-hotel-management-contracts-in-europe.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? *The Journal of Finance*, *50*(5), 1421-1460.

Roh, Y. S. (2002). Size, growth rate and risk sharing as the determinants of propensity to franchise in chain restaurants. *International Journal of Hospitality Management*, *21*(1), 43-56.

Roh, E. Y., Tarasi, C. O., & Popa, E. M. (2013). An empirical examination of financial differences between franchised and non-franchised restaurant firms. *Journal of Foodservice Business Research*,*16*(1), 1-19.

Seo, K., & Soh, J. (2019). Asset-light business model: An examination of investment-cash flow sensitivities and return on invested capital. International *Journal of Hospitality Management*, *78*, 169-178.

Shapiro, S. P. (2005). Agency theory. *Annual Review of Sociology*, *31*, 263-284.

Sheikh, N. A., & Wang, Z. (2013). The impact of capital structure on performance: An empirical study of non-financial listed firms in Pakistan. *International Journal of Commerce and Management*, *23*(4), pp. 354-368

Singal, M. (2015). How is the hospitality and tourism industry different? An empirical test of some structural characteristics. *International Journal of Hospitality Management*, *47*, 116-119.

Sohn, J., Tang, C.-H. H., & Jang, S. S. (2014). Asymmetric impacts of the asset-light and fee-oriented strategy. *International Journal of Hospitality Management*, *40*, 100-108.

Sohn, J., Tang, C. H. H., & Jang, S. S. (2013). Does the asset-light and fee-oriented strategy create value? *International Journal of Hospitality Management*, *32*(1), 270-277.

Solis-Rodriguez, V., & Gonzalez-Diaz, M. (2012). How to design franchise contracts: The role of contractual hazards and experience. *Journal of Small Business Management, 50*(4), 652-677.

Sun, K.-A., & Lee, S. (2019). Competitive advantages of franchising firms and the moderating role of organizational characteristics: Evidence from the restaurant industry. *International Journal of Hospitality Management*, *77*, 281-289.

Tang, C. H. H., & Jang, S. S. (2007). Revisit to the determinants of capital structure: A comparison between lodging firms and software firms. *International Journal of Hospitality Management*, *26*(1), 175-187.

Turner, M. J., & Guilding, C. (2010). Hotel management contracts and deficiencies in owner-operator capital expenditure goal congruency. *Journal of Hospitality & Tourism Research*, *34*(4), 478-511.

Tsai, H., & Gu, Z. (2007). The relationship between institutional ownership and casino firm performance. *International Journal of Hospitality Management*, *26*(3), 517-530.

Yu, X. (2018). The Impact of Asset-Light Strategy on Companies' Profitability. *Journal of Advances in Economics and Finance*, *3*(2), 27-32.

Wald, J. K. (1999). How firm characteristics affect capital structure. *Journal of Financial Research*, *22*(2), 161-187.

Wei, H., Mohd-Rashid, R., Mehmood, W., & Tajuddin, A. H. (2022). Institutional quality and initial public offering underpricing: evidence from Hong Kong. *Journal of Public Affairs, 22*(4), e2676.

Zhang, F., Xiao, Q., Law, R., & Lee, S. (2020). Mergers and acquisitions in the hotel industry: A comprehensive review. *International Journal of Hospitality Management*, *91*, 102418.

Appendix 1. Stepwise regression

Linear regression 1

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	.017	.135	0.12	.902	-.25	.284	
DEBT	.003	.005	0.68	.499	-.006	.013	
SIZE	0	0	5.50	0	0	0	***
BMV	-.045	.024	-1.85	.066	-.094	.003	*
AD	5.706	.92	6.20	0	3.891	7.521	***
AGE	.003	.002	1.16	.247	-.002	.008	
Constant	.016	.15	0.10	.917	-.28	.311	

Mean dependent var	0.909	SD dependent var	1.034
R-squared	0.681	Number of obs	187
F-test	19.867	Prob > F	0.000
Akaike crit. (AIC)	342.383	Bayesian crit. (BIC)	365.001

*** $p<.01$, ** $p<.05$, * $p<.1$

Linear regression 2

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	-.163	.141	-1.16	.249	-.442	.115	
DOM	-.8	.208	-3.84	0	-1.211	-.389	***
DEBT	.004	.005	0.77	.444	-.006	.014	
SIZE	0	0	5.77	0	0	0	***
BMV	-.043	.023	-1.90	.06	-.088	.002	*
AD	5.23	.931	5.62	0	3.393	7.067	***
AGE	.008	.003	2.70	.008	.002	.014	***

Constant	-.007	.14	-0.05	.958	-.284	.269

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.698	Number of obs	185
F-test	22.389	Prob > F	0.000
Akaike crit. (AIC)	332.488	Bayesian crit. (BIC)	358.251

*** p<.01, ** p<.05, * p<.1

Linear regression 3

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	1.87	.44	4.25	0	1.002	2.738	***
DOM	-1.017	.207	-4.91	0	-1.425	-.608	***
DOF2	-2.287	.437	-5.24	0	-3.149	-1.426	***
DEBT	.005	.004	1.17	.244	-.004	.014	
SIZE	0	0	5.75	0	0	0	***
BMV	-.051	.022	-2.26	.025	-.095	-.006	**
AD	5.286	.931	5.68	0	3.449	7.123	***
AGE	.004	.003	1.43	.154	-.002	.011	
Constant	.14	.138	1.01	.314	-.133	.413	

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.724	Number of obs	185
F-test	25.200	Prob > F	0.000
Akaike crit. (AIC)	317.692	Bayesian crit. (BIC)	346.675

*** p<.01, ** p<.05, * p<.1

Linear regression 4

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	1.886	.434	4.35	0	1.03	2.742	***
DOM	-1.781	.564	-3.16	.002	-2.894	-.668	***
DOF2	-2.321	.431	-5.38	0	-3.171	-1.47	***
DOM2	1.256	.934	1.34	.181	-.588	3.1	

DEBT	.005	.004	1.17	.246	-.004	.014	
SIZE	0	0	6.42	0	0	0	***
BMV	-.052	.023	-2.31	.022	-.097	-.007	**
AD	5.19	.939	5.53	0	3.337	7.044	***
AGE	.005	.003	1.70	.091	-.001	.011	*
Constant	.14	.14	1.00	.317	-.136	.416	

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.726	Number of obs	185
F-test	31.336	Prob > F	0.000
Akaike crit. (AIC)	318.565	Bayesian crit. (BIC)	350.769

*** p<.01, ** p<.05, * p<.1

Linear regression 5

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	1.859	.436	4.27	0	1	2.719	***
DOM	-1.82	.568	-3.21	.002	-2.94	-.699	***
DOF2	-2.286	.434	-5.27	0	-3.142	-1.429	***
DOM2	1.315	.938	1.40	.163	-.537	3.167	
DOFxDEBT	-.011	.011	-1.06	.29	-.032	.01	
DEBT	.01	.006	1.79	.076	-.001	.022	*
SIZE	0	0	6.51	0	0	0	***
BMV	-.051	.023	-2.19	.03	-.096	-.005	**
AD	5.239	.955	5.49	0	3.354	7.125	***
AGE	.005	.003	1.76	.08	-.001	.011	*
Constant	.126	.136	0.93	.355	-.142	.395	

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.726	Number of obs	185
F-test	28.357	Prob > F	0.000
Akaike crit. (AIC)	320.112	Bayesian crit. (BIC)	355.536

*** p<.01, ** p<.05, * p<.1

Linear regression 6

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	1.845	.434	4.25	0	.989	2.702	***
DOM	-1.645	.605	-2.72	.007	-2.838	-.451	***
DOF2	-2.334	.445	-5.24	0	-3.213	-1.455	***
DOM2	1.258	.949	1.33	.187	-.615	3.132	
DOFxDEBT	.01	.017	0.57	.566	-.023	.042	
DOMxDEBT	-.154	.109	-1.41	.161	-.369	.062	
DEBT	.011	.006	1.93	.055	0	.023	*
SIZE	0	0	6.38	0	0	0	***
BMV	-.044	.022	-1.99	.048	-.087	0	**
AD	5.329	.968	5.50	0	3.418	7.239	***
AGE	.006	.003	1.83	.07	0	.012	*
Constant	.111	.14	0.80	.426	-.164	.387	

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.729	Number of obs	185
F-test	26.956	Prob > F	0.000
Akaike crit. (AIC)	320.413	Bayesian crit. (BIC)	359.057

**** p<.01, ** p<.05, * p<.1*

Linear regression 7

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	2.426	.633	3.84	0	1.178	3.675	***
DOM	-2.042	.575	-3.55	0	-3.176	-.908	***
DOF2	-2.941	.643	-4.57	0	-4.21	-1.672	***
DOM2	1.258	.935	1.34	.18	-.588	3.105	
DOFxDEBT	-.561	.372	-1.51	.133	-1.295	.173	
DOMxDEBT	.266	.299	0.89	.376	-.325	.856	
DOF2xDEBT	.583	.377	1.54	.124	-.162	1.328	
DEBT	.011	.006	1.93	.055	0	.023	*
SIZE	0	0	6.36	0	0	0	***

BMV	-.045	.022	-2.06	.041	-.089	-.002	**
AD	5.335	.971	5.50	0	3.42	7.251	***
AGE	.005	.003	1.66	.1	-.001	.011	*
Constant	.121	.139	0.87	.388	-.154	.396	

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.731	Number of obs	185
F-test	25.694	Prob > F	0.000
Akaike crit. (AIC)	321.243	Bayesian crit. (BIC)	363.107

*** p<.01, ** p<.05, * p<.1

Linear regression 8

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DOF	4.327	.911	4.75	0	2.528	6.126	***
DOM	-4.33	.844	-5.13	0	-5.996	-2.664	***
DOF2	-4.753	.896	-5.30	0	-6.522	-2.984	***
DOM2	4.936	1.551	3.18	.002	1.874	7.998	***
DOFxDEBT	-2.669	.802	-3.33	.001	-4.252	-1.086	***
DOMxDEBT	2.985	.939	3.18	.002	1.131	4.838	***
DOF2xDEBT	2.646	.793	3.33	.001	1.08	4.212	***
DOM2xDEBT	-4.262	1.532	-2.78	.006	-7.285	-1.238	***
DEBT	.01	.006	1.75	.083	-.001	.021	*
SIZE	0	0	6.28	0	0	0	***
BMV	-.022	.028	-0.79	.433	-.079	.034	
AD	5.764	1.089	5.29	0	3.615	7.913	***
AGE	.004	.003	1.34	.183	-.002	.01	
Constant	.122	.135	0.90	.369	-.145	.388	

Mean dependent var	0.914	SD dependent var	1.038
R-squared	0.743	Number of obs	185
F-test	19.287	Prob > F	0.000
Akaike crit. (AIC)	314.819	Bayesian crit. (BIC)	359.904

*** p<.01, ** p<.05, * p<.1

1