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A financial approach-based measurement of brand equity in the restaurant industry

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Abstract
Brand equity plays a significant role in the restaurant industry due to the competitive advantage gained by differentiation. It has been identified as a main component of intangible assets that decides the market value of a firm in the industry. Although the importance of brand equity has been well recognized in the restaurant literature, there has been little investigation regarding how to objectively quantify brand equity, especially by using secondary market data. Further, there is no publicly available brand equity data of restaurant firms thus far. For these reasons, this study aims to develop an approach on how to estimate a restaurant's brand equity not only by utilizing the secondary market data but also by incorporating the unique characteristics of restaurant firms. By proposing a restaurant-specific model to estimate brand equity, this study contributes to the restaurant literature and to the industry as a whole.

Keywords
brand equity, brand equity measurement, financial approach, restaurant industry

Since the 1980s, brand management has attracted considerable attention in the business industry and has become a core subject in the marketing area (Berthon et al., 2001; Dev et al., 2010). In particular, the brand equity estimation has become an important topic because the brand equity was often used as a

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performance indicator of brand management (Keller and Lehman, 2006; Prasad and Dev, 2000). Although the significance of brand management certainly applies to the restaurant industry (Cobb-Walgren et al., 1995; Kim et al., 2003; Prasad and Dev, 2000), little investigation has been done regarding how to objectively quantify brand equity, especially by using secondary market data.

The US restaurant industry is well worth being viewed independently for the following reasons: First, the economic significance of the market is substantial (2015 Restaurant Industry Forecast, 2015); second, this industry has a low barrier for market entry, making it difficult to accomplish monopoly (Skalpe, 2003). This characteristic tends to accelerate competition among different brands (Beneda, 2009). Consequently, they are encouraged to minimize uncertainty through the competitive advantage acquired by differentiation (Kim et al., 2004; Tavitiyaman et al., 2011), and so brand management has become an essential strategy to achieve such goals for restaurant companies (Hyun and Kim, 2011; Kim et al., 2004).

In the financial context, brand equity has also been regarded as a significant component. Many studies have attempted to develop a valuation model to better estimate a firm's brand equity (Belo et al., 2011; Ourusoff, 1993; Simon and Sullivan, 1993). In particular, Simon and Sullivan (1993) measured brand equity using secondary data and empirically examined the validity of their model based on the efficient market hypothesis (Fama, 1970). Their model explains two aspects of brand equity: revenue enhancing and cost saving. Furthermore, they used a forward-looking measurement methodology by incorporating the expected value of future returns, which differentiates itself from other models suggested (e.g. Kamakura and Russell, 1993; Mahajan et al., 1990; Wentz and Martin, 1989). Therefore, Simon and Sullivan's (1993) methodology is considered to be the most objective and superior methods to measure brand equity from the perspectives of finance (Kapareliotis and Panopoulos, 2010; Siddiqui, 2012).

Therefore, we aim to develop a quantitative model to measure a restaurant's brand equity by adopting Simon and Sullivan's model using readily available secondary data from a financial perspective. Furthermore, this study expands Simon and Sullivan's model by incorporating the unique characteristics of restaurants such as franchising and leverage.

Data and methodology

We select a sample of publicly traded US restaurant companies from 2008 to 2012 with having 5812 as the standard industrial classification code. We collect accounting and stock market data from the COMPUSTAT and Center for Research in Security Prices databases and hand-collect the data of a firm's age and franchising ratio from the restaurant companies' 10K reports. Finally, 123 observations of 28 restaurant firms' sample were used for analyses. The descriptive statistics of the sample are summarized in Table 1.

We expand Simon and Sullivan's (1993) model to estimate the restaurant brand equity from the financial perspective by additionally incorporating restaurant-related factors.

The concept of this model is to decompose the market value of intangible assets of a firm into brand equity and nonbrand equity components. The total market value of a restaurant firm V^* can be decomposed as follows:

$$V^* = V_T + V_I, \tag{1}$$

where V_T is the market value of the firm's tangible assets and V_I is the market value of the firm's intangible assets. Thus, the market value of the firm's intangible assets V_I is then computed through the difference between V^* and V_T, that is, $V_I = V^* - V_T$.

