

Journal of Hospitality Financial Management

The Professional Refereed Journal of the International Association of Hospitality Financial Management Educators

Volume 27 | Issue 2

Article 3

2019

Intangible Assets Valuation in the Hospitality Industry

Ruixue Du

University of Wisconsin-Stevens Point

Yuan Li

James Madison University

Manisha Singal

Virginia Tech

Follow this and additional works at: <https://scholarworks.umass.edu/jhfm>

Recommended Citation

Du, Ruixue; Li, Yuan; and Singal, Manisha (2019) "Intangible Assets Valuation in the Hospitality Industry," *Journal of Hospitality Financial Management*. Vol. 27 : Iss. 2 , Article 3.

DOI: <https://doi.org/10.7275/dfz2-1093>

Available at: <https://scholarworks.umass.edu/jhfm/vol27/iss2/3>

This Refereed Article is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Journal of Hospitality Financial Management by an authorized editor of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

Intangible Assets Valuation in the Hospitality Industry

Ruixue Du

School of Business and Economics, University of Wisconsin-Stevens Point, Stevens Point, WI

Yuan Li

Hart School of Hospitality, Sport and Recreation Management, James Madison University, Harrisonburg, VA

Manisha Singal

Pamplin College of Business, Virginia Tech, Blacksburg, VA

ABSTRACT

In publicly traded firms, there is usually a discrepancy between the market value and the book value of the firm, often due to the valuation of intangible assets. Understanding this discrepancy is important for investors, especially in the service industries like hospitality, where there is considerable industry disruption and consolidation. In this study we examine the effect of four intangible asset investments—research and development (R&D), training, advertising, and pension—on the market premium of restaurant firms. Using a longitudinal sample of 1,421 firm-year observations, the results of our analyses show that R&D, training, advertising, and pension are all important valuation constructs in the hospitality industry, and their effects on market premium vary by restaurant type. This study fills the gap in the current literature by providing a quantitative method to value intangible assets in the hospitality industry. The practical implications of this study will provide managers in the hospitality industry with helpful insights for strategic decision making, specifically regarding R&D, advertising, and employee compensation.

Key words: Intangible Assets Valuation, Research and Development (R&D), Advertising, Employee Compensation, Hospitality Industry, Restaurants

Introduction

Market values and book values are rarely the same for publicly traded firms. In the accounting literature, this discrepancy is commonly attributed to the unrecognized intangible assets and the unrecognized appreciation of tangible assets. Since intangible assets are linked to the financial performance of a firm (Chen, Cheng, & Hwang, 2005; Gillis, 2003; Hua, Denizci, Mattila, & Upneja, 2007; Sriram, 2008), a number of studies have examined the sources and valuation techniques of intangible assets (Andreas, Annie, & Michael, 2007; Green, 2004; Green & Ryan, 2005; Kaplan & Norton, 1992; Kaplan & Norton, 1996; Melymuka, 2004). These studies generally focus on high technology related firms, where intangible assets constitute the vast majority of assets on the balance sheet (Andreas et

al., 2007; Green, 2004; Green & Ryan, 2005; Sriram, 2008). Limited research has examined the measurement and valuation of intangible assets in the restaurant industry, where the sources of intangible assets may be different (Andreas et al., 2007).

Unlike the tech-based industries, the restaurant industry is both labor and capital intensive (Singal, 2015). The restaurant industry employs a large percentage of low-skilled workers in operational areas such as customer service and back-of-house support. Compared with high-tech companies that do not require substantial tangible assets such as plant and equipment, restaurant firms are geographically distributed and must rely on physical assets such as real estate and buildings to conduct their business. In an industry where customers are always seeking novelty, restaurant firms strive to retain customers through loyalty building. Because of

CONTACT: Address correspondence to Ruixue Du, School of Business & Economics, CPS 412, University of Wisconsin-Stevens Point, Stevens Point, WI 54481, USA. Email: rdu@uwsp.edu.

© 2019 International Association of Hospitality Financial Management Education

high competition and low product/services differentiation (Singal, 2015), the survival and success of restaurant firms is increasingly dependent on intangible assets like customer loyalty and brand equity.

The dramatic increase in the intangible portion of a firm's total assets since the 1970s has further demonstrated the importance of intangible assets to modern corporations (Sullivan & Sullivan, 2000). While fixed assets accounted for 34.7% of a firm's total assets in 1975, the figure has dropped to 25.4% in 1995 and 19.7% in 2015 (Kahle & Stulz, 2017). In contrast, the proportion of corporate value accounted for by intangible assets has increased from roughly 20% in 1978 to 80% in 1998 (Sullivan & Sullivan, 2000). The significant change in the market value makeup has posed new challenges for investors, analysts, and managers alike as to how to properly measure and value intangible assets, especially in corporate events such as mergers and acquisitions (M&As) where the allocated price premium to goodwill and intangible assets often exceeds 70% (Sinclair & Keller, 2017).

In the restaurant industry, M&As have increased 86% from 2004 to 2016, comprising 1.1% of all M&A deals in the United States (Aaron Allen & Associates, 2017). Despite fluctuation, restaurant valuation—a ratio between equity value and earnings before interest, taxes, depreciation, and amortization (EBITDA)—has increased from over 8 times in 2007 to around 11 times in 2017 (Aaron Allen & Associates, 2017). As the market value of restaurant firms and the number of restaurant M&As continue to grow, more efforts are needed to better measure and value intangible assets to help managers, investors, and investment bankers with the pricing of M&A deals and to shed light on the creation and acquisition of valuable intangible assets in the restaurant industry. To that end, the purpose of this research is to identify the determinants of the discrepancy between market value and book value of firms in the restaurant industry, with an emphasis on the valuation of the intangible asset component of the discrepancy.

Literature review

Market premium of firms

According to the definition in the accounting literature, the difference between market value and

book value represents a firm's market premium on tangible assets plus the value of unrecognized intangible assets. Due to the rule of historical cost, some tangible assets are required to be valued at historical costs on balance sheets. Since the fair values of these assets may vary from their historical costs over time, their book value and market value may be different.

