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Do loyalty programs really matter for hotel operational and financial performance?

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Abstract

Purpose – This study aims to use a sample of 2,120 individual hotel properties between 2011 and 2013 to evaluate the impact of loyalty programs on hotel operational and financial performance.

Design/methodology/approach – This study provides empirical support for the impact of loyalty program based on both cross-sectional and panel data analyses and uses the instrumental variable technique to avoid potential heteroscedasticity, autocorrelation and simultaneity issues.

Findings – Findings of this study show that loyalty program expenses have a significant and positive impact on all three operational performance indicators of RevPAR, ADR and Occupancy and the financial performance indicator of gross operating profit.

Research limitations/implications – This study suggests that the benefits of loyalty programs should be understood against the backdrop of a reasonable set of controlled variables such as e-commerce, franchise, advertising, other marketing expenses, hotel size and hotel chain scales.

Originality/value – Given the conflicting viewpoints about the positive and negative impacts of loyalty programs, and that the literature is scant on empirical validation of the impact of loyalty programs on the overall operational and financial performance of hotel properties, this study is an early attempt to empirically test the impact of loyalty programs on a number of hotel operational and financial performance indicators by using an extensive list of individual hotel properties between 2011 and 2013.

Keywords Financial performance, Loyalty programs, Hotel performance, Operational performance

Paper type Research paper

1. Introduction

American Airlines was the first company in the airline industry to launch a frequent-guest program in 1981 to reward travelers for their loyalty to the brand. In the lodging industry, InterContinental took the lead and became the first hotel company to offer a loyalty program (Dekay *et al.*, 2009). In today's business world, most hotels have established their own loyalty program, which has gradually become a provision that hotel guests would expect. In

2015, the loyalty programs of major hotel groups had more than 300 million members (Peltier, 2016). While the impressive number shows the popularity or attractiveness of loyalty programs, the real active members are far fewer than this number (Peltier, 2016). For instance, La Quinta Returns program has 11 million members, yet only 25.5 per cent were active members in 2015 (Peltier, 2016). The surprising contradiction between the popularity of loyalty programs and the lagging number of active members inspired the researchers of the present study to ask the research question of whether it is operationally and financially beneficial for hotel companies to invest in loyalty programs.

The benefits for hotels to offer loyalty programs to their guests can be manifested in profitability, share of wallet, willingness to pay more, word-of-mouth (WOM) and electronic WOM (Kandampully *et al.*, 2015). First, through initiating loyalty programs, companies can directly gain profits from customer repurchase behavior (Bolton *et al.*, 2000; Keh and Lee, 2006). Moreover, using loyalty programs to manage current customers can reduce the cost needed to attract new customers, thereby indirectly increasing the profitability. Second, the term *share of wallet* describes how customers choose to allocate their monetary resources among different products of different brands (Evanschitzky *et al.*, 2012). It is important for companies to understand how their customers make purchase decisions among various products or services. Loyal customers tend to stay with one company and build emotional commitment with it (Evanschitzky *et al.*, 2012). Closely related to sharing of wallet is the third benefit of loyalty program – willingness to pay premium. Once loyalty is built with a company, loyal customers are less sensitive to the premium price charged by the company and are more likely to perceive greater values from the products or services provided by this company (Dowling and Uncles, 1997; Reichheld and Sasser, 1990). In addition, customer loyalty has an impact on customer behavior; in that, loyal customers tend to actively spread positive WOM, whether in person or through electronic media, thus playing an important role of brand ambassadors (Kandampully *et al.*, 2015; Jeon and Jeong, 2017).

The extant literature is divided on whether loyalty programs are indeed beneficial to a company's financial and operational performance (Bolton *et al.*, 2000; Lewis, 2004; Liu, 2007; Nie, 2000; Verhoef, 2003; Zhang *et al.*, 2010). Despite the aforementioned benefits of loyalty programs, it is worth noting that loyalty programs also introduce challenges, such as the required tremendous investment in initiation and maintenance programs (Tepeci, 1999) and the possibility of service encounter failures (Keaveney, 1995). Furthermore, profits generated from loyalty programs are difficult to be separated from other marketing and operating efforts, thus making the effectiveness of such programs difficult to measure. Given the conflicting viewpoints about the positive and negative impacts of loyalty programs, and that the literature is scant on empirical validation of the impact of loyalty programs on the overall operational and financial performance of hotel properties, the leading goal of this study was to empirically test the impact of loyalty programs on key operational and financial indicators of hotel performance using an extensive list of individual hotel properties between 2011 and 2013.

2. Literature review
2.1 Loyalty programs in hospitality industry
Loyalty programs are marketing endeavors that help to build loyalty between the company and its profitable customers (Evanschitzky *et al.*, 2012; Yi and Jeon, 2003), as well as increase customers' repurchase behavior through achieving customer satisfaction and providing added values (Bolton *et al.*, 2000). They have been strategically managed and promoted as a priority by many companies (Dick and Basu, 1994), largely because it is believed that loyalty programs

serve as the foundation for sustainable competitive advantages (Dick and Basu, 1994; Lee *et al.*, 2014) and can influence both company financial performance and customer behavior (Srinivasan *et al.*, 2002). Especially in today's business world where technology advances permeate one's daily life and consumers are becoming increasingly harder to reach and engage, it is of utmost importance for companies to develop loyal customers through winning consumer preferences to maintain sustainable competitive advantages in globalized competition (Petruzzellis *et al.*, 2011; Duygun, 2015; Lo *et al.*, 2017).

After American Airlines launched the first contemporary loyalty program in 1981, loyalty programs started to appear in the hospitality industry (Liu, 2007). Shoemaker and Lewis (1999) named customer loyalty as *the future of hospitality marketing* and described a true loyalty program as one that creates emotional brand attachment rather than the frequency program which is to merely generate repeat business. Nowadays, the majority of hotel chains use loyalty programs to manage customer relationships (Tanford *et al.*, 2010). For example, in 2015, the IHG Rewards Club of InterContinental Hotels Group is the largest hotel loyalty program in the world with 92 million members; Marriott Rewards, combined with Starwood Preferred Guest programs, has about 75 million members worldwide; Hilton Worldwide's Hilton Honors program was one of the largest programs regarding the percentage of room nights booked by their members, at 52 per cent; while Marriott and Starwood's programs reported at 50 per cent and Hyatt Hotel Corp.'s program at 36 per cent (Peltier, 2016). Therefore, with hotel customers holding multiple memberships, hotel programs enter into fierce competition for their share of business (Xiong *et al.*, 2014).

2.2 The impact of loyalty program on firm performance

Even though it has been widely recognized that advantages of loyalty program include improved perceived value (Liu, 2007) and increased customer commitment (Liu, 2007; Sharp and Sharp, 1997), the impact of loyalty program on firm performance has remained inconclusive (Bolton *et al.*, 2000; Lewis, 2004; Liu, 2007; Nie, 2000; Verhoef, 2003; Zhang *et al.*, 2010). On the one hand, building customer loyalty was found to affect the company's long-term profitability (Zhang *et al.*, 2010) to successfully change customer behavior and to stimulate more purchases than do other marketing tools under a dynamic model (Lewis, 2004). Particularly, loyalty programs with economic incentives exhibited a positive influence on customer retention (Verhoef, 2003). In addition, Liu (2007) showed that loyalty programs influenced consumers purchase behavior under certain initial purchase level and personal idiosyncrasies. On the other hand, several studies subscribed to the notion that the use of loyalty programs might not create profitability in the long run. Because of the lack of effective measurement, Bolton *et al.* (2000) pointed out that loyalty program operations were unprofitable even when statistical analyses showed that the program increased revenue. They also challenged that as loyalty programs increased relationship durations and usage levels, it was likely that consumers would be more exposed to a full spectrum of service experiences, which included unpleasant experiences that lead customers to switch to other service firms. In a similar vein, Keaveney (1995) pinpointed that although loyalty programs could enhance customers' repurchase behavior to a certain degree and in certain situations, they exposed customers to failed core services, service encounters, or employee responses, which were recognized as the main reasons of customers' switching behavior. These service failures prevented customers from repurchases, generated a negative reputation that thwarted long-term relationship between the companies and their customers, (Nie, 2000), which might adversely influence the profitability of the companies. More recently, Steinhoff and Palmatier (2016) pointed out that whereas loyalty programs were used as a ubiquitous marketing tactic, many of them underperformed. In their research, it was found that loyalty

programs had negative effects on bystander customers by creating their perception of unfairness in comparison to target customers.

Similarly, the impact of loyalty program on firm performance in the hospitality industry also shows controversial results. There is a lack of solid empirical evidence for the generic operational impact of loyalty programs on hospitality properties. Supporters of loyalty programs assert that loyalty programs can induce switching costs, which would, to some extent, discourage customers from exiting the current company and patronizing its competitor (Caminal and Matutes, 1990; Tanford *et al.*, 2010). O'Neill *et al.* (2008) provided empirical evidence that overall marketing expenses, which implicitly include loyalty program expenses, played an important role in generating a hotel's profits. Kim *et al.* (2003) revealed that hotel reward loyalty programs had significant positive impacts on the return on equity; however, the authors did not include any control variables in their study. Lee *et al.* (2014) studied the impact of hotel loyalty programs on hotel industry performance metrics of revenue, occupancy rate and operating margin by using a database of 36 hotel brands and 435 hotel properties. Their empirical findings suggested that investment in hotel loyalty programs yielded modest but positive impacts on occupancy rates and profitability.

However, other research results were not as optimistic. Marketers find it very challenging to create and manage profitable loyalty programs due to high costs of adding value to a customer's experience and the variability of travelers' needs and interests (Olsen and Connolly, 2000). Hoteliers are thus cautioned against overinvesting in consumers relative to their worth; the benefit needs to be balanced against the costs associated with operating the program (Voorhees *et al.*, 2011). Kandampully *et al.* (2015) suggested loyalty programs had failed in maintaining long-term customer loyalty due to severe competition in the hospitality industry. Within the hotel industry context, the efficiency of loyalty programs was tested as an extension of Keh and Lee's (2006) work showed that reward types increase customer loyalty conditionally (Hu *et al.*, 2010). Similar results demonstrated that loyalty of hotel customers depended on customers' evaluation of their service experiences (So *et al.*, 2013). In addition, hotel loyalty programs were easy to copy and yet very hard to differentiate; therefore, in most cases, they failed to enhance customer loyalty (Mattila, 2006).

2.3 Contextual factors

Given that debates exist over whether it is beneficial for hotels to use loyalty programs, prior research began to include contextual factors and examine how such factors could influence the impacts of loyalty programs. For instance, the type, magnitude and the timing of rewards could affect the perceived value of a reward program and its effects on loyalty behaviors (Hu *et al.*, 2010). Customers' demographics and the type of hotel rooms also needed to be considered (Tanford *et al.*, 2011, 2012). For example, Voorhees *et al.* (2011) pointed out that in general, hotels generated more revenue per customer from their elite members, whereas certain high-tier members were found to produce relatively little revenue for the company.

In addition to the aforementioned factors, the researchers of the present study put forward six particular factors that should be considered as important contextual factors: franchise expense, e-commerce expense, advertising expense, other marketing expenses, size of hotel as measured by the number of guest rooms and hotel chain scale. First, the value-added hypothesis of franchising has been widely debated. One obvious benefits for franchisees is that franchisors, with their experience and resources, are able to help franchisees increase their operational efficiencies (Anderson *et al.*, 1998; Anderson *et al.*, 2000; Tsaur, 2001; Yoo *et al.*, 1998). In return, franchisees are to pay a franchise fee to the franchisor. This franchise fee expense, therefore, contributes to the overall revenues of a hotel.

Second, e-commerce expense has long been theorized to impact performance (Connolly and Olsen, 2000; Porter, 2001) and has also been proven to exert statistically significant and positive influence on rooms revenue (Hua *et al.*, 2015), especially in the gross operating profit (GOP) for midscale and upscale hotels (DeFranco *et al.*, 2016). E-commerce expenses include the entire process of the e-footprint of the hotel, which consists of the design, delivery, fulfillment, communication, promotion and evaluation of the whole hotel stay experience. In today's world of technology, e-commerce is a must.

Advertising expense as the third factor has also been universally accepted as having an effect on performance, so much so that research studies have been performed on advertising and promotion to increase slot machines revenues in casinos (Lucas and Bowen, 2002; Repetti, 2013). However, as early as 1993, even Mr Bill Marriott stated that the Marriott loyalty program helped to build brand loyalty "which advertising never did" for Marriott (Sambrook, 1993). Thus, how much a role advertising expense has on hotel revenues needs to be included in this study.

Fourth, according to the CBRE data, other marketing expense is another category of sales and marketing expense being tracked. As the goal of this research was to isolate and evaluate the effectiveness of loyalty programs, any marketing expenses rather than loyalty should be included in the model. Other marketing expense can include such items as direct mail, outside signage, in-house graphics and photography (Hotel Association of New York City, 2014).

Regarding the fifth factor, size of hotel as measured by number of guest rooms, the strongest predictor of financial performance was identified as e-commerce expenses, especially when hotel size is considered (DeFranco *et al.*, 2016). Finally, the type of hotel, as classified by the Smith Travel Research (STR) chain scale (i.e. luxury, upper upscale, upscale, upper midscale, midscale and economy) (STR, 2017), can also have an effect on loyalty program expenses on the profitability of a hotel brand or an individual property.

Therefore, this study included these six factors as control variables to extend the investigation of Hua *et al.* (2015) and O'Neill *et al.* (2008) to answer the research question: Do loyalty programs positively impact hotel operational and financial performance? For empirical testing purposes, the research question is translated into the following hypotheses in alternative form:

H1. Loyalty programs positively impact hotel operational performance.

H2. Loyalty programs positively impact hotel financial performance.

3. Methods

The data of this study are from the database by a leading hospitality consulting firm, CBRE (formerly PKF Hospitality Research), including the data of 2,120 hotel properties from 2011 to 2013. The data that were collected over the period of 2011-2013 includes loyalty programs and affiliation fees (Loyalty), total franchise expenses (Franchise), e-commerce expenses (Ecommerce), media/outdoor advertising (Ad), other marketing expenses (Other), the number of guest rooms (Rooms) and hotel chain scale (i.e. luxury, upper upscale, upscale, upper midscale, midscale and economy). Additionally, hotel annual key operational performance data were provided, including occupancy percentage (Occupancy), average daily rate (ADR), rooms revenue and revenue per available room (RevPAR).

The relationships between marketing expenses and measures of operational performance have received an increasing amount of attention from scholarly research over the past decade (Chien and Tsai, 2012; Grissemann *et al.*, 2013; Hanson *et al.*, 2009; Hua *et al.*, 2015;

Josiassen *et al.*, 2014; O'Neill *et al.*, 2008). Hua *et al.* (2015) and O'Neill *et al.*'s (2008) are the two most recent studies in the hospitality field that provided empirical evidence which shed light on the impact of loyalty programs on hotel performance; however, evidence from these studies was indirect in nature due to their testing of only an aggregated expense item called "other marketing expenses", which mainly include loyalty program expenses and advertising expenses. Therefore, adapting and extending Hua *et al.* (2015) and O'Neill *et al.*'s (2008) study, this paper investigated the direct influence of the loyalty program expenses on hotel operational performance. First, to provide a direct test of the hypothesis, this study created an instrumental variable of Loyalty Instrument using one-year lagged loyalty program expenses (Canina and Carvell, 2005), avoiding potential simultaneity problems associated with the contemporaneous relationship between loyalty program expenses and *RevPAR, ADR* and *Occupancy* (because of creating this instrument, the empirical tests were performed over the time from 2012 to 2013). Because both Hua *et al.* (2015) and O'Neill *et al.* (2008) used a contemporaneous framework, their results could be affected by simultaneity problems. Second, this study employed a measure of other marketing expenses as a control variable to provide better inclusion of marketing expenses that were not explicitly reported following Hua *et al.* (2015). Third, this study tested the empirical models from both an annual and an aggregated perspective between 2012 and 2013 to offer a more robust check of the impact consistency of loyalty expenses and macro variables, similar to Hua *et al.* (2015). In particular, potential heteroscedasticity issues were accommodated by White (1980) errors and potential heteroscedasticity and autocorrelation issues by Newey and West (1994) errors for the full sample (Gujarati and Porter, 2003) for the span of 2012 to 2013. Therefore, by extending Hua *et al.* (2015) and O'Neill *et al.*'s (2008) study to specify lagged loyalty program and affiliation fees (Loyalty Instrument) as an individual independent variable, to use RevPAR, ADR and occupancy percentage (Occupancy) directly as dependent variables, while controlling for total franchise expenses (Franchise), Ecommerce expenses (Ecommerce), advertising expenses (AD), other marketing expenses, number of guest rooms (Rooms) and hotel chain scales for the sample years 2012 and 2013, the empirical models for this study were constructed as follows (year and firm subscripts are suppressed for ease of presentation):

$$
\begin{aligned}
\text{RevPAR} = {} & \alpha + \beta_1 \text{Loyalty Instrument} + \beta_2 \text{Franchise} + \beta_3 \text{Ecommerce} + \beta_4 \text{Ad} \\
& + \beta_5 \text{Other} + \beta_6 \text{Rooms} + \sum_{i=7}^{11} \beta i \text{Chainscale} i + \varepsilon
\end{aligned}
$$

(1)

$$
\begin{aligned}
\text{ADR} = {} & \alpha + \beta_1 \text{Loyalty Instrument} + \beta_2 \text{Franchise} + \beta_3 \text{Ecommerce} + \beta_4 \text{Ad} \\
& + \beta_5 \text{Other} + \beta_6 \text{Rooms} + \sum_{i=7}^{11} \beta i \text{Chainscale} i + \varepsilon
\end{aligned}
$$

(2)

$$
\begin{aligned}
\text{Occupancy} = {} & \alpha + \beta_1 \text{Loyalty Instrument} + \beta_2 \text{Franchise} + \beta_3 \text{Ecommerce} + \beta_4 \text{Ad} \\
& + \beta_5 \text{Other} + \beta_6 \text{Rooms} + \sum_{i=7}^{11} \beta i \text{Chainscale} i + \varepsilon
\end{aligned}
$$

(3)

where:

RevPAR   = Revenue per available room = ADR* Occupancy. RevPAR has been widely
             used to measure hotel performance (Anderson and Lawrence, 2014) because it
             not only accounts for both ADR and Occupancy (Zhang *et al.*, 2015) of a hotel
             property but also is generally considered as "the most effective yardstick of the
             balance between hotel room supply and demand" (Hua *et al.*, 2015).

$Chainscale_7$ = 1, if a hotel is categorized as a midscale hotel by CBRE, 0, otherwise;

$Chainscale_8$ = 1,if a hotel is categorized as an upper midscale hotel by CBRE, 0,
             otherwise;

$Chainscale_9$ = 1, if a hotel is categorized as an upscale hotel by CBRE, 0, otherwise;
             $Chainscale_{10}$ = 1, if a hotel is categorized as an upper upscale hotel by CBRE,
             0, otherwise;

$Chainscale_{11}$ = 1, if a hotel is categorized as a luxury hotel by CBRE, 0, otherwise; and

$Chainscale_{12}$ = 1, if a hotel is categorized as an economy hotel by CBRE, 0, otherwise; this
             group of hotels is selected as the base category, thus excluded from Models
             (1), (2) and (3).

Significantly, positive coefficient estimates associated with Loyalty Instrument would
indicate that loyalty program expenses have a significant and positive impact on hotel
performance, proxied by RevPAR, ADR and Occupancy (Hua *et al.*, 2015).

4. Results

Table I reports the summary statistics. A wide range of hotels were included in the
sample. For example, the hotel size varied from 41 to 2,860 rooms, with an average room
number of 199. Hotel's annual loyalty program expenses ranged to $3,424,726 with an
average of $126,616 (negative numbers are likely due to accounting adjustments for the
prior year. Sensitivity tests show that trimming negative numbers does not
qualitatively change the findings of this study – sensitivity test results are not reported
due to space constraints but are available upon request). ADR was as low as $20.28 and
went as up high as $999.87, with an average of $99.62. Occupancy varied from 25 to 105
per cent with an average of 72 percent. Revenue per available room (RevPAR) showed a
similar wide variation from $10.81 to $680.89 and averagely $72.62 per room (results of
this study are robust for the trimmed samples at 99 and 95 percentiles, respectively,
where RevPAR, ADR and Occupancy are all positive). Table II reported the mean
values of key variables of interest by chainscale, offering a slightly more in-depth

Variable	Observations	Mean	Standard	Minimum	Maximum
Rooms	4,240	199	211	41	2,860
RevPAR	4,240	72.62	52.07	10.81	680.89
Occupancy	4,240	0.72	0.10	0.25	1.05
ADR	4,240	99.62	67.02	20.28	999.87
Loyalty	4,240	126,616.30	290,891.40	−163,555.60	3,424,726.00
Loyalty instrument	4,240	105,205.30	240,172.40	−149,645.90	3,618,890.00
Franchise	4,240	352,543.10	699,416.30	−163,480.60	13,800,000.00
Ecommerce	4,240	9,770.71	35,294.95	−1,655.60	631,895.30
Ad	4,240	30,655.27	81,037.85	−2,121.00	1,415,452.00
Other	4,240	18,814.13	83,456.01	−1,001,088.00	1,918,282.00

Table I.
Summary statistics

			Chainscale			
Variable	Economy	Midscale	Upper midscale	Upscale	Upper upscale	Luxury
Rooms	111	128	154	153	450	394
RevPAR	38	48	74	85	114	205
Occupancy	0.74	0.65	0.71	0.74	0.73	0.75
ADR	52	74	102	114	154	275
Loyalty	27	36,762	75,842	70,812	455,989	416,736
Loyalty instrument	56	34,556	71,736	72,869	407,189	370,252
Franchise	235	90,974	283,459	303,378	1,130,886	1,190,798
Ecommerce	0	2,207	6,656	6,085	29,365	56,300
Ad	14,489	9,180	15,215	9,594	82,878	151,928
Other	111	3,064	7,001	15,691	61,587	81,788

Notes: All variables are for years of 2012 and 2013 except that Loyalty instrument is for years of 2011 and 2012; Rooms: The number of guest rooms a hotel reports to CBRE Hotels; RevPAR: Revenue per available room a hotel reports to CBRE Hotels; Occupancy: Occupancy percentage a hotel reports to CBRE Hotels; ADR: Average daily rate a hotel reports to CBRE Hotels; Loyalty: Loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Loyalty Instrument: One-year lagged loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Franchise: Total franchise expenses a hotel reports to CBRE Hotels; Ecommerce: E-commerce expenses a hotel reports to CBRE Hotels; Ad: Media/outdoor advertising expenses a hotel reports to CBRE Hotels; Other: Other marketing expenses a hotel reports to CBRE Hotels; and Chainscale: hotel chain scale (i.e. luxury, upper upscale, upscale, upper midscale, midscale and economy) a hotel reports to CBRE Hotels

Table II.
Mean values of key variables of interest by chainscale

glimpse into the differences between various types of chainscale hotels. Table III reported pairwise correlation analysis results. The variable Loyalty Instrument was highly correlated with the variable Loyalty, suggesting it was a good proxy. All variables exhibited reasonable correlations.

Tables IV, V and VI reported empirical test results of Models (1), (2) and (3), respectively. First, the cross-sectional test results of the impact of Loyalty Instrument on RevPAR, ADR, and Occupancy were reported in columns (1) and (2) in Tables IV, V and VI for 2012 and 2013. The coefficient estimates associated with Loyalty Instrument were both positive and significant, providing evidence in support of *H1*. In addition, when Models (1), (2) and (3) were tested with aggregated data from both 2012 and 2013, results were robust. High adjusted R^2 values were exhibited with a range from 0.652 to 0.686, suggesting Models (1), (2) and (3) were well specified and a large portion of variability in RevPAR, ADR and Occupancy was explained by the relevant predictors in the models.

5. Tests of *H2*
To further understand the direct and systematic impact of loyalty programs on hotel profits (*H2*), this study introduced GOP as an additional dependent variable, given that it is commonly considered as a primary financial performance measure taking into account costs of operation (Enz and Peiró-Signes, 2014). In addition, because location could affect hotel profits (e.g. Sainaghi and Baggio, 2014; Sainaghi, 2011), this study created dummy variables to control for potential location impact (Hua *et al.*, 2015). The empirical model was therefore specified as follows (year and firm subscripts are suppressed for ease of presentation):

Variable	Rooms	RevPAR	Occupancy	ADR	Loyalty	Loyalty instrument	Franchise	Ecommerce	Ad	Other
Rooms	1									
RevPAR	0.4598 (0.0000)	1								
Occupancy	0.0818 (0.0000)	0.3291 (0.0000)	1							
ADR	0.454 (0.0000)	0.9696 (0.0000)	0.13320	1						
Loyalty	0.7869 (0.0000)	0.5468 (0.0000)	0.1757 (0.0000)	0.5041 (0.0000)	1					
Loyalty instrument	0.7801 (0.0000)	0.5358 (0.0000)	0.1631 (0.0000)	0.497 (0.0000)	0.9785 (0.0000)	1				
Franchise	0.7234 (0.0000)	0.6082 (0.0000)	0.1752 (0.0000)	0.5785 (0.0000)	0.8395 (0.0000)	0.8248 (0.0000)	1			
Ecommerce	0.3632 (0.0000)	0.3423 (0.0000)	−0.0101 (0.2552)	0.3792 (0.0000)	0.1855 (0.0000)	0.1879 (0.0000)	0.2392 (0.0000)	1		
Ad	0.6159 (0.0000)	0.4198 (0.0000)	0.0276 (0.0018)	0.4342 (0.0000)	0.4838 (0.0000)	0.4806 (0.0000)	0.4114 (0.0000)	0.2739 (0.0000)	1	
Other	0.5286 (0.0000)	0.3347 (0.0000)	−0.0177 (0.0464)	0.3643 (0.0000)	0.3445 (0.0000)	0.3433 (0.0000)	0.2677 (0.0000)	0.2698 (0.0000)	0.5917 (0.0000)	1

Notes: Significance level is reported in parentheses; All variables are for years of 2012 and 2013 except that Loyalty Instrument is for years of 2011 and 2012; Rooms: The number of guest rooms a hotel reports to CBRE Hotels; RevPAR: Revenue per available room a hotel reports to CBRE Hotels; Occupancy: Occupancy percentage a hotel reports to CBRE Hotels; ADR: Average daily rate a hotel reports to CBRE Hotels; Loyalty: Loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Loyalty Instrument: One-year lagged loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Franchise: Total franchise expenses a hotel reports to CBRE Hotels; Ecommerce: E-commerce expenses a hotel reports to CBRE Hotels; Ad: Media/outdoor advertising expenses a hotel reports to CBRE Hotels; and Other: Other marketing expenses a hotel reports to CBRE Hotels

Table III.
Pairwise correlation
analysis results

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Variable	(1) RevPAR 2012	(2) RevPAR 2013	(3) RevPAR 2012-2013
Loyalty instrument	*0.0000594**** (0.0000151)	*0.0000543**** (0.0000145)	*0.0000566**** (0.0000125)
Franchise	0.0000143* (0.00000560)	0.0000124* (0.00000516)	0.0000134** (0.00000465)
Ecommerce	0.000237*** (0.0000578)	0.000193*** (0.0000458)	0.000215*** (0.0000426)
Ad	0.0000473 (0.0000291)	0.0000713**** (0.0000364)	0.0000598* (0.0000262)
Other	0.0000391 (0.0000267)	0.0000295 (0.0000184)	0.000032**** (0.0000180)
Rooms	−0.0637*** (0.0134)	−0.0656*** (0.0142)	−0.0647*** (0.0115)
Chainscale$_7$	6.792*** (1.059)	8.995*** (1.375)	7.730*** (0.948)
Chainscale$_8$	27.37*** (2.950)	30.06*** (3.386)	28.56*** (2.695)
Chainscale$_9$	38.57*** (1.724)	42.43*** (1.979)	40.37*** (1.503)
Chainscale$_{10}$	44.36*** (3.959)	49.96*** (3.803)	47.03*** (3.297)
Chainscale$_{11}$	120.5*** (9.657)	129.9*** (10.32)	124.8*** (8.556)
Constant	43.36*** (1.553)	45.24*** (1.517)	44.46*** (1.245)
N	2,120	2,120	4,240
R^2	0.667	0.652	0.658
adj. R^2	0.665	0.651	0.657
F	322.3	278.7	403.8

Notes: Standard errors in parentheses; ****$p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; White (1980) errors are calculated for (1) and (2) to accommodate potential heteroscedasticity issues. Newey West (1984) HAC errors are calculated for (3) to accommodate potential heteroscedasticity and autocorrelation issues. RevPAR: Revenue per available room a hotel reports to CBRE Hotels; Loyalty Instrument: One-year lagged loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Franchise: Total franchise expenses a hotel reports to CBRE Hotels; Ecommerce: E-commerce expenses a hotel reports to CBRE Hotels; Ad: Media/outdoor advertising expenses a hotel reports to CBRE Hotels; Other: Other marketing expenses a hotel reports to CBRE Hotels. Rooms: The number of guest rooms a hotel reports to CBRE Hotels; Chainscale$_7$ = 1, if a hotel is categorized as a midscale hotel by CBRE, 0, otherwise; Chainscale$_8$ = 1, if a hotel is categorized as an upper midscale hotel by CBRE, 0, otherwise; Chainscale$_9$ = 1, if a hotel is categorized as an upscale hotel by CBRE, 0, otherwise; Chainscale$_{10}$ = 1, if a hotel is categorized as an upper upscale hotel by CBRE, 0, otherwise; Chainscale$_{11}$ = 1, if a hotel is categorized as a luxury hotel by CBRE, 0, otherwise; and economy hotels are used as the base category

Table IV.
Empirical results of Model (1) – the impact of loyalty program expenses on RevPAR

$$GOP = \alpha + \beta_1 \text{Loyalty Instrument} + \beta_2 \text{Franchise} + \beta_3 \text{Ecommerce} + \beta_4 \text{Ad}$$

$$+ \beta_5 \text{Other} + \beta_6 \text{Rooms} + \sum_{i=7}^{11} \beta_i \text{Chainscale} i + \sum_{i=12}^{16} \beta_i \text{Location} i + \varepsilon \qquad (4)$$

where:

GOP of a hotel for a given sampled period, namely, GOP 2012, GOP 2013 or GOP 2012-2013 refer to GOP in 2012, 2013 and the combined period of 2012 and 2013, respectively.

Location$_{12}$ = 1, if a hotel is categorized as located near a city center by CBRE, 0, otherwise;

Location$_{13}$ = 1, if a hotel is categorized as located near a highway by CBRE, 0, otherwise;

Location$_{14}$ = 1, if a hotel is categorized as located in a resort by CBRE, 0, otherwise;

Location$_{15}$ = 1, if a hotel is categorized as located in a rural area by CBRE, 0, otherwise;

Location$_{16}$ = 1, if a hotel is categorized as located in a suburban area by CBRE, 0, otherwise; and

Location$_{17}$ = 1, if a hotel is categorized as located near an airport by CBRE, 0, otherwise; this group of hotels is selected as the base category, thus excluded from Model (4).

Variable	(1) ADR 2012	(2) ADR 2013	(3) ADR 2012-2013
Loyalty instrument	*0.0000605*** (0.0000197)*	*0.0000521* (0.0000221)*	*0.0000557*** (0.0000180)*
Franchise	0.0000170*** (0.00000661)	0.0000147* (0.00000631)	0.0000158*** (0.00000558)
Ecommerce	0.000364*** (0.0000775)	0.000284*** (0.0000565)	0.000322*** (0.0000543)
Ad	0.0000429 (0.0000357)	0.000101* (0.0000481)	0.0000729* (0.0000335)
Other	0.0000796* (0.0000362)	0.000048**** (0.0000290)	0.0000595* (0.0000268)
Rooms	−0.0821*** (0.0181)	−0.0847*** (0.0233)	−0.0830*** (0.0173)
Chainscale$_7$	19.03*** (1.196)	20.83*** (1.603)	19.54*** (1.070)
Chainscale$_8$	42.13*** (3.680)	44.55*** (4.232)	42.98*** (3.366)
Chainscale$_9$	52.31*** (1.991)	56.65*** (2.371)	54.17*** (1.737)
Chainscale$_{10}$	68.71*** (4.699)	75.54*** (4.383)	71.87*** (3.859)
Chainscale$_{11}$	169.8*** (13.37)	180.3*** (14.88)	174.3*** (12.11)
Constant	58.56*** (2.080)	60.28*** (2.092)	59.77*** (1.796)
N	2,120	2,120	4,240
R^2	0.686	0.659	0.671
adj. R^2	0.684	0.657	0.670
F	466.4	383.2	569.1

Notes: Standard errors in parentheses; ****$p < 0.10$; ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; White (1980) errors are calculated for (1) and (2) to accommodate potential heteroscedasticity issues. Newey West (1984) HAC errors are calculated for (3) to accommodate potential heteroscedasticity and autocorrelation issues. ADR: Average daily rate a hotel reports to CBRE Hotels; Loyalty Instrument: One-year lagged loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Franchise: Total franchise expenses a hotel reports to CBRE Hotels; Ecommerce: E-commerce expenses a hotel reports to CBRE Hotels; Ad: Media/outdoor advertising expenses a hotel reports to CBRE Hotels; Other: Other marketing expenses a hotel reports to CBRE Hotels. Rooms: The number of guest rooms a hotel reports to CBRE Hotels; Chainscale$_7$ = 1, if a hotel is categorized as a midscale hotel by CBRE, 0, otherwise; Chainscale$_8$ = 1, if a hotel is categorized as an upper midscale hotel by CBRE, 0, otherwise; Chainscale$_9$ = 1, if a hotel is categorized as an upscale hotel by CBRE, 0, otherwise; Chainscale$_{10}$ = 1, if a hotel is categorized as an upper upscale hotel by CBRE, 0, otherwise; Chainscale$_{11}$ = 1, if a hotel is categorized as a luxury hotel by CBRE, 0, otherwise; and economy hotels are used as the base category

Table V.
Empirical results of
Model (2) – the
impact of loyalty
program expenses on
ADR

The same methodology and test procedures adopted for Models (1), (2) and (3) were followed to test Model (4). Results were reported in Table VII. A significant and positive coefficient estimate associated with loyalty instrument was found for all three samples, namely, the samples for years 2012, 2013 and the period of 2012 and 2013 combined, therefore, offering further empirical evidence in support of the positive impact of loyalty programs on hotel financial performance (H_2).

6. Conclusions and discussions
6.1 Conclusions
This study examined a sample of 2,120 individual hotel properties over the period of 2012 and 2013 by including direct financial measure of loyalty program expenses in the empirical models. This study extended previous research frameworks (Hua *et al.*, 2015; O'Neill *et al.*, 2008) and offer a direct and systematic test on how loyalty program influence hotel operational performance. As this study performed both cross-sectional and panel data analyses and used the instrumental variable technique to avoid potential heteroscedasticity, autocorrelation and simultaneity issues, the test results were more robust. The findings showed that loyalty program expenses had a significant and positive impact on all three operational performance indicators of RevPAR, ADR and Occupancy. In addition, further tests of Model (4) reveal a

Variable	(1) Occupancy 2012	(2) Occupancy 2013	(3) Occupancy 2012-2013
Loyalty instrument	6.09e-08*** (1.47e-08)	7.43e-08*** (1.53e-08)	6.85e-08*** (1.24e-08)
Franchise	1.48e-08* (7.09e-09)	1.12e-08**** (6.09e-09)	1.32e-08* (5.62e-09)
Ecommerce	−7.88e-08 (7.54e-08)	−4.62e-08 (7.22e-08)	−5.84e-08 (6.26e-08)
Ad	4.65e-08 (5.04e-08)	−2.77e-08 (5.63e-08)	1.35e-08 (4.36e-08)
Other	−9.71e-08* (4.24e-08)	−4.53e-08 (3.94e-08)	−6.60e-08* (3.36e-08)
Rooms	−0.0000197 (0.0000202)	−0.0000271 (0.0000233)	−0.0000255 (0.0000182)
Chainscale$_7$	−0.101*** (0.00588)	−0.0867*** (0.00648)	−0.0933*** (0.00511)
Chainscale$_8$	−0.0362*** (0.00805)	−0.0328*** (0.00851)	−0.0341*** (0.00690)
Chainscale$_9$	−0.000374 (0.00551)	0.000794 (0.00589)	0.000635 (0.00469)
Chainscale$_{10}$	−0.0380*** (0.00813)	−0.0365*** (0.00803)	−0.0371*** (0.00678)
Chainscale$_{11}$	−0.0144 (0.0132)	−0.0105 (0.0124)	−0.0123 (0.0109)
Constant	0.735*** (0.00399)	0.746*** (0.00446)	0.740*** (0.00341)
N	2,120	2,120	4,240
R^2	0.192	0.148	0.168
adj. R^2	0.188	0.144	0.166
F	40.59	29.48	48.56

Notes: Standard errors in parentheses; ****$p < 0.10$; ***$p < 0.001$; ** $p < 0.01$; *$p < 0.05$; White (1980) errors are calculated for (1) and (2) to accommodate potential heteroscedasticity issues. Newey West (1984) HAC errors are calculated for (3) to accommodate potential heteroscedasticity and autocorrelation issues. Occupancy: Occupancy percentage a hotel reports to CBRE Hotels; Loyalty Instrument: One-year lagged loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Franchise: Total franchise expenses a hotel reports to CBRE Hotels; Ecommerce: E-commerce expenses a hotel reports to CBRE Hotels; Ad: Media/outdoor advertising expenses a hotel reports to CBRE Hotels; Other: Other marketing expenses a hotel reports to CBRE Hotels. Rooms: The number of guest rooms a hotel reports to CBRE Hotels; Chainscale$_7$ = 1, if a hotel is categorized as a midscale hotel by CBRE, 0, otherwise; Chainscale$_8$ = 1, if a hotel is categorized as an upper midscale hotel by CBRE, 0, otherwise; Chainscale$_9$ = 1, if a hotel is categorized as an upscale hotel by CBRE, 0, otherwise; Chainscale$_{10}$ = 1, if a hotel is categorized as an upper upscale hotel by CBRE, 0, otherwise; Chainscale$_{11}$ = 1, if a hotel is categorized as a luxury hotel by CBRE, 0, otherwise; and economy hotels are used as the base category

Table VI.
Empirical results of
Model (3) – the
impact of loyalty
program expenses on
occupancy

systematic and significantly positive impact of loyalty programs on hotel GOP, after controlling for potential impacts of hotel location.

6.2 Theoretical implications

Theoretically, this study contributes to the literature stream on the impact of loyalty program on hospitality business from four aspects. First, this study makes the first attempt in the hospitality field to directly, empirically and systematically examine the impact of loyalty programs on hotel performance. While prior empirical studies were divided on whether loyalty programs indeed benefit a company's financial and operational performance (Bolton *et al.*, 2000; Lewis, 2004; Liu, 2007; Nie, 2000; Verhoef, 2003; Zhang *et al.*, 2010), the present research provided strong empirical support for one school of thought that advocates a hotel's financial investment in loyalty programs would eventually pay off.

Second, this study investigated the impact of loyalty program expenses on hotel performance by controlling a series of other expenses including franchise expenses, e-commerce expenses, advertising expenses and other marketing expenses. There is a lack of such a comprehensive examination to identify the particular contribution of loyalty program expenses on hotel performance in previous literature. On the one hand, this study echoes prior studies in understanding the impact of franchise expenses (Hua and Dalbor, 2013), e-commerce expenses

Variable	(1) GOP 2012	(2) GOP 2013	(3) GOP 2012-2013
Loyalty instrument	*11.94**** (2.926)	*11.15**** (2.747)	*11.72**** (2.373)
Franchise	−0.887 (0.899)	−1.344 (0.851)	−1.163 (0.750)
Ecommerce	4.597 (6.394)	−0.131 (7.810)	2.431 (5.981)
Ad	15.25** (5.035)	21.28** (7.174)	17.47*** (4.631)
Other	4.702 (4.935)	1.278 (4.216)	3.019 (3.839)
Rooms	20557.9*** (2264.1)	23260.9*** (2519.6)	21916.4*** (2004.2)
$Chainscale_7$	1407970.6 (1007390.6)	2428684.8 (1121239.3)	1873074.8* (906041.5)
$Chainscale_8$	−682862.8*** (75948.3)	−18034.7 (187838.3)	−401947.4*** (76770.2)
$Chainscale_9$	−692883.9*** (196431.2)	−11617.1 (265820.3)	−401094.2* (177864.4)
$Chainscale_{10}$	−3008008.3*** (544514.0)	−2306822.0*** (570247.8)	−2709610.6*** (470571.0)
$Chainscale_{11}$	−487220.8* (171426.6)	397623.1 (254700.8)	−96038.5 (155080.6)
$Location_{12}$	706463.3** (267854.9)	714399.7* (289670.2)	700402.9** (238619.2)
$Location_{13}$	459831.1* (205030.5)	518615.3* (213535.7)	487099.4** (177641.2)
$Location_{14}$	398380.3 (537302.6)	680481.4 (581389.2)	599002.6 (472021.0)
$Location_{15}$	581590.6* (288313.2)	693425.8* (350847.8)	643636.8* (273101.9)
$Location_{16}$	507533.3*** (148048.1)	622848.2*** (156220.8)	564973.8*** (129728.9)
Constant	−1827408.3*** (319899.2)	−2758832.2*** (376923.5)	−2241184.2*** (276822.2)
N	2,120	2,120	4,240
R^2	0.843	0.831	0.835
adj. R^2	0.842	0.829	0.834
F	116.6	114.5	156.4

Notes: Standard errors in parentheses; **** $p < 0.10$; ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; White (1980) errors are calculated for (1) and (2) to accommodate potential heteroscedasticity issues. Newey West (1984) HAC errors are calculated for (3) to accommodate potential heteroscedasticity and autocorrelation issues. GOP of a hotel reports to CBRE Hotels for a given sampled period, namely, GOP 2012, GOP 2013, or GOP 2012-2013 refer to GOP in 2012, 2013, and the combined period of 2012 and 2013, respectively. Loyalty Instrument: One-year lagged loyalty programs and affiliation fees a hotel reports to CBRE Hotels; Franchise: Total franchise expenses a hotel reports to CBRE Hotels; Ecommerce: E-commerce expenses a hotel reports to CBRE Hotels; Ad: Media/outdoor advertising expenses a hotel reports to CBRE Hotels; Other: Other marketing expenses a hotel reports to CBRE Hotels. Rooms: The number of guest rooms a hotel reports to CBRE Hotels; $Chainscale_7 = 1$, if a hotel is categorized as a midscale hotel by CBRE, 0, otherwise; $Chainscale_8 = 1$, if a hotel is categorized as an upper midscale hotel by CBRE, 0, otherwise; $Chainscale_9 = 1$, if a hotel is categorized as an upscale hotel by CBRE, 0, otherwise; $Chainscale_{10} = 1$, if a hotel is categorized as an upper upscale hotel by CBRE, 0, otherwise; $Chainscale_{11} = 1$, if a hotel is categorized as a luxury hotel by CBRE, 0, otherwise; and economy hotels are used as the base category. $Location_{12} = 1$, if a hotel is categorized as located near a city center by CBRE, 0, otherwise; $Location_{13} = 1$, if a hotel is categorized as located near a highway by CBRE, 0, otherwise; $Location_{14} = 1$, if a hotel is categorized as located in a resort by CBRE, 0, otherwise; $Location_{15} = 1$, if a hotel is categorized as located in a rural area by CBRE, 0, otherwise; $Location_{16} = 1$, if a hotel is categorized as located in a suburban area by CBRE, 0, otherwise; $Location_{17} = 1$, if a hotel is categorized as located near an airport by CBRE, 0, otherwise; this group of hotels are selected as the base category, thus excluded from Model (4)

Table VII.
Empirical results of Model (4) – the impact of loyalty program expenses on GOP

(Hua *et al.*, 2015), advertising expenses (O'Neill *et al.*, 2008) and other marketing expenses (Hua *et al.*, 2015; O'Neill *et al.*, 2008). On the other hand, this study further identified advertising expenses and other marketing expenses, which had relatively weaker relationships with RevPAR (Table IV), after controlling for other predictors of hotel performance.

Third, by explaining the measurable operational and financial outcomes of loyalty programs, this study makes a critical contribution to the literature focusing on the loyalty program adoption in the hotel sector.

Among all the tested antecedents of hotel performance, it appears that exploring synergies between the marketing initiatives studied could lead to hotel performance improvement because of efficiency enhancement of resource allocation. In a society of limited resources, careful resource allocation to effect the best outcome will reduce waste. For example, further understanding of more immersive and enjoyable user experiences of a variety of distribution channels, such as websites and social media platforms, would help hoteliers to integrate these distribution channels into loyalty programs to improve the positive impact of both e-commerce and loyalty programs on hotel performance.

Moreover, fourth, the results also revealed that most of the marketing expenses had a bigger influence on hotel performance indicators of RevPAR, ADR and Occupancy in 2012 than they did in 2013, suggesting a drop in the operational impacts of marketing expenses. From a marketing perspective, these results contribute to the marketing literature by delineating how various marketing practices (measured by the corresponding expenses in the present study) should be systematized to form a prime marketing strategy. This could help hotels to maximize their operational performance and realize their priorities, thus suggesting a promising research avenue to better understand these items for new insights to improve hotel performance.

6.3 Practical implications

The results of this study also recommend strategic practices for hotel owners and managers. First, this study used both cross-sectional and panel data and identified that loyalty program expenses had significant and positive impacts on all four operational and financial performance indicators of RevPAR, ADR, Occupancy, and GOP. This provides managers a strong and scientific justification regarding the investment budget on loyalty programs. Second, this study tested the impact of loyalty program expense with the presence of other expenses in the model and identified only significant impact from the loyalty program expense. This suggests that among the major marketing initiatives in the hotel industry, more emphasis could be placed upon loyalty programs. This study suggests the benefits of loyalty programs should be understood against the backdrop of a reasonable set of control variables such as e-commerce, franchise, advertising, other marketing expenses, hotel size and hotel chain scales because these variables tend to play an important role in determining hotel performance (Hua *et al.*, 2015; Hua and Dalbor, 2013; O'Neill *et al.*, 2008).

Third, the results clearly show that loyalty programs positively and significantly improved operational and financial performance. Considering that the findings are based on a pool of data with relatively low active loyalty members, if hoteliers can find means to further engage their loyalty programs members, the benefits of a loyalty programs can further be enhanced.

Fourth, as data for this research also focus on GOPs, hotel owners and managers are presented a good opportunity to further understand the effectiveness of their loyalty programs. For instance, because of the positive and significant impact of loyalty programs on GOP found in this study, it can be inferred that the amounts loyalty guests spend on food and beverage at the hotel, spas, or other amenities appeared to be also affected positively and lead to better hotel financial performance.

6.4 Limitations and suggestions for future research

Caution, however, needs to be exercised when interpreting the results of this study. Although this study is built upon a prior research framework (Hua *et al.*, 2015; O'Neill *et al.*, 2008), omitted variable issues could still pose challenges to result accuracy. This issue could be significantly improved when new data and theories become available. Second, using an alternative data source such as Smith Travel Research or a different theoretical framework could shed new light on this research topic. Despite the virtue of a large same store sample of 2,120 hotel

properties, the study time window was between 2011 and 2013. Considering the constant changing market environment, generalization of the findings to apply to today's hotels needs to be qualified. In addition, while the present research has empirically supported the positive impact of loyalty programs on company operational and financial performance, it is worth noting that the overabundance of reward programs in response to today's increasingly competitive market may potentially make it harder for hotels to gain exclusive loyalty from program members. Therefore, the authors of this research would like to call for future research to take this potential influencer (e.g. number of loyalty programs individuals sign up for in the same service sector) into consideration to further examine and understand the studied relationship. And finally, secondary data by nature contain only limited information, which may fail to reveal certain critical insights that can only be obtained by primary data. It would be a very interesting future study direction when resources become available to explore both qualitative and quantitative aspects of the impact of loyalty programs on hotel performance.

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