Table 1. Descriptive statistics of the sample, 2008–2012 ($N = 123$).

Variables	Mean	Std. Dev.	Fifth percentile	Median	Ninety-fifth percentile
V^* (in million $)	7475.73	19,397.44	100.74	1354.38	35,020.19
V_T (in million $)	2164.45	5133.72	63.43	624.31	5850.80
V_I (in million $)	5311.28	14,415.6	14.91	656.68	29,169.39
V_I/V_T	1.96	2.26	0.08	1.15	5.37
Tobin's *Q*	2.27	1.43	0.99	1.80	5.09
S (%)	4.07	6.72	0.18	1.70	15.74
adshr (%)	4.06	7.14	0.16	12.33	23.77
MC4 (%)	68.43	1.22	66.69	68.34	70.56
adv/V_T	0.07	0.05	0.01	0.06	0.15
age	36.34	21.20	4	38	62
TA (in million $)	2988.93	6369.89	73.40	824.99	8834
fran (%)	51.53	36.24	0.00	58.09	99.08
lev	−1.48	34.93	−3.45	1.01	13.01

Note: V^*: the market value of the firm; V_T: the value of tangible assets; V_I: the value of intangible assets; *S*: the market share; *adshr*: the share of advertising expenditures; *MC4*: the top four firms' market concentration; *adv*: the advertisement expenditures; *age*: the age of the firm; fran: the franchise proportion; *lev*: the debt-to-equity ratio.

Three major components of V_I can be identified as follows:

$$V_I = f(V_b, V_{nb}, V_{ind}), \tag{2}$$

where V_b is the value of brand equity, V_{nb} is the value of nonbrand factors, and V_{ind} is the value of industry-wide factors. V_b can be further subdivided into two components:

$$V_b = V_{b1} + V_{b2}, \tag{3}$$

where V_{b1} is the value related to generating brand demand and V_{b2} is the value related to saving marketing costs that result from established brand equity. Using equation (3), equation (2) can be rewritten as follows, assuming an additive functional form of f

$$V_I = (V_{b1} + V_{b2}) + V_{nb} + V_{ind}, \tag{4}$$

where V_{b1} is a determinant of generating brand demand such as advertising expenditures and age. Advertising expenditures can affect the perceived quality, and the firm's age is relevant to the positive experience regarding service and the menu, which in turn can affect price premium. Compared to the aspect of customer demand generation, it is more complicated to decompose the aspect of saving costs. Simon and Sullivan (1993) used the order of market entry (denoted as *odr*) and the brand's advertising expenditures relative to its competitors' (denoted as *adshr*) as components of V_{b2}, the firm's share of R&D expenditures relative to its competitors' (denoted as *rndshr*), and the share of patents relative to its competitors' (denoted as *patshr*) as components of V_{nb}, which provide information about a firm's positioning advantages in the market.

Both V_{b2} and V_{nb} lead to cost advantage, and these components are difficult to directly classify. In this regard, Boulding and Staelin (1990) confirmed a negative relationship between cost saving and incremental market share. Therefore, they assume that $V_{b2} = f(S_{b2})$ and $V_{nb} = f(S_{nb})$, where S_{b2} is the market share attributable to brand equity and S_{nb} is the market share attributable to

Table 2. Estimation of the expected market share (dependent variable = observed market share).

Variable	Coefficient	Standard error	*t*-statistics	*p*-Value	R^2	*F*	*Pr* > *F*
Constant	0.013	0.0049	2.67**	0.0086	0.8707	403.96***	< 0.0001
odr	−0.001	0.0003	−1.91*	0.0584			
adshr	0.854	0.0328	26.06***	<0.0001			

Note: *odr*:the order of market entry; *adshr*: the share of advertising expenditures.
***, **, *Significant at the 1%, 5%, and 10% levels, respectively.

nonbrand factors and that $S_{b2} = f(odr, adshr)$ and $S_{nb} = f(patshr, rndshr)$. However, we do not use patent and R&D shares because of irrelevance. Thus, we assume that the total market share of a restaurant company (denoted as S) is determined solely by S_{b2}, which is the function of the order of market entry and the advertising expenditures relative to competitors'. Hence, to estimate the market share attributable to brand factors, we regress the observed market share on the two factors of *odr* and *adshr* to obtain $E(S)$:

$$S = b_0 + b_1 * odr + b_2 * adshr + \epsilon, \tag{5}$$

For the determinants of V_{ind}, industry structure can also affect a firm's profit as well as its strategy (Simon and Sullivan, 1993). A less competitive industry environment will be an advantage for firms within the market and, in this regard, we incorporated regulation as a dummy variable and market concentration ($MC4$) to estimate V_{ind}. We measure market concentration ($MC4$) taking into consideration two types of services according to North America Industrial Classification Codes (NAICS): full service (NAICS 722511) and limited service (NAICS 722513).

Combining equations (1–5), we arrive at a reduced form of structural equation for estimating V_I:

$$V_1 = \beta_0 + \beta_1 * adv + \beta_2 * age + \beta_3 * E(S) + \beta_4 * MC4 + \beta_5 * fran + \beta_6 * lev + \epsilon, \tag{6}$$

where *adv* represents advertising expenditures, *age* represents firm age, *fran* represents franchise ratio, and *lev* represents leverage.

Finally, considering only parts associated with brand equity (V_b), brand equity can be computed from the following equation:

$$\widehat{V_b} = \widehat{\beta_1} * adv + \widehat{\beta_2} * age + \widehat{\beta_3} * E(S). \tag{7}$$

Results

To estimate the brand equity, we first perform a regression analysis to estimate the expected value of market share (S_{b2}), using equation (5). As expected, the results in Table 2 provide a significant and negative coefficient for the market entry order (*odr*), meaning that restaurant firms that enter the market earlier establish a higher market share than those that enter later. However, the advertising share (*adshr*) clearly has a much significant impact on the market share than the order of market entry (*odr*) with a *t*-statistic of 26.06. A positive and significant coefficient of *adshr* suggests that a restaurant firm that has relatively higher advertising costs compared to its competitors also has a higher market share. Using these estimated coefficients, the expected market share can be estimated as follows:

Table 3. Estimation of the expected value of intangible assets (dependent variable = the value of intangible assets).

Variable	Coefficient	Standard error	*t*-statistics	*p*-Value	R^2	*F*	*Pr* > *F*
Constant	−16.604	11.17	−1.49	0.140	0.110	2.37*	0.0342
adv	7.021	4.56	1.54	0.126			
age	0.001	0.01	0.12	0.903			
$E(S_{b2})$	3.893	3.18	1.23	0.223			
MC4	25.376	16.33	1.55	0.123			
fran	1.158	0.61	1.89	0.062			
lev	−0.001	0.01	−0.20	0.840			

Note: *adv*: the advertising expenditures; *age*: the age of the firm; the top four firms' market concentration; $E(S_{b2})$: expected market share; *fran*: the franchise proportion; *lev*: the debt-to-equity ratio.
***, **, *Significant at the 1%, 5%, and 10% levels, respectively.

$$\hat{S} = \widehat{b_1} * odr + \widehat{b_2} * advsr. \tag{8}$$

In addition, we add restaurant characteristic variables, franchise ratio (*fran*), and leverage (*lev*), to the model to provide industry-specific estimation of brand equity. Table 3 presents the results of the regression analysis, modified from Simon and Sullivan (1993), which was employed to estimate the value of intangible assets (V_I) using equation (6).

Finally, using the results of Tables 2 and 3, we obtain the following equation for the estimation of brand equity for restaurant companies:

$$\widehat{V_b} = 7.02069 * adv + 0.00117 * age + 3.8932 * E(S). \tag{9}$$

Table 4 shows the estimated brand equity for 28 sampled restaurant companies. McDonald's ranks first at $52,550 million, Yum Brands ranks second at $10,415 million, and so on.

Conclusion and discussion

Contemporary restaurant firms understand that they should commit to build healthy brand equity. Despite this wide recognition, in reality, a representative method to measure brand equity for restaurant firms has not been fully developed. Even further, there is no publicly available brand equity data for the restaurant industry. To fill this void, we propose to develop a customized brand equity model specifically for restaurants. To accomplish this goal, we modified the Simon and Sullivan (1993) model by incorporating the unique characteristics of restaurant firms and developed a restaurant-specific brand equity measurement model.

First, Simon and Sullivan's (1993) model has been used as a base for developing our model because their model overcomes critical limitations of marketing-oriented models that employ a subjective and qualitative approach using a survey questionnaire on customer behavior, which has been commonly used in the restaurant literature. In addition, it reflects the potential future cash flows and considers both sides of value creation: demand enhancing and cost saving. More importantly, our study modified the model by introducing two unique factors of the restaurant industry to the proposed model: a firm's degree of franchising and leverage. The restaurant industry is well known for its wide adoption of franchising (Anwer, 2011;

Table 4. Brand equity values of selected US restaurant companies.

No.	Company	Brand equity (in millions of dollars)
1	McDonald'S Corp	52,550
2	Yum Brands Inc	10,415
3	Darden Restaurants Inc	5308
4	Starbucks Corp	2873
5	Wendy's Co	2666
6	Burger King Worldwide Inc	2335
7	Brinker Intl Inc	1884
8	Bloomin' Brands Inc	1842
9	Jack in the Box Inc	1304
10	Panera Bread Co	886
11	DineEquity Inc	740
12	Sonic Corp	720
13	Papa Johns International Inc	640
14	Buffalo Wild Wings Inc	536
15	Domino's Pizza Inc	472
16	Bob Evans Farms	406
17	Red Robin Gourmet Burgers	404
18	Carrols Restaurant Group Inc	376
19	Chipotle Mexican Grill Inc	274
20	Denny's Corp	236
21	Texas Roadhouse Inc	186
22	Ignite Restaurant Group Inc	143
23	Fiesta Restaurant Group Inc	143
24	Ruth's Hospitality Group Inc	110
25	Famous Dave's of America Inc	86
26	BJ'S Restaurants Inc	84
27	Cheesecake Factory Inc	62
28	Nathan's Famous Inc	49

Hsu et al., 2010). In fact, the restaurant industry is the leading franchising industry within the US economy (Moon et al., 2016). Further, based on many firm value studies in the restaurant literature, high leverage has been found to be a significant characteristic for restaurant firms (Skalpe, 2003). Therefore, an incorporation of these two unique and important factors for the restaurant industry into the proposed model makes valuable contributions to the general and restaurant brand equity literature. Our findings confirm the existing literature (Kapareliotis and Panopoulos, 2010; Simon and Sullivan, 1993) in that the advertising share is an important factor in estimating a restaurant firm's market share, and thus consequently its brand equity. The advertising share may be particularly important for restaurant firms because they heavily engage in chain management and franchising where strong and healthy brand building is essential to attract potential franchisees and furthermore to realize the economies of scale (Spinelli et al., 2004).

By utilizing the proposed model, restaurant firms can monitor not only their own brand equity but also easily monitor competitors' brand equity. In addition, a restaurant firm can identify important factors that have significant impacts on its brand equity value by evaluating the

coefficients of the factors included in the proposed model. Also, restaurant investors can utilize our model as a tool in evaluating their investment portfolios.

This study is not free from limitations. First, we sample only post 2008, which is likely influenced by the 2008 economic meltdown. Future studies may be encouraged to collect the data from more normalized economic periods. Further, the final model seems weak with insignificant coefficients of the variables, except franchise ratio as marginally significant. Our post-2008 data might have contributed to this low significance. However, our main purpose of regression analyses is not only to test any causal relationships between certain independent variables and dependent variables but also to develop a brand equity estimation model as a whole. In such case, the significance testing tends to become less important.

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