As for intangible assets, FASB requires that investments in them be expensed as incurred. That is, instead of capitalizing intangible asset investments and reporting them as investing cash outflows, they are expensed as incurred and reduce the current period operating cash flows (Kanodia, Sapa, & Venugopalan, 2004). Since operating cash flows are positively associated with firm value (Biddle, Bowen, & Wallace, 1997; Dechow, 1994; Moehrl, Reynolds-Moehrl, & Wallace, 2001), commingling intangible asset investments with other operating expenses may mislead financial analysts and investors by artificially reducing the true amount of operating cash flows (Kanodia et al., 2004; Lev, 2003; Wyatt & Abernethy, 2008). Consequently, even though the future benefits of intangible assets investments might completely offset the current cash outflows (Kanodia et al., 2004), some publicly traded firms, especially those that do not possess superior capabilities to generate operating cash flows, are reluctant to invest in intangible assets with current operating cash flows.

To describe the discrepancy between market value and book value of publicly traded firms, prior studies have used the market-to-book ratio, i.e., a ratio between the market value and the book value of the firm. A market-to-book value above 1 indicates that the market is willing to pay a premium for a firm's assets recorded on the balance sheet, whereas a market-to-book value less than 1 indicates that the market undervalues the worth of the firm's assets. Overall, the market premium of publicly traded firms has increased substantially in the past several decades. For example, the market-to-book ratio of S&P 500 firms has increased from 1.0 in early 1980s to 7.5 in early 2000s (Lev, 2001), whereas the market-to-book ratio of casual dining restaurants has increased from 2.65 in 1998 to 3.32 in 2001.

As discussed earlier, a portion of the market premium of publicly traded firms can be attributed to the value increase of tangible assets, such as

inventories, equipment, land, and buildings. Although the U.S. economy has gradually evolved from a manufacturing-based economy that relies largely on investments in physical assets for growth to a service-based economy that relies mainly on investments in intangible assets for expansion (Kwansa, Mayo, & Demirciftci, 2008), tangible assets remain highly relevant to restaurant firms because of their geographic distribution. Nevertheless, the effect of different types of tangible assets on market premium can vary.

In the restaurant industry, inventories are usually short-term in nature (Olsen, West, & Tse, 2008), and most inventory valuation methods have already incorporated market conditions in the valuation process. Therefore, inventories may not contribute much to market premium. In contrast, long-term assets like land and buildings usually make up a large portion of tangible assets in the restaurant industry (Williams, 2002), and their value is affected by changes in market conditions. Since land and buildings are valued at historical costs on the balance sheet and the reported values may not reflect their true value, it is possible that the appreciation in land and buildings has played a significant role in the increase in the market-to-book ratio in restaurant firms. To examine the potential positive relationship between appreciation in land and buildings and market premium of restaurant firms, we test the following hypothesis:

Hypothesis 1: All else being equal, there is a positive relationship between appreciation in land and buildings and market-to-book ratio in the restaurant industry.

Intangible assets of firms

There are two types of intangible assets: identifiable intangible assets and unidentifiable intangible assets (Cohen, 2005). Identifiable intangible assets include intellectual property (e.g., patents, copyrights, and trademarks) and financial assets (e.g., bonds and stocks held as investments), which can be separately measured and quantified and can exist independently of the business. Unidentifiable intangible assets, such as goodwill, human capital, and organizational capital, are intangible assets that cannot exist independently of the business. From a valuation

standpoint, identifiable intangible assets are easier to measure than unidentifiable intangible assets.

Unlike tangible assets, not all intangible assets are recognized on a firm's balance sheet. While some intangible assets are listed on a firm's balance sheet, others are not reported on any financial statements until certain transactions like M&As trigger their recognition (Cohen, 2005), and still others are expensed on a firm's income statement as incurred instead of being capitalized, even though they may create future value for the firm (Kwansa et al., 2008).

Because of the complexity associated with intangible assets, intangible asset valuation has drawn increasing attention from both industry practitioners and academic researchers. Specifically, researchers have proposed various dimensions to capture the value of intangible assets, among which human capital is the most commonly studied dimension (Bontis, 1996; Lev, 2001; Roos, Roos, Edvinsson, & Dragonetti, 1998; Stewart, 1997; Sullivan, 2000), followed by other dimensions such as relational capital (Bontis, 1996), innovation capital (Edvinsson & Malone, 1997; Lev, 2001), customer capital (Edvinsson & Malone, 1997; Kaplan & Norton, 1992; Stewart, 1997), and structural capital (Bontis, 1996; Roos et al., 1998; Stewart, 1997).

The importance of intangible assets can be inferred from the resource-based view of the firm (Barney, 1991) and the co-alignment theory introduced by Olsen, West, and Tse (1998). According to the resource-based view, regardless of industry, each individual firm possesses idiosyncratic resources that distinguish itself from its competitors, and the firm's most critical resources are intangible assets (Itami & Roehl, 1987), which are difficult to imitate by competitors and are useful for the firm to obtain sustainable competitive advantage. The co-alignment model, on the other hand, suggests that firms need to respond to external events in their environment with appropriate competitive strategies. The key to achieve sustainable competitive advantage is to align their core competencies, which are things they do well (Andriessen, Frijlink, van Gisbergen, & Blom, 1999; Hamel & Prahalad, 1994; Olsen et al., 1998; Prahalad & Hamel, 1990), with their proposed competitive strategies. While core competencies can be built upon intangible assets, they are intangible assets themselves and play an important role in the attainment of firm competitive advantage.

Intangible assets in the hospitality industry

Limited research has examined the measurement and valuation issues related to intangible assets in the hospitality industry (Hsu & Jang, 2008; Hua et al., 2007; Jerman & Kavcic, 2010; Jerman, Kavcic, & Kavcic, 2009; Kinnard, Worzala, & Swango, 2001; O'Neill & Belfrage, 2005). Of the existing studies, more attention has been given to hotels than to restaurants. Although a few studies have developed a comprehensive set of measurements for human capital- (Murphy, 2006) and organizational capital-related intangible assets (Lee, 2011) in the restaurant setting, they are conceptual in nature. To the best of our knowledge, no empirical research has been conducted to link the intangible assets measurements to the market value of restaurant firms. To that end, we fill the gap in the literature by quantifying the value of intangible assets in the restaurant industry.

In line with prior research (Andreas et al., 2007; Chauvin & Hirschey, 1993; Godfrey & Koh, 2001; Hall, 1999; Kaplan & Norton, 1996; Ke, Pham, & Fargher, 2004; Wyatt & Frick, 2010), we assess the value of intangible assets from four aspects: research and development (R&D), training, advertising, and pension. Although investments in each of these aspects may help create intangible value for a firm, these investments are not recognized as assets on a firm's balance sheet and instead, are expensed as incurred (Chauvin & Hirschey, 1993; Godfrey & Koh, 2001). The expensing treatment of intangible asset investments leads to the problem of unrecognized intangible assets on a firm's balance sheet, which ultimately contributes to the difference between a firm's market value and book value.

R&D activities are closely related to many of the attributes and dimensions of intangible assets, such as knowledge, expertise, employee competence, human capital, and innovation capital. For example, a firm needs to retain the right talent and possess the necessary knowledge to conduct R&D activities. On the one hand, both talent and knowledge are valuable intangible assets to the firm. On the other hand, R&D spending itself is an intangible asset. Successful R&D projects will create competitive advantages and create future value for a firm (Hall, 1999; Ke et al., 2004).

With the constant discovery of new edible ingredients as well as the continual inventions of new

cooking techniques and equipment, the purpose of food consumption has evolved from meeting basic survival needs to fitting a certain lifestyle (Sualakamala & Huffman, 2010). In order to obtain a competitive edge, restaurant firms have to constantly monitor the external environment to identify emerging trends in customer taste and devote efforts to creating new menu items to profit from these new trends. For example, in recent years there is a noticeable trend in customers' desire to consume healthy food and local ingredients (Berta, 2003; Chen, Chen, Legrand, & Sloan, 2009; DiPietro, Roseman, & Ashley, 2004). The capability to develop new menu items to meet the demand thus plays an important role in creating value for restaurant firms. Since R&D is at the heart of this capability, it is a critical factor to consider when measuring a firm's intangible assets. Therefore, the following hypothesis is proposed:

Hypothesis 2: All else being equal, there is a positive relationship between R&D spending and market-to-book ratio in the restaurant industry.

Training is another salient factor to consider. Training activities are directly linked to human capital-related intangible assets. Effective training can help a firm develop talents with the right skill sets to create competitive advantage and future value (Wyatt & Frick, 2010). Training is especially crucial in the service industries like the hospitality industry where products delivery requires extensive employee involvement. Furthermore, training contributes to customer satisfaction, which leads to customer retention and increased profitability (Chartrungruang, Turner, King, & Waryszak, 2006; Richardson, 2009). Since effective training improves service quality and firm performance, it itself is a critical intangible asset held by the firm. Given the labor-intensive nature of the restaurant industry, it is necessary to include training as a measure of intangible assets in the restaurant industry. Thus, the following hypothesis is proposed:

Hypothesis 3: All else being equal, there is a positive relationship between training spending and market-to-book ratio in the restaurant industry.

Existing research shows that advertising increases a firm's cash flow (Abdel-Khalik, 1975; Hirschey, 1982; Srivastava, Shervani, & Fahey, 1998) and generates intangible value in restaurant firms (Hsu & Jang, 2008; Hsu & Jang, 2009). Linked to a firm's customer, social, and organizational capital, advertising helps a firm to develop brand equity and enhance brand image (Hua et al., 2007). Since brand equity creates price premium and builds customer loyalty, it is one of the most important intangible assets to possess, especially in the highly competitive restaurant industry. To gain brand equity and market share, U.S. restaurant firms have increased advertising spending from \$5.72 billion in 2008 to \$6.46 billion in 2014 (Statista, 2018). Considering its economic significance and expected impact on restaurant firm value, advertising spending may help explain the difference between a firm's market value and book value. Therefore, advertising spending is included as a potential contributor to restaurant firms' intangible assets, which leads to the following hypothesis:

Hypothesis 4: All else being equal, there is a positive relationship between advertising spending and market-to-book ratio in the restaurant industry.

Research shows that employee loyalty and satisfaction are higher when firms pay their employees better than their competitors (Andreas et al., 2007; Kaplan & Norton, 1996). That is, paying employees more than the industry median helps firms achieve employee satisfaction and loyalty, which in turn increases talent retainment and reduces employee turnover. Because of low pay and irregular hours, the hospitality industry is characterized by high employee turnover (Carbery, Garavan, O'Brien, & McDonnell, 2003; Nadiri & Tanova, 2010), which is costly as it increases hiring and training expenses and decreases service quality. Since happy employees lead to happy customers, improved employee satisfaction will increase customer loyalty and the financial performance of firms (Kwansa et al., 2008; Low & Kalafut, 2002). To explore the connection between employee compensation and intangible assets valuation in restaurant firms, we include pension spending as an important measure of intangible assets as pensions are found to be positively related

to employee recruitment, motivation, and loyalty (Terry & White, 1997). Therefore, the following hypothesis is constructed:

Hypothesis 5: All else being equal, there is a positive relationship between pension spending and market-to-book ratio in the restaurant industry.

Methodology

Sample and data collection

The sample of this study consists of publicly traded restaurant firms in the United States for the period 1980–2016. Firm financial data and a total market return index are collected from Compustat North America Database. A REIT price index is obtained from www.reit.com. Missing values are filled by using a time series smooth function in R when there is sufficient information. Removing observations with substantial missing values, the final sample includes 1,421 firm-year observations.

Variables and models

The dependent variable in this study is market-to-book ratio (M/B), calculated as a ratio between a firm's market value and book value. Market value is the product of a firm's closing share price and number of common shares outstanding at year-end. Book value is a firm's total equity value on its balance sheet at year-end, which equals total assets minus total liabilities.

The independent variables are the unrecognized appreciation in land and buildings (LnB_{ua}) and the above industry median spending on R&D, training, advertising, and pension.

LnB_{ua} is calculated using Equation 1.

$$LnB_{ua} = LnB_{Historical} \times CI \div TotalAssets \quad (1)$$

Where $LnB_{Historical}$ is the historical costs of land and buildings recorded on a firm's balance sheet and CI is the percentage change in REIT's FTSE Nareit U.S. Real Estate Index, which shows the annual returns of REITs and is used for annual price adjustments of land and buildings held by restaurant firms.

R&D costs and training costs are not separately reported on income statements for restaurant firms. Instead, these costs are included in the Selling, General & Administrative Expenses (SG&A) account, together with advertising and other costs. Therefore, R&D and training spending is estimated as one variable RDT_{sa} using Equation 2.

$$RDT_{sa} = \frac{\left[\left(\frac{SG\&A - Advertising}{Sales} \right)_f - \left(\frac{SG\&A - Advertising}{Sales} \right)_{im} \right] \times Sales_f}{Total Assets} \quad (2)$$

Where $\left(\frac{SG\&A - Advertising}{Sales} \right)_f$ is an individual firm's estimated R&D and training costs standardized by sales and $\left(\frac{SG\&A - Advertising}{Sales} \right)_{im}$ is the industry median R&D and training costs standardized by sales.

Advertising cost is calculated using Equation 3.

$$Advertising_{sa} = \frac{\left[\left(\frac{Advertising}{Sales} \right)_f - \left(\frac{Advertising}{Sales} \right)_{im} \right] \times Sales_f}{Total Assets} \quad (3)$$

Where $\left(\frac{Advertising}{Sales} \right)_f$ an individual firm's advertising costs standardized by sales and $\left(\frac{Advertising}{Sales} \right)_{im}$ is the industry median advertising costs standardized by sales.

Pension cost is calculated using Equation 4.

$$Pension_{sa} = \frac{\left[\left(\frac{Pension}{Sales} \right)_f - \left(\frac{Pension}{Sales} \right)_{im} \right] \times Sales_f}{Total Assets} \quad (4)$$

Where $\left(\frac{Pension}{Sales} \right)_f$ is an individual firm's pension costs standardized by its sales and $\left(\frac{Pension}{Sales} \right)_{im}$ is the industry median pension costs standardized by sales.

The control variables in this study are firm size, market return (*Market*), return on assets (*ROA*), firm fixed effect (*FFE*), and year fixed effect (*CFE*). Firm size is measured using three variables: revenue (*REVT*), number of employees (*EMP*), and total assets (*AT*), all of which are log transformed to reduce skewness. To avoid multicollinearity, only one size control is included in each regression model. Market return is proxied by a total market index, which covers most of the sample firms. ROA is included in the model to

control for profitability, whereas firm- and year-fixed effects are included in the model to eliminate the bias in coefficient and standard error estimation caused by persistent firm-specific and market-wide shocks (Petersen, 2009; Thompson, 2011).

Data analysis

We use ordinary least square (OLS) regressions to analyze the data. Fixed-effects models are chosen over random-effects models after a Hausman test is performed to determine the efficiency of the two. A set of models with different specifications are used to test the hypotheses. Since intangible asset investments usually affect the market value of a firm during multiple periods, lag effects of R&D, training, pension, and advertising spending are included in the regression models. Specifically, regression models with zero to five-year lags are analyzed in this study. The final model is determined by using backward stepwise regression approach to identify factors that are most relevant to intangible asset valuation in the restaurant industry.

Results

Descriptive statistics

Table 1 shows the summary statistics of the variables in this study. The mean logged market-to-book ratio is 0.646 and the median 0.634. The unrecognized appreciation in land and buildings has a mean of 0.062 and a median of 0.011. On average, the above median spending is 0.07 on R&D and training,

Table 1. Summary Statistics

	N	Mean	Median	Minimum	Maximum
M/B	1,421	0.646	0.634	-8.658	6.519
LnB	1,421	0.062	0.011	-36.789	22.784
RDT	1,421	0.070	0.000	-5.340	20.620
Advertising	1,421	0.028	0.000	-0.134	4.972
Pension	1,421	0.047	0.000	-0.333	11.557
Revenue	1,421	5.215	5.115	0.476	9.967
Total assets	1,421	4.802	4.682	0.424	9.960
Employee	1,421	0.025	0.000	-5.221	2.068
Market return	1,421	0.118	0.130	-0.383	0.374
ROA	1,421	0.014	0.038	-1.597	1.655

Note: M/B, Employee, Revenue, and Total assets are log transformed. Advertising, Pension, and RDT are firm spending in excess of industry median.

0.028 on advertising, and 0.047 on pension. As for the size-related variables, the logged revenue has a mean of 5.215, the logged total assets 4.802, and the logged number of employees 0.025. The mean and median are 0.118 and 0.130, respectively, for market return and 0.014 and 0.038, respectively, for ROA.

Empirical findings

To test the hypotheses, we use a set of regression models as shown in Table 2. Models 1–3 are base-line models with no time lags and with different size control variables. Specifically, total assets are included to control for firm size in Model 1, total revenue in Model 2, and total employees in Model 3. The results indicate that while unrecognized appreciation in land and buildings is positively related to market-to-book ratio in all three models, the relationship is insignificant. Therefore, Hypothesis 1 is not supported. As for Hypotheses 2 and 3, the results indicate that the above median R&D and training spending is not significantly related to market-to-book ratio. Therefore, Hypotheses 2 and 3 are not supported. Similarly, the above median spending on advertising is not significantly related to market-to-book ratio. Thus, Hypothesis 4 is not supported. Supporting Hypothesis 4, the above median spending on pension is positively related to the market-to-book ratio of restaurant firms. While the results are qualitatively the same across all three models, Model 1 has the highest R^2 and adjusted R^2 and is therefore retained for subsequent analyses.

$$\ln\left(\frac{M}{B}\right)_{i,t} = \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} + \beta_3 Pension_{i,t} + \beta_4 LnB_{i,t} + \beta_5 AT_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Market_{i,t} + \beta_8 FFE_{i,t} + \beta_9 CFE_{i,t} + \varepsilon \quad (1)$$

$$\ln\left(\frac{M}{B}\right)_{i,t} = \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} + \beta_3 Pension_{i,t} + \beta_4 LnB_{i,t} + \beta_5 REVT_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Market_{i,t} + \beta_8 FFE_{i,t} + \beta_9 CFE_{i,t} + \varepsilon \quad (2)$$

$$\ln\left(\frac{M}{B}\right)_{i,t} = \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} + \beta_3 Pension_{i,t} + \beta_4 LnB_{i,t} + \beta_5 EMP_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Market_{i,t} + \beta_8 FFE_{i,t} + \beta_9 CFE_{i,t} + \varepsilon \quad (3)$$

Model 4 is a replicate of Model 1 with outliers removed from the sample using the 4 times Cook's Distance rule. While the results are qualitatively similar to those reported in Model 1, the R^2 and adjusted R^2 have increased from 0.645 and 0.591 in Model 1 to 0.773 and 0.738 in Model 4, respectively.

$$\ln\left(\frac{M}{B}\right)_{i,t} = \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} + \beta_3 Pension_{i,t} + \beta_4 LnB_{i,t} + \beta_5 AT_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Market_{i,t} + \beta_8 FFE_{i,t} + \beta_9 CFE_{i,t} + \varepsilon \quad (4)$$

Based on Model 4, we further include time lags of RDT, advertising, and pension with lag periods ranging from one to five years to account for the long-term effect of intangible asset investments on market premium. The drawback associated with including lag effects is that the first-year data of all sample firms are lost when $t-1$ lag effect is included in the model and the first- and second-year data are lost when $t-1$ and $t-2$ lag effects are included, and so on. For each of the five models with time lags, we perform a backward stepwise regression to remove factors that are least relevant to the market-to-book ratio of restaurant firms. Although all five models have reasonably high adjusted R^2 , inclusion of further lag periods does not significantly improve the explanatory power of the models; instead, the degrees of freedom have decreased substantially from the model with one-period time lags to the model with five-period time lags. Considering both the explanatory power and the degrees of freedom of the models, regression model with one-period time lags (Model 5) is chosen over models with longer lag periods.

$$\ln\left(\frac{M}{B}\right)_{i,t} = \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} + \beta_3 Pension_{i,t} + \beta_4 LnB_{i,t} + \beta_5 AT_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Market_{i,t} + \beta_8 FFE_{i,t} + \beta_9 CFE_{i,t} + \beta_{10} RDT_{i,t-1} + \beta_{11} Advertising_{i,t-1} + \beta_{12} Pension_{i,t-1} + \varepsilon \quad (5)$$

The final model after backward selection is presented in Model 6, in which the main variables of RDT and LnB and the control variable of market return are dropped out from the model as their loss gives the most statistically insignificant deterioration of the model fit. As shown in Model 6 of Table 2,

Table 2. All Restaurants Regression Results

	Dependent variable: In market-to-book ratio					
	Model 1 AT	Model 2 REVT	Model 3 EMP	Model 4 AT outlier	Model 5 Model 4+lag1	Model 6 Model 5+step
RDT	-0.016 (0.027)	-0.007 (0.027)	-0.006 (0.027)	-0.010 (0.025)	-0.162 (0.137)	
Advertising	-0.029 (0.089)	-0.035 (0.090)	-0.019 (0.090)	-0.040 (0.064)	-0.998*** (0.309)	-0.833*** (0.275)
Pension	0.077* (0.039)	0.083** (0.040)	0.079** (0.039)	0.114*** (0.028)	0.075 (0.118)	0.114** (0.048)
LnB	0.011 (0.012)	0.011 (0.012)	0.011 (0.012)	0.010 (0.010)	0.012 (0.011)	
ln_AT	-0.271*** (0.041)			-0.098*** (0.031)	-0.089*** (0.034)	-0.087** (0.034)
ln_REVT		-0.191*** (0.043)				
ln_EMP			-0.231*** (0.039)			
ROA	1.240*** (0.195)	1.210*** (0.197)	1.210*** (0.196)	1.790*** (0.157)	1.590*** (0.167)	1.600*** (0.166)
Market	1.370 (1.190)	1.320 (1.200)	1.470 (1.190)	1.650* (0.992)	2.150** (1.080)	
RDT_1					0.120 (0.104)	
Advertising_1					0.702*** (0.225)	0.579*** (0.198)
Pension_1					0.028 (0.074)	
Constant	3.630*** (0.399)	3.280*** (0.428)	3.060*** (0.360)	3.030*** (0.322)	3.180*** (0.335)	2.780*** (0.396)
Observations	1,421	1,421	1,421	1,343	1,170	1,170
R ²	0.645	0.638	0.643	0.773	0.790	0.790
Adjusted R ²	0.591	0.583	0.588	0.738	0.751	0.752
Residual S.E.	0.656 (df = 1232)	0.662 (df = 1232)	0.658 (df = 1232)	0.447 (df = 1161)	0.431 (df = 986)	0.431 (df = 990)
F Statistic	11.900*** (df = 188; 1232)	11.600*** (df = 188; 1232)	11.800*** (df = 188; 1232)	21.900*** (df = 181; 1161)	20.300*** (df = 183; 986)	20.800*** (df = 179; 990)

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

the final results support Hypothesis 5. That is, there is a positive relationship between the above median spending on pension and the market-to-book ratio of restaurant firms. Also, consistent with the baseline model (Model 1), the results do not support Hypotheses 1–3. That is, LnB and RDT are insignificantly related to the market-to-book ratio in the restaurant industry. Interestingly, advertising spending has contradicting effects on market-to-book ratio. That is, while there is a negative relationship between the current period advertising spending and market-to-book ratio, there is a positive relationship between the prior period advertising spending and market-to-book ratio.

$$\ln\left(\frac{M}{B}\right)_{i,t} = \beta_0 + \beta_1 Advertising_{i,t} + \beta_2 Pension_{i,t} + \beta_3 AT_{i,t} + \beta_4 ROA_{i,t} + \beta_5 FFE_{i,t} + \beta_6 CFE_{i,t} + \beta_7 Advertising_{i,t-1} + \varepsilon \quad (6)$$

Additional analyses

To confirm the validity of the results, we conduct several tests to check whether the assumptions of linear regression are met in the final model. First, we look at the normal Q-Q plot, which shows that most of the observations lie on the 45 degree diagonal in the graph. Therefore, the assumption of linear

relationship between the independent and dependent variables is met. Second, the residual plot shows that the residuals of the final model randomly scatter in the graph with no specific pattern. Therefore, multicollinearity, auto-correlation, and homoscedasticity should not be a concern for the final model. Third, a cross-validation test is performed to check the robustness of the final model. The sample is randomly divided into three subsets. Each subset is used as a test sample while the remaining two are combined to form a training sample. The final model is re-estimated using the training sample and the re-estimated model is in turn used to predict the test sample. This process is repeated three times until each subset has been used as a test sample. The cross-validation test results are then plotted in a graph, which shows that the predicted values of all three subsets cluster closely around the fitted line obtained from the entire sample. The results indicate that the final model has a high predictive power and good robustness.

Our analyses so far have assumed homogeneity of all restaurant firms regardless of their segments. However, prior research suggests that restaurant type matters when it comes to firm value (Guillet, Seo, Kucukusta, & Lee, 2013). To verify the robustness of findings, we draw a subsample of restaurant firms that consists of casual dining and quick service restaurant firms from the overall sample and re-estimate all the above-mentioned regression models. Casual dining restaurants are chosen because they are one of the largest restaurant segments in the United States, contributing to about one-fourth of the total restaurant market sales. Casual dining restaurants are typically full-service restaurant chains that serve moderately priced entrees in a casual atmosphere. There are 13 distinct casual dining restaurant firms in the subsample: Applebee's International Inc., Bloomin' Brands Inc., Brinker Intl Inc., Cheesecake Factory Inc., Darden Restaurants Inc., Dine Equity Inc., O' Charley's Inc., OSI Restaurant Partners Inc., P. F. Chang's China Bistro Inc., Rare Hospitality Intl Inc., Red Robin Gourmet Burgers Inc., Ruby Tuesday Inc., and Texas Roadhouse Inc.

Quick service restaurant firms are another large segment in the U.S. restaurant industry. Quick service restaurants (QSR) are typically limited-service restaurants that provide inexpensive food and quick service with average checks of \$8 per person. QSR

total sales were \$221.8 billion in 2016, almost double the sales of casual dining restaurants. The 12 quick service restaurant firms in our subsample are: Burger King Holdings Inc., Carrols Restaurant Group Inc., Domino's Pizza Inc., Good Times Restaurants Inc., Jack in the Box Inc., McDonald's Corporation, Morgan's Foods Inc., Papa John's Int'l Inc., Pizza Inn Inc., The Quiznos Master LLC, The Wendy's Company, and Yum Brands! Inc.

The baseline model for the subsample is presented in Model 7, which is comparable to Model 1 for the overall sample. To further capture the potential moderating effect of restaurant type on the market-to-book ratio of restaurant firms, we include in Model 7 a dummy variable *Casual*, which has a value of 1 if a firm is a casual dining restaurant and a value of 0 if a firm is a quick service restaurant, and three interaction terms between *Casual* and *RDT*, *Advertising*, and *Pension*. From Model 7, we perform the same procedures as in the main analyses. That is, we remove the outliers, include different time lags, and perform backward stepwise selection. The final model for the subsample is presented as Model 8, and the results are reported in Table 3.

$$\begin{aligned} \ln\left(\frac{M}{B}\right)_{i,t} = & \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} \\ & + \beta_3 Pension_{i,t} + \beta_4 LnB_{i,t} + \beta_5 AT_{i,t} + \beta_6 ROA_{i,t} \\ & + \beta_7 Market_{i,t} + \beta_8 Casual * RDT_{i,t} + \beta_9 Casual \\ & * Advertising_{i,t} + \beta_{10} Casual * Pension_{i,t} \\ & + \beta_{11} FFE_{i,t} + \beta_{12} CFE_{i,t} + \varepsilon \end{aligned} \quad (7)$$

$$\begin{aligned} \ln\left(\frac{M}{B}\right)_{i,t} = & \beta_0 + \beta_1 RDT_{i,t} + \beta_2 Advertising_{i,t} \\ & + \beta_3 LnB_{i,t} + \beta_4 AT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 FFE_{i,t} + \beta_7 CFE_{i,t} \\ & + \beta_8 RDT_{i,t-1} + \beta_9 Advertising_{i,t-1} + \beta_{10} Pension_{i,t-1} \\ & + \beta_{11} Casual * Advertising_{i,t-1} + \varepsilon \end{aligned} \quad (8)$$

As shown in Table 3, LnB is insignificantly related to the market-to-book ratio of restaurant firms, which provides no support for Hypothesis 1. In contrast, RDT is positively related to market-to-book for the subsample of casual dining and quick service restaurants, supporting Hypotheses 2 and 3. Consistent with the main results, there is a positive relationship between prior year's spending on pension and this year's market-to-book, supporting Hypothesis 5. Interestingly, while the positive relationship

Table 3. Casual and QSR Regression Results

	Dependent variable: ln market-to-book ratio
	Model 8
RDT	2.980** (1.440)
Advertising	3.980 (2.460)
LnB	-0.765 (0.559)
ln_AT	-0.273*** (0.071)
ROA	3.510*** (0.554)
RDT_1	-2.170 (1.490)
Advertising_1	5.240* (2.660)
Pension_1	0.169*** (0.040)
Casual	-2.350*** (0.263)
Advertising_1*Casual	-16.500*** (3.890)
Constant	3.080*** (0.712)
Observations	258
R ²	0.760
Adjusted R ²	0.690
Residual S. E.	0.402 (df = 199)
F Statistic	10.900*** (df = 58; 199)

Note: * p < 0.1, ** p < 0.05, *** p < 0.01.

between previous year's spending on advertising and market-to-book supports Hypothesis 4, restaurant type ($\beta = -16.5$) negatively moderates the relationship between the two. That is, the positive effect of prior year's advertising spending on market-to-book is significantly weaker in casual dining restaurants than in quick service restaurants.

Discussion

In this study, we examine the determinants of the difference between market value and book value of firms in the restaurant industry. Using a sample of 1,421 firm-year observations over a period of 37 years, our results indicate that while the unrecognized appreciation in land and buildings is not a significant determinant of market premium of restaurant firms, the above-median spending on pension is. Our further analyses indicate that the effect of R&D, training, and advertising spending on market premium varies

by restaurant type. Our study contributes to the literature by empirically testing constructs related to intangible asset valuation developed by previous research in the hospitality field. Important theoretical and managerial implications can be drawn from the findings of this study.

Theoretical implications

Although the unrecognized appreciation in land and buildings is expected to have a positive effect on the market-to-book ratio of restaurant firms, our results indicate that the effect is insignificant. One underlying assumption of this proposed relationship is that the price of real estate and firm value move in the same direction over the sample years. However, this may not be the case. Another underlying assumption associated with the proposed relationship is that fixed assets account for a large proportion of total assets held by restaurant firms, and the greater departure of their fair value from their book value can significantly affect firm value. However, this assumption may not hold either as restaurant firms continue to employ an asset-light strategy via franchising (Li & Singal, 2019). That is, while the unrecognized appreciation in land and buildings may increase the discrepancy between market value and book value, the positive effect is reduced by the gradual decrease in fixed assets held by restaurant firms as firms shift from owners to franchisors.

When the effects of R&D, training, advertising, and pension on the value increase of intangible assets in the restaurant industry are examined, only the current year's and the prior year's advertising spending displays an asymmetric effect on market premium. Specifically, while current year's advertising spending is negatively related to market premium in the restaurant industry, the one-year lagged advertising spending is positively related to market premium in the restaurant industry. The results indicate that spending more than the industry median on advertising does not necessarily increase the intangible value of restaurant firms. In addition, advertising spending seems to improve firm value in the long term rather than in the short term.

One important finding of this study is that there are segment differences in terms of intangible asset determinants in the restaurant industry. For example, while investments in R&D and training do not

significantly contribute to the market premium for all restaurant firms, they are positively related to market premium in the casual dining and quick service subsample. In addition, while concurrent advertising spending has a negative effect on market premium in the overall sample, its effect is insignificant in the casual dining and quick service subsample. Further, although the one-year lagged advertising spending positively affects the market premium of quick service restaurants, it does not increase market premium of casual dining restaurants. These results indicate that advertising spending creates more intangible value for quick service restaurants than for casual dining restaurants.

Managerial implications

The results of this study have implications for managers in the hospitality industry regarding intangible asset investments. Managers should be aware that while it is critical to invest in R&D and training in the hospitality industry, excess spending on R&D and training does not necessarily increase market value for all restaurant firms. Certain types of restaurants, such as casual dining and quick service restaurants, may benefit more from R&D and training spending than other types of restaurants. Similarly, above median spending on advertising does not create value for all firms. While quick service restaurants may benefit from higher intangible value in the next reporting period with excess advertising spending, casual dining restaurants may not. Therefore, to increase market premium, we recommend quick service restaurants invest more in R&D, training, and advertising, and advise all restaurant firms, especially those in casual dining segment, to have competitive compensation packages for their employees.

In addition, our study provides practical implications to analysts and investors for better evaluation of firm value in the restaurant industry. Although investments in intangible asset development may reduce the net income of firms in the current period, they may create valuable intangible assets in the future. When valuing restaurant firms in different segments, analysts and investors can incorporate the segment median spending on R&D, training, advertising, and pension in the valuation model. Casual dining restaurant and quick service restaurant firms

tend to gain more value when they spend more than the segment median on R&D and training. Quick service restaurant firms also tend to gain more value from greater than median spending on advertising in the next reporting period. In corporate events such as M&As, the intangible assets valuation tools provided here can help acquiring firms to better determine the true value of the targets.

Limitations and directions for future research

The implications of the study should be tempered by its limitations. First, separate information on R&D and training expenses is not available for restaurant firms. As a result, their effects are studied together. If separate information is available, a better understanding of the individual impact of R&D and training on intangible value can be attained. Second, this research can be refined if the financial data of restaurant firms and the commercial real estate indices were available at regional level. Unfortunately, such data are only available at the national level, thus limiting more accurate adjustments to the appreciation in land and buildings. Third, since the sample of this study consists of only U.S. publicly traded restaurant firms, the findings may not be applicable to other types of hospitality firms or restaurant firms in other countries. Future research can extend our study to other hospitality sectors or regions in the world. Fourth, other factors that may affect the market value of restaurant firms are not included in the regression models. Future studies can explore the effect of potential moderators, such as franchising, on the market premium of restaurant firms. Lastly, the restaurant industry is primarily a cash business, and operating cash flows are extremely important for restaurant firms. Future research may examine restaurant firms' decisions as to how much cash should be invested in intangible asset development.

References

- Aaron Allen & Associates. (2017). The largest restaurant acquisitions of the past two decades. Retrieved from <https://aaronallen.com/blog/largest-restaurant-acquisitions>
- Abdel-Khalik, A. R. (1975). Advertising effectiveness and accounting policy. *Accounting Review*, 50(4), 657–670.
- Andreas, N. A., Annie, G., & Michael, S. (2007). A framework of intangible valuation areas and antecedents. *Journal of Intellectual Capital*, 8(1), 52–75.

- Andriessen, D., Frijlink M., van Gisbergen, I., & Blom, J. (1999). A core competency approach to valuing intangible assets. Amsterdam, The Netherlands: KPMG.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Berta, D. (2003). Great American restaurants looks to grow 'heart'-healthy business (Vol. 37, pp. 20): Penton Media, Inc.
- Biddle, G. C., Bowen, R. M., & Wallace, J. S. (1997). Does EVA® beat earnings? Evidence on associations with stock returns and firm values. *Journal of Accounting & Economics*, 24(3), 301–336.
- Bontis, N. (1996). There's a price on your head: Managing intellectual capital strategically. *Business Quarterly*, 60(4), 40–47.
- Carbery, R., Garavan, T. N., O'Brien, F., & McDonnell, J. (2003). Predicting hotel managers' turnover cognitions. *Journal of Managerial Psychology*, 18(7), 649–679.
- Chartrungruang, B.-O., Turner, L., King, B., & Waryszak, R. (2006). Customer satisfaction, training and TQM: A comparative study of Western and Thai hotels. *Journal of Human Resources in Hospitality & Tourism*, 5(1), 51–75.
- Chauvin, K. W., & Hirschey, M. (1993). Advertising, R&D expenditures and the market value of the firm. *FM: The Journal of the Financial Management Association*, 22(4), 128–140.
- Chen, G. J. S., Chen, J. S., Legrand, W., & Sloan, P. (2009). Determining the motivations of German restaurant goers to eat healthy meals. *Journal of Culinary Science & Technology*, 7(2/3), 93–104.
- Chen, M. C., Cheng, S. J., & Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual Capital*, 6(2), 159–176.
- Cohen, J. A. (2005). *Intangible assets: Valuation and economic benefit*. Hoboken, NJ: John Wiley & Sons Inc.
- Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting & Economics*, 18(1), 3–42.
- DiPietro, R. B., Roseman, M., & Ashley, R. (2004). A study of consumers' response to quick service restaurants' healthy menu items: Attitudes versus behaviors. *Journal of Foodservice Business Research*, 7(4), 59–77.
- Edvinsson, L., & Malone, M. S. (1997). *Intellectual capital: Realizing your company's true value by finding its hidden brainpower*. New York: Harper Business.
- Gillis, T. L. (2003). Connecting intangible assets to the bottom line. *Communication World*, 20(4), 10.
- Godfrey, J., & Koh, P.-S. (2001). The relevance to firm valuation of capitalising intangible assets in total and by category. *Australian Accounting Review*, 11(24), 39–48.
- Green, A. (2004). *Prioritization of sources of intangible assets for use in enterprise balance scorecard valuation models of information technology (IT) firms* (Unpublished doctoral dissertation). George Washington University, Washington, DC.
- Green, A., & Ryan, J. J. C. H. (2005). A framework of intangible valuation areas (FIVA): Aligning business strategy and intangible assets. *Journal of Intellectual Capital*, 6(1), 43–52.
- Guillet, B. D., Seo, K., Kucukusta, D., & Lee, S. (2013). CEO duality and firm performance in the U.S. restaurant industry: Moderating role of restaurant type. *International Journal of Hospitality Management*, 33, 339–346.
- Hall, B. H. (1999). Innovation and market value. *NBER Working Papers 6984*, National Bureau of Economic Research, Inc.
- Hamel, G., & Prahalad, C. K. (1994). *Competing for the future*. Boston, MA: Harvard Business School Press.
- Hirschey, M. (1982). Intangible capital aspects of advertising and R&D expenditures. *Journal of Industrial Economics*, 30(4), 375–390.
- Hsu, L.-T., & Jang, S. (2008). Advertising expenditure, intangible value and risk: A study of restaurant companies. *International Journal of Hospitality Management*, 27(2), 259–267.
- Hsu, L.-T., & Jang, S. (2009). Effects of restaurant franchising: Does an optimal franchise proportion exist? *International Journal of Hospitality Management*, 28(2), 204–211.
- Hua, N., Denizci, B., Mattila, A. S., & Upneja, A. (2007). Marketing outlays: Important intangible assets in the hotel industry? *Journal of Quality Assurance in Hospitality & Tourism*, 8(4), 61–76.
- Itami, H., & Roehl, T. (1987). *Mobilizing invisible assets*. Cambridge, MA: Harvard University Press.
- Jerman, M., & Kavcic, S. (2010). The significance of intangible assets: A comparative analysis of Croatian and Slovenian hotel industry. *Tourism & Hospitality Management*, 401–410.
- Jerman, M., Kavcic, S., & Kavcic, B. (2009). Intangibles as future value creators: The case of the hotel industry. *Tourism and Hospitality Management*, 15(2), 153–162.
- Kahle, K. M., & Stulz, R. M. (2017). Is the US public corporation in trouble? *Journal of Economic Perspectives*, 31(3), 67–88.
- Kanodia, C., Sapra, H., & Venugopalan, R. (2004). Should intangibles be measured: What are the economic trade-offs? *Journal of Accounting Research*, 42(1), 89–120.
- Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard—measures that drive performance. *Harvard Business Review*, 70(1), 71–79.
- Kaplan, R. S., & Norton, D. P. (1996). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, 85(7/8), 150–161.
- Ke, F. Y., Pham, T., & Fargher, N. (2004). The relevance to firm valuation of capitalised research and development expenditures. *Australian Accounting Review*, 14(34), 72–76.
- Kinnard, W. N., Jr., Worzala, E. M., & Swango, D. L. (2001). Intangible assets in an operating first-class downtown hotel. *Appraisal Institute*, 69, 68.
- Kwansa, F. A., Mayo, C., & Demirciftci, T. (2008). The importance of intangible assets: Trends and patterns. In M. Olsen & J. Zhao (Eds.), *Handbook of hospitality strategic management* (pp. 181–202). Burlington, MA: Elsevier.
- Lee, G. (2011). *Identification of organization-centric intangible capital in the hospitality industry* (Doctoral dissertation). Virginia Tech, Blacksburg.

- Lev, B. (2001). *Intangibles: Management, measurement, and reporting*. Washington, DC: Brookings Institution Press.
- Lev, B. (2003). Remarks on the measurement, valuation, and reporting of intangible assets. *Economic Policy Review*, 9(3), 17–22.
- 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.
- Low, J., & Kalafut, P. C. (2002). *Invisible advantage: How intangibles are driving business performance*. Cambridge, MA: Perseus Publishing.
- Melymuka, K. (2004). Measuring intangible assets. *Computerworld*, 38, 42–42.
- Moehrle, S. R., Reynolds-Moehrle, J. A., & Wallace, J. S. (2001). How informative are earnings numbers that exclude goodwill amortization? *Accounting Horizons*, 15(3), 243–255.
- Murphy, K. (2006). *An exploratory study of strategic human resource management high performance work practices for unit level managers, in the casual segment of the US restaurant* (Doctoral dissertation). Virginia Tech, Blacksburg.
- Nadiri, H., & Tanova, C. (2010). An investigation of the role of justice in turnover intentions, job satisfaction, and organizational citizenship behavior in hospitality industry. *International Journal of Hospitality Management*, 29(1), 33–41.
- Olsen, M., West, J., & Tse, E. (1998). *Strategic management in the hospitality industry* (2nd ed.). New York: John Wiley & Sons: Inc.
- Olsen, M., West, J., & Tse, E. (2008). *Strategic management in the hospitality industry* (3rd ed.). New Jersey: Pearson Education.
- O'Neill, J. W., & Belfrage, E. E. (2005). A strategy for estimating identified intangible asset value: Hotel affiliation contribution. *Appraisal Institute*, 73, 78–86.
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1), 435–480.
- Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, 68(3), 79–91.
- Richardson, M. (2009). Good staff training leads to customer satisfaction. *Caterer & Hotelkeeper*, 199(4583), 36–36.
- Roos, J., Roos, G., Edvinsson, L., & Dragonetti, N. C. (1998). *Intellectual capital: Navigating in the new business landscape*. New York: New York University Press.
- Sinclair, R., & Keller, K. L. (2017). Brand value, accounting standards, and mergers and acquisitions: “The Moribund Effect.” *Journal of Brand Management*, 24(2), 178–192.
- 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.
- Sriram, R. S. (2008). Relevance of intangible assets to evaluate financial health. *Journal of Intellectual Capital*, 9(3), 351–366.
- Srivastava, R. K., Shervani, T. A., & Fahey, L. (1998). Market-based assets and shareholder value: A framework for analysis. *Journal of Marketing*, 62(1), 2–18.
- Statista. (2018). Restaurant advertising spending in the United States from 2008 to 2014 (in billion U.S. dollars). Retrieved from <https://www.statista.com/statistics/493730/restaurant-ad-spend-usa/>
- Stewart, T. A. (1997). *Intellectual capital: The new wealth of organizations*. New York: Doubleday/Currency.
- Sualakamala, S., & Huffman, L. (2010). Value negotiation for healthy food selection in restaurants. *Journal of Culinary Science & Technology*, 8(4), 242–256.
- Sullivan, P. H. (2000). *Value-driven intellectual capital: How to convert intangible corporate assets into market value*. New York: Wiley.
- Sullivan, P. H., Jr. & Sullivan, P. H., Jr. (2000). Valuing intangibles companies: An intellectual capital approach. *Journal of Intellectual Capital*, 1(4), 328–340.
- Terry, N., & White, P. (1997). The role of pension schemes in recruitment and motivation: Some survey evidence. *Employee Relations*, 19(2), 160–175.
- Thompson, S. B. (2011). Simple formulas for standard errors that cluster by both firm and time. *Journal of Financial Economics*, 99(1), 1–10.
- Williams, R. D. (2002). What is a restaurant business worth? *Real Estate Finance Journal*, 18(2), 71.
- Wyatt, A., & Abernethy, M. (2008). Accounting for intangible investments. *Australian Accounting Review*, 18(2), 95–107.
- Wyatt, A., & Frick, H. (2010). Accounting for investments in human capital: A review. *Australian Accounting Review*, 20(3), 199–220.