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

Volume 26 | Issue 1 Article 4

Summer 2018

An Investigation of Factors Affecting Financial Performance of Taiwanese International Tourist Hotels

Hwai-Shuh Shieh
School of Transportation and Tourism, Kainan University, Taiwan, marc1125@gmail.com

Jin-Li Hu
Institute of Business and Management, National Chiao Tung University, Taipei, Taiwan

Yen-Chiao Chang
Institute of Business and Management, National Chiao Tung University, Taipei, Taiwan

THE JOURNAL OF HOSPITALITY FINANCIAL MANAGEMENT
2018, VOL. 26, NO. 1, 25–35
https://doi.org/10.7275/R5W37TJD

An Investigation of Factors Affecting Financial Performance of Taiwanese International Tourist Hotels

Hwai-Shuh Shieh
School of Transportation and Tourism, Kainan University, Taoyuan City, Taiwan

Jin-Li Hu and Yen-Chiao Chang
Institute of Business and Management, National Chiao Tung University, Taipei, Taiwan

ABSTRACT
This study adopts moving average regression and panel data regression to explore the factors affecting the financial performance of international tourist hotels in Taiwan. First, we use the unit root test to examine the data in moving average regression and in panel data regression and then use the Hausman test to examine whether the fixed-effects or random-effects model is suitable for panel data regression. Second, we employ the Lagrangian multiplier (LM) test to confirm that panel data regression is better. The findings show that domestic visitors, occupancy rate, operation year, and joining a chain system are the four key factors affecting financial performance.

Keywords: *moving average regression*, *panel data*, *financial performance*, *international tourist hotel*

Introduction

In 2014, Asia and the Pacific (except few regions) welcomed 263 million international tourists, 14 million up from 2013 (+5%), which indicates a healthy growth. The region earned $377 billion in tourism receipts, up by $16 billion over 2014 (+4% in real terms). Asia and the Pacific account for 23% of worldwide arrivals and 30% of receipts. Taiwan belongs to the Asia Pacific region, and its tourism industry is listed as one of six emerging industries by the government of Taiwan. The Taiwanese market is particularly interesting and serves as the focus of this investigation for three main reasons. First, Taiwan registered the highest growth (26.7%) in foreign tourist arrivals in the world in the first half of 2014, according to the 2015 United Nations World Tourism Organization (UNWTO) report. Meanwhile, international tourist arrivals worldwide hit 517 million, 4.6% up from a year earlier. The UNWTO report also showed that Taiwan's international tourism revenue for the first half of 2014 rose 18.5% from a year earlier—behind only Japan with a 27.5% increase and South Korea with a 25.2% rise—in the world's rankings (UNWTO, 2015). Second, due to the government's global promotion campaigns, Taiwan's foreign tourist arrivals exceeded 10 million without cross-border tourists at the end of 2015. Finally, Taiwan ranked number 11 in the *New York Times*'s list of "52 Places to Go in 2014" (cited in Shieh, Hu, & Liu, 2016).

This study examines the hotel industry, particularly international tourism hotels (ITHs), for several reasons. First, because the hotel industry is one of the most important industries in Taiwan, it is worth paying more attention to the evaluation of hotel operation efficiency. Second, since the industry in Taiwan is still at the growth and development stage, studying the financial performance of ITHs can help us understand how to manage in a more profitable way. Third, data for this industry are readily available (Shieh et al., 2016). In order to implement competitive business strategies that can enhance productivity and make operations more profitable, hoteliers need to know not only what internal strategies will effectively improve the financial performance but

CONTACT: Address correspondence to Hwai-Shuh Shieh, School of Transportation and Tourism, Kainan University, No. 1 Kainan Road, Luzhu Dist., Taoyuan City 33857, Taiwan. Email: marc1125@gmail.com.

also what types of external environments will affect the financial performance of ITHs.

According to the statistical results from the Taiwan Tourism Bureau (TTB), the number of ITHs has grown from 56 in 2002 to 75 in 2015. As mentioned previously, with the competitive environment of Taiwan's lodging industry, we want to see whether the nationalities of visitors affect a hotel's operation performance. Characteristics of ITHs such as location, occupancy rate, operation year, distance between the ITH and international airports, and management style might influence operation performance. Because many studies use operation efficiency to reflect operation performance and only a few use financial indices, the study utilizes a financial index as a financial performance variable and takes the moving average (MA) model and panel data from 2002 to 2011 to explore what factors influence ITHs' financial performance.

Literature Review

Financial performance has been broadly used as an indicator to measure business performance. Scholars usually apply a financial index to many firms of various industries, such as retailing, service, manufacturing, and so on, to show their operation ability—the hotel industry is no exception. Manson (2006) indicates that the revenue per available room (RevPAR) is a benchmark measurement that is widely used to measure performance in the lodging industry (e.g., Prasad & Dev, 2000; Kimes, 2001; Enz & Canina, 2002; Sainaghi, 2011; Xiao, O'Neill, & Mattila, 2012). However, Chen, Hu, and Liao (2011) indicate that although RevPAR is the main indicator of a firm's performance during the past few decades, very few articles examine whether RevPAR is a good indicator compared to other traditional performance measurements in the United States. With the assumption that the financial market is efficient, findings generally suggest that neither RevPAR nor other traditional performance measures provide a good indication of publicly listed lodging firms' stock performance in the United States.

Chen (2011) uses panel regression tests to investigate hotel performance in Taiwan while the industry faces international tourism development and crisis events. In the study, RevPAR, occupancy rate (OPR), return of asset (ROA), return on equity (ROE), and stock performance are viewed as performance measurements, while the 9/21 earthquake in central Taiwan, the 9/11 terrorist attacks, and the severe acute respiratory syndrome (SARS) outbreak in Asia are viewed as crisis events. The results reveal that international tourism development has a direct impact on hotel sales and profitability, while crisis events lead to a loss of hotel sales revenue.

Sharma and Upneja (2005) perform financial ratio analysis on face-to-face interviews to investigate the factors influencing financial performance of small hotels in Tanzania. Haugland, Myrtveit, and Nygaard (2007) use the multimethod approach to test the market orientation model for measuring performance. Their study applies relative productivity, calculated by data envelopment analysis (DEA) and ROA, to objective performance measures, with perceived profitability compared to key competitors being used as the subjective measure. The results show that market orientation has only a modest effect on relative productivity and no effect on ROA.

Sin, Tse, Heung, and Yim (2005) investigate the relationship between market orientation and business performance in the Hong Kong hotel industry. Return on investment (ROI), return on sales (ROS), sales growth, and market share are used as financial indicators to measure business performance. The findings reveal that there is a positive and significant link between market orientation and financial performance. Hsu and Jang (2007) employ Jensen's measure model and the market model to examine long-term and short-term postmerger financial performances of the lodging industry from 1985 to 2000. In the study, ROA and ROE are used as indicators to measure financial performance. The findings show that there is no significant relationship between merger announcement and change in equity value in the short term, but in the long term, mergers have a negative effect on equity value. The results also show that ROA and ROE are significantly lower after mergers, which indicates that shareholders do not benefit from the mergers.

Chi and Gursoy (2009) use structural equation modeling (SEM) to test the relationship between employee satisfaction and customer satisfaction, examining the impact of both on a hotel's financial performance. Profitability, ROI, and net profit are used as indicators to measure the financial performance of three- and four-star hotels located in the United States. The findings reveal that customer

satisfaction has a positive impact on financial performance, while employment satisfaction does not. Lee and Park (2009) use the Durbin-Wu-Hausman (DWU) test and two-stage least squares method to examine the link between corporate social responsibility (CSR) and firm value and financial performance for hotels and casinos. ROA and ROE are used as indicators to measure financial performance. The results show that CSR has positive effects on financial performance for hotels.

Chen (2010) utilizes panel regression tests to investigate the effect of economy and tourism growth on Taiwanese hotels' performance. OPR, ROA, ROE, and stock return are used as indicators to measure financial performance. The findings show that both real GDP growth rate and the growth rate of total foreign tourist arrivals have significant effects on OPR, but only the growth rate of total foreign tourist arrivals has a strong impact on ROA and ROE. Shieh (2012) uses panel regression to explore the relationship between cost efficiency and financial performance for ITHs in Taiwan. Three indicators—the ratio of net operating profit before taxes (RONOPBT), the ratio of earnings before taxes (ROPBT), and the ROA before taxes—measure financial performance. The findings reveal that there is no significant impact on the three financial performance variables.

Alvarez Gil, Burgos Jiménez, and Céspedes Lorente (2001) use multiple regression analysis to investigate the factors that determine the environment management practices and their effects on financial performance in Spanish hotels. They implement variables including facility age and size, chain affiliation, environmental pressures from stakeholders, and operations management to measure the effects on financial performance. The results suggest that these variables all affect the implementation of environmental management practices. Furthermore, environmental management practices have a positive impact on hotels' financial performance. Mishra, Wilson, and Williams (2009) investigate how the factors such as farm, operator, and household characteristics, along with farm type and regional location, affect financial performance of new and beginning farmers and ranchers. The results show that the relationship between age of the operator and financial performance is an inverted *U* shape. Besides, management strategies also can lead to higher financial performance.

Capon, Farley, and Hoenig (2009) employ a meta-analysis approach to study 320 published papers relating environmental, strategic, and organizational factors to financial performance. The findings point out that some widely studied factors have a relatively consistent positive impact on performance, while some have few consistent effects. However, several factors, particularly organizational variables, are understudied. For example, Almajali, Alamro, and Al-Soub (2012) aim to explore the factors affecting the financial performance of 25 Jordanian insurance companies listed at the Amman Stock Exchange during the 2002–2007 period. The results show that these variables, including leverage, liquidity, size, and management competence, have a positive effect on financial performance. Furthermore, they show that an increase of company assets leads to a good financial performance (Almajali et al., 2012).

Chittithaworn, Islam, Keawchana, and Yusuf (2011) select eight factors—small and medium enterprise (SME) characteristics, management and know-how, products and services, customer and market, business method and cooperation, resources and finance, strategy, and external environment—and try to understand how they affect the business success of SMEs in Thailand. The results show that the most significant factors are SME characteristics, customer and market, business method, resources and finance, and external environment.

Many past studies use DEA (e.g., Morey & Ditman, 1995; Tsaur, 2001; Hu, Shieh, Huang, & Chiu, 2009; Chen, Hu, & Liao, 2010; Shieh, 2012a; Shieh, 2012b; Shieh, Hu, & Gao, 2014; Shieh et al., 2016) or stochastic frontier analysis (SFA; e.g., Anderson, Fish, Xia, & Michello, 1999; Chen, 2007; Hu, Chiu, Shieh, & Huang, 2010) to examine hotels' performances and investigate what factors influence the efficiency score. Although most past studies use a financial index as hotels' performance, few discuss what factors influence the financial performance. Therefore, the purpose of this present study is to investigate the factors that affect the financial performance of ITHs.

Methodology and Data

Moving Average Regression

In time series analysis, an MA model is a common approach for modeling univariate time series models

and is conceptually a linear regression of the current value of the series against current and previous (unobserved) white noise error terms or random shocks.

In the study, the MA regression model is as follows:

$$\begin{aligned} Y_{RONOPBT} = {} & \beta_0 + \beta_1 Taipei + \beta_2 Taichung + \\ & \beta_3 Kaohsiung + \beta_4 Hualien + \\ & \beta_5 Scenic + \\ & \beta_6 Domestic + \\ & \beta_7 Overseas + \\ & \beta_8 Japan + \\ & \beta_9 Asia + \\ & \beta_{10} Europe + \\ & \beta_{11} Australia + \\ & \beta_{12} Built_{Year} + \\ & \beta_{13} Chain + \\ & \beta_{14} Distance + \\ & \beta_{15} Occ_{Rate} + \\ & \rho MA(1) + \\ & \varepsilon \end{aligned} \tag{1}$$

$$\begin{aligned} Y_{ROPBT} = {} & \\ & \beta_0 + \\ & \beta_1 Taipei + \\ & \beta_2 Taichung + \\ & \beta_3 Kaohsiung + \\ & \beta_4 Hualien + \\ & \beta_5 Scenic + \\ & \beta_6 Domestic + \\ & \beta_7 Overseas + \\ & \beta_8 Japan + \\ & \beta_9 Asia + \\ & \beta_{10} Europe + \\ & \beta_{11} Australia + \\ & \beta_{12} Built_{Year} + \\ & \beta_{13} Chain + \\ & \beta_{14} Distance + \\ & \beta_{15} Occ_{Rate} + \\ & \rho MA(1) + \\ & \varepsilon \end{aligned} \tag{2}$$

Here, $Y_{RONOPBT}$ is an ITH's RONOPBT. Y_{ROPBT} is an ITH's ROPBT. *Taipei* represents ITHs located in the Taipei region, and *Taichung*, *Kaohsiung*, *Hualien*, and *Scenic* denote the same for their areas. *Domestic* is the number of local visitors. *Overseas* is the number of overseas Chinese visitors. *Japan* is the number of Japanese visitors. *Asia* is the number of Asian visitors. *Europe* is the number of European visitors. *Australia* is the number of Australian visitors. $Built_{Year}$ is the operation year. *Chain* is an ITH that has joined an international chain system. *Distance* is the distance between and ITH and the nearest international airport. Occ_{Rate} is the occupancy rate, and ε is the error term.

Panel Data Regression

Panel data analysis is a statistical method, widely used in social science, epidemiology, and econometrics, that deals in two dimensions: cross-sectional and times series panel data. The collected data have time-series and cross-sectional traits in the study, so we use panel data regression to deal with the data and take heteroscedasticity into account to examine the fixed and random effects. Moreover, the study uses the DW test to determine whether there is first-order autocorrelation in the residual.

The panel data regression model with heteroscedasticity is shown as follows:

$$\begin{aligned} Y_{RONOPBT,it} = {} & \beta_0 + \beta_1 Taipei + \beta_2 Taichung + \\ & \beta_3 Kaohsiung + \beta_4 Hualien + \\ & \beta_5 Scenic + \\ & \beta_6 Domestic_{it} + \\ & \beta_7 Overseas_{it} + \\ & \beta_8 Japan_{it} + \\ & \beta_9 Asia_{it} + \\ & \beta_{10} Europe_{it} + \\ & \beta_{11} Australia_{it} + \\ & \beta_{12} Built_{Year_{it}} + \\ & \beta_{13} Chain + \\ & \beta_{14} Distance + \\ & \beta_{15} Occ_{Rate_{it}} + \\ & \varepsilon_{it} \end{aligned} \tag{3}$$

$$\begin{aligned} Y_{ROPBT,it} = {} & \beta_0 + \beta_1 Taipei + \beta_2 Taichung + \\ & \beta_3 Kaohsiung + \beta_4 Hualien + \\ & \beta_5 Scenic + \\ & \beta_6 Domestic_{it} + \\ & \beta_7 Overseas_{it} + \\ & \beta_8 Japan_{it} + \\ & \beta_9 Asia_{it} + \\ & \beta_{10} Europe_{it} + \\ & \beta_{11} Australia_{it} + \\ & \beta_{12} Built_{Year_{it}} + \\ & \beta_{13} Chain + \\ & \beta_{14} Distance + \\ & \beta_{15} Occ_{Rate_{it}} + \\ & \varepsilon_{it} \end{aligned} \tag{4}$$

Here, $Y_{RONOPBT,it}$ is ITHs' ratio of net operating profit before taxes; $Y_{ROPBT,it}$ is hotels' ratio of earnings before taxes; *Taipei* represents ITHs located in the Taipei region, and *Taichung*, *Kaohsiung*, *Hualien*, and *Scenic* denote the same for their areas; $Domestic_{it}$ is the number of domestic visitors; $Overseas_{it}$ is the number of overseas Chinese visitors; $Japan_{it}$ is the number of Japanese visitors; $Asia_{it}$ is the number of Asian visitors; $Europe_{it}$ is the number of European visitors; $Australia_{it}$ is the number of Australian visitors; $Built\text{-}Year_{it}$ is the operation year; *Chain* is ITHs that join a chain system; *Distance* is the distance between an ITH and the nearest international airport; $Occ_{Rate_{it}}$ is the occupancy rate; and ε_{it} is the error term.

Fixed-Effects Model

The fixed-effects model assumes that the differences of observed units come from the population, which means similarity is low in the population. Hence the study considers all differences of observed units. The regression is expressed as follows,

$$y_{i,t} = \sum_{i=1}^{N}\beta_{0i}D_i+\sum_{k=1}^{K}\beta_k x_{k,i,t}+\varepsilon_{i,t} \quad (5)$$

where i is the i_{th} hotel, t is the time period, $y_{i,t}$ is the dependent value of the i_{th} hotel in period t, β_{0i} is the fixed residual term for each hotel, and *Di* is expressed by a dummy variable to show each company's characteristic:

$$D_1=\begin{cases}1, i=1\\0, otherwise\end{cases} D_2=\begin{cases}1, i=2\\0, otherwise\end{cases}\cdots D_N=\begin{cases}1, i=N\\0, otherwise\end{cases}$$

Here, $x_{k,i,t}$ is the k_{th} variable in the kth hotel in period t, and $\varepsilon_{i,t}$ is an error term.

Random-Effects Model

Different from the fixed-effects model, the random-effects model assumes that β_{0i} is random and that the model is suitable for extracting samples from the population. Therefore, the regression is expressed as follows:

$$y_{i,t}=\beta_{0i}+\sum_{k=1}^{K}\beta_k X_{k,i,t}+\varepsilon_{i,t} \quad (6)$$
$$=\beta_0+u_i+\sum_{k=1}^{K}\beta_k X_{k,i,t}+\varepsilon_{i,t}$$

$$E(u_i)=0,\ Var(u_i)=\sigma_u^2,\ E(u_i,\varepsilon_{i,t})=0,\ E(u_i,u_j)=0,\ if\ i\neq j$$

Here, i = 1, 2, . . . , nth hotel

t = 1, 2, . . . , t period
k = 1, 2, . . . , kth independent variable
β_{0i} is residual term

$$\varepsilon_{i,t}\sim iid(0,\sigma_\varepsilon^2)$$

Hausman Test

When using panel data analysis, a study should employ the Hausman test to determine whether the fixed-effects or the random-effects model is appropriate (Hausman, 1978). The Hausman test is shown as follows:

H_0: $E(u_i, X_{k,i,t}) = 0$, it means that there is no statistical relation between u_i and $X_{k,i,t}$ when adopting the random-effects model.

H_1: $E(u_i, X_{k,i,t}) \neq 0$, it means that there is statistical relation between u_i and $X_{k,i,t}$ when adopting fixed-effects model.

If the testing result does not reject H_0, then adopting the random-effects model is appropriate; if the testing result rejects H_0, then adopting the fixed-effects model is appropriate. The study uses the LM test to examine whether the mix data or panel data regression is appropriate. When the p-value is <0.0001, it rejects the null hypothesis and indicates that the panel data model is much more suitable than the mixed data model. In addition, the study uses White-diagonal regression to examine the panel data under heteroscedasticity. Thus the model of panel data regression is more general.

Data Sources and Variable Definitions

We collected the data from the annual Operating Report of International Tourist Hotels in Taiwan published by the TTB from 2002 to 2011. Because the TTB rechecks the qualifications of each ITH, the number of ITHs may vary during the period. The number of ITHs from the 2002–2011 period is as follows: 2002 (56), 2003 (58), 2004 (58), 2005 (57), 2006 (58), 2007 (58), 2008 (59), 2009 (57), 2010 (63), 2011 (68). In order to keep the data consistent, the

study excludes those ITHs that do not have complete data and are unqualified or closed down during the observed periods. The final total number of hotels is 46, making up 460 observations.

Integrating the independent variables used in the past studies (e.g., Morey & Ditman, 1995; Anderson et al., 1999; Tsaur, 2001; Chen, 2007; Hu et al., 2009; Chen et al., 2010; Hu et al., 2010; Shieh, 2012a; Shieh, 2012b; Shieh et al., 2014; Shieh et al., 2016), this study takes into account independent variables, including the number of tourists by nationality, the distance between the closest international airport and the ITH, ITHs' establishment year, and occupancy rate. Dummy variables are also introduced to see whether ITHs' operation style and location will influence the financial performance.

Based on the convenience of data collection and availability, the study selects financial variables, such as the RONOPBT and the ROPBT, as financial performance variables. The formulae of the financial performance variables are as follows:

$$\text{RONOPBT} = \frac{(\text{net operating profit before taxes})}{(\text{revenues})}$$

$$\text{ROPBT} = \frac{(\text{earnings before taxes})}{(\text{revenues})}$$

The independent variables include the following:

- Tourist by nationality: the number of locals (Domestic), overseas Chinese (Oversea), Japanese (Japan), Asian (Asia), European (Europe), Australian (Australia), and North American tourists in each hotel. North America is viewed as a reference group and does not count in the regression.
- Distance to the international airport (Distance): the distance between the ITH and the nearest international airport. Chou, Hsu, and Chen (2008) probe the indicators considered by investors in evaluating the location selection of hotels and show that easy access to tourist attractions from a hotel is an important factor. Thus the study takes the distance from airports into account to see the impacts.
- ITH type (Chain): the dummy variable to separate ITH operations. "0" represents independent operation; "1" represents ITH joining a chain operation.
- Location of ITH (Location): the region where the ITH is located. According to the TTB's annual report, we separate ITHs into six regions: Taipei, Taichung, Kaohsiung, Hualien, scenic area, and other areas. "1" represents the hotel is located in the Taipei region, "0" means it is not, and so forth. Other areas are viewed as the reference group and do not count in the regression.
- Operation year (Built_Year): how long the ITH has been in operation. The study defines 2002 as year 1, 2003 as year 2, and so on.
- Occupancy rate (Occ_Rate): the ITH's OPR.

Empirical Results

Table 1 shows descriptive statistics of the dependent and independent variables used herein. The study employs the variance inflation factor (VIF) to investigate multicollinearity in a regression analysis. If the VIF value is bigger than 10, then the variable has collinearity with other variables. In our regression model, all VIF values of the variables are smaller than 10, allowing us to conclude that multicollinearity does not exist in this model.

After the papers by Levin and Lin (1992, 1993), the use of panel data unit root tests has become very popular among empirical researchers. The augmented Dickey-Fuller (ADF) test, which is one of the commonly used unit root tests, is now a generally accepted argument, and using panel data unit root tests is one way of increasing the power of unit root tests based on a single time series.

Table 2 is the unit root test result of the time-series variables. All variables are stationary at the 10% significance level; the study avoids the null regression situation.

Table 3 is the unit root test results of the panel data variables. All variables are stationary at the 1% significance level; the study avoids the null regression situation.

The result shows that tourist nationalities such as domestic and overseas Chinese have significant and positive effects on RONOPBT, while Japanese, Asian, European, and Australian visitors do not have a significant effect on RONOPBT. For the location variable, ITHs located in a scenic area have significantly

Table 1. Descriptive Statistics of Dependent and Independent Variables (n= 460)

Variable	Mean	Std. Dev.	Minimum	Maximum	VIF
RONOPBT	0.054845	0.180242	–1.359500	0.452500	–
ROPBT	0.020146	0.308320	–2.351500	2.215200	–
Built_Year	5.500000	2.875408	1.000000	10.00000	1.059624
Chain (Dummy)	0.586957	0.492917	0.000000	1.000000	1.473540
Distance	70671.24	60945.90	7857.00	209924.0	7.953172
Occ_Rate	0.659712	0.127503	0.082230	0.936400	1.660945
Domestic	48809.97	47598.94	593.0000	270665.0	2.153274
Overseas	4352.589	7602.947	0.000000	43054.00	1.364746
Japan	23920.25	24569.32	0.000000	122382.0	1.658953
Asia	14884.42	18111.86	0.000000	98640.00	2.917553
Europe	4868.035	6233.621	0.000000	37925.00	6.907842
Australia	924.2630	1463.067	0.000000	10825.00	7.044883
Taipei (Dummy) (Dummy)	0.413043	0.492917	0.000000	1.000000	3.879172
Taichung (Dummy)	0.108696	0.311596	0.000000	1.000000	2.870775
Kaohsiung (Dummy) (Dummy)	0.130435	0.337148	0.000000	1.000000	2.945387
Hualien(Dummy) (Dummy)	0.086957	0.282078	0.000000	1.000000	4.720789
Scenic (Dummy)	0.130435	0.337148	0.000000	1.000000	2.351293

negative effects on RONOPBT. For the variables about ITHs' characteristics, we find that participation in a chain system, the distance between the ITH and the nearest international airport, and OPR have significant positive effects on RONOPBT (see Table 4).

The DW value of the multiple regressions without an MA term is much smaller than 2, which means that there is first-order autocorrelation in the error term. From MA equation (1), the DW value close to 2 means that the condition of first-order autocorrelation has been solved.

Table 5 shows that all tourist nationalities do not have a significant effect on ROPBT, except for overseas Chinese, who have a positive effect. For the location variable, only ITHs located in a scenic area have significant negative effects on ROPBT.

Based on the empirical results of Tables 4 and 5, we can infer the following:

1. The longer an ITH's operation year is, the more operation experience an ITH has. The experience curve and learning effect will decrease the long-run average cost and increase the profits.
2. An ITH that joins a chain system can obtain more external resources that cause

Table 2. Unit Root Test Results of Variables for Time-series (n= 460)

Variable	ADF	H_0: has unit root
RONOPBT	–7.707059***	Reject H_0
ROPBT	–8.167417***	Reject H_0
Built_Year	–	–
Chain(Dummy)	–	–
Distance	–	–
Occ_Rate	–4.403726***	Reject H_0
Domestic	–4.339531***	Reject H_0
Overseas	–6.208226***	Reject H_0
Japan	–4.278889***	Reject H_0
Asia	–4.936626***	Reject H_0
Europe	–3.632240**	Reject H_0
Australia	–3.337453*	Reject H_0
Taipei (Dummy)	–	–
Taichung (Dummy)	–	–
Kaohsiung (Dummy)	–	–
Hualien (Dummy)	–	–
Scenic (Dummy)	–	–

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

Table 3. Unit Root Test Results of Variables for the Panel Data (n= 460)

Variable	Levin, Lin & Chu t*	H_0: has unit root
RONOPBT	–16.7925***	Reject H_0
ROPBT	–119.841***	Reject H_0
Built_Year	–	–
Chain(Dummy)	–	–
Distance	–	–
Occ_Rate	–17.1666***	Reject H_0
Domestic	–7.48587***	Reject H_0
Overseas	–16.4154***	Reject H_0
Japan	–12.8249***	Reject H_0
Asia	–5.25348***	Reject H_0
Europe	–6.27352***	Reject H_0
Australia	–7.12921***	Reject H_0
Taipei (Dummy)	–	–
Taichung (Dummy)	–	–
Kaohsiung (Dummy)	–	–
Hualien (Dummy)	–	–
Scenic area (Dummy)	–	–

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

Table 4. Moving Average Results of RONOPBT (n= 460)

Variable	Coefficient	t–Statistic	Prob.
C	–0.364353	–7.410695	0.0000***
Taipei (Dummy)	0.040658	1.269659	0.2049
Taichung (Dummy)	–0.112083	–2.548272	0.0112*
Kaohsiung (Dummy)	0.002535	0.061724	0.9508
Hualien (Dummy)	–0.251954	–4.063429	0.0001***
Scenic area (Dummy)	–0.174171	–4.729379	<0.0001***
Domestic	0.000000694	3.077647	0.0022**
Overseas	0.00000451	3.987379	0.0001***
Japan	0.000000387	1.032374	0.3025
Asia	–0.000000437	–0.634605	0.5260
Europe	0.000000284	1.062505	0.2886
Australia	–0.00000732	–0.647980	0.5173
Built_Year	0.001380	0.628748	0.5298
Chain (Dummy)	0.071896	3.906628	0.0001***
Distance	0.00000115	3.221097	0.0014**
Occ_Rate	0.401294	6.546912	<0.0001***
MA(1)	0.541643	13.47402	<0.0001***
F-Statistic		38.82313	
DW-Statistic		1.519587	

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

Table 5. Moving Average Results of ROPBT (n= 460)

Variable	Coefficient	t–Statistic	Prob.
C	–0.468428	–4.535526	<0.0001***
Taipei (Dummy)	–0.018220	–0.292766	0.7698
Taichung (Dummy)	–0.222948	–2.621626	0.0091**
Kaohsiung (Dummy)	0.015526	0.195008	0.8455
Hualien (Dummy)	–0.180412	–1.500961	0.1341
Scenic area (Dummy)	–0.173572	–2.438233	0.0152*
Domestic	0.000000447	0.962080	0.3365
Overseas	0.00000785	3.385600	0.0008***
Japan	0.000000418	0.534501	0.5933
Asia	–0.00000118	–0.833601	0.4050
Europe	0.00000194	0.324400	0.7458
Australia	0.00000850	0.334477	0.7382
Built_Year	0.011230	2.254433	0.0247*
Chain (Dummy)	0.144601	3.860140	0.0001***
Distance	0.000000833	1.174449	0.2408
Occ_Rate	0.432699	3.080824	0.0022**
MA(1)	0.258295	5.611630	<0.0001***
F-Statistic		9.047353	
DW-Statistic		1.953648	

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

the economies of scale and scope in the operation.

3. For an ITH, a higher OPR will bring much more revenue.

The location also does not have any effect on RONOPBT. However, participation in a chain system and OPR have significantly positive effects on RONOPBT (see Table 6).

As for the location variable, it seems that the regions where ITHs are located do not have any effect on ROPBT. However, the operation year, participation in a chain system, and OPR have significantly positive effects on ROPBT (see Table 7).

Discussion and Conclusion

Contributions of the Study

The study uses conventional financial indices to measure ITHs' financial performance and investigate what factors will affect it and then employs both MA model and panel data regression for analysis. First, we utilize the unit root to ensure the data are stationary and then run the MA regression and panel data regression. Then we use the Hausman test to understand whether the fixed-effects or the random-effects model is suitable in the panel data regression. Finally, we execute the LM test to confirm that panel data regression is better than mixed-data regression.

The study finds that domestic visitors, OPR, participation in a chain system, and operation year are the main factors that influence ITHs' financial performance. Location does not have any distinct impact on financial performance.

Implications for the Industry

The findings reveal that visitor nationality has hardly any impact on financial performance, except for domestic visitors, who have a significant effect on RONOPBT and ROPBT. This might be because the Taiwanese make up the greatest number of visitors staying at ITHs, making this segment the main source of income for ITHs. Therefore, hoteliers should develop varied and competitive marketing strategies, especially in the low seasons, to attract more domestic visitors who will be willing to spend more time and money at ITHs.

Location does not have a significant impact on the financial index of ITHs; therefore, location is not a key factor of their financial performance.

Table 6. Panel Data Results of RONOPBT (n= 460)

Variable	Coefficient	t-Statistic	Prob.
C	–0.325933	–2.968723	0.0032**
Taipei (Dummy)	0.050652	0.787642	0.4313
Taichung (Dummy)	–0.084313	–0.561497	0.5747
Kaohsiung (Dummy)	–0.022555	–0.218425	0.8272
Hualien (Dummy)	–0.182104	–0.648560	0.5170
Scenic area (Dummy)	–0.191736	–1.223739	0.2217
Domestic	0.000000942	3.396237	0.0007***
Overseas	0.00000205	2.102014	0.0361*
Japan	0.0000000655	0.199714	0.8418
Asia	0.000000143	0.390030	0.6967
Europe	0.00000126	1.101334	0.2713
Australia	–0.00000949	–2.066869	0.0393*
Built_Year	0.000824	0.527156	0.5983
Chain (Dummy)	0.077921	2.095976	0.0366*
Distance	0.000000717	0.397339	0.6913
Occ_Rate	0.387898	4.534649	<0.0001***
F-Statistic		6.703538	
DW-Statistic		1.083708	
P-value of Hausman		1.0000	
Model		Random effect model	

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

Table 7. Panel Data Results of ROPBT (n= 460)

Variable	Coefficient	t-Statistic	Prob.
C	–0.419164	–4.212558	<0.0001***
Taipei (Dummy)	0.010340	0.145634	0.8843
Taichung (Dummy)	–0.176290	–1.111605	0.2669
Kaohsiung (Dummy)	–0.003738	–0.044842	0.9643
Hualien (Dummy)	–0.127140	–0.634305	0.5262
Scenic area (Dummy)	–0.215175	–1.949473	0.0519
Domestic	0.000000898	2.397052	0.0169*
Overseas	0.00000468	1.960652	0.0505
Japan	–0.000000192	–0.128656	0.8977
Asia	–0.000000702	–0.805469	0.4210
Europe	–0.00000332	–0.595174	0.5520
Australia	0.0000188	1.238428	0.2162
Built_Year	0.012403	3.734638	0.0002***
Chain (Dummy)	0.154764	2.399220	0.0168*
Distance	0.000000397	0.324187	0.7459
Occ_Rate	0.388593	3.534558	0.0005***
F-Statistic		2.785903	
DW-Statistic		1.946599	
P-value of Hausman		1.0000	
Model		Random effect model	

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

OPR is the key factor that affects RONOPBT and ROPBT. It is obvious that the two financial indices concern ITHs' earnings, and so OPR is directly related to an ITH's profits. A higher OPR implies more visitors staying at the hotel who are more likely to spend their money on other services that will increase operation earnings, such as food and beverage and the like. In view of the research findings, hoteliers should develop promotion strategies to enhance their OPRs and thus increase their profits.

The operation year of an ITH is another important factor that affects financial performance. A higher operation year for an ITH indicates that the hotelier may have more experience in operation and investment. Hoteliers thus learn some techniques to improve their operation abilities by past operation and investment experiences to better their hotel's financial performance.

When an ITH joins a chain system, the business information and standard operation procedures (SOPs) can be shared among the members, thus helping improve management performance. Members in a chain system can also enjoy sharing a booking system and having a marketing advantage. If visitors change their lodging site in different countries, then the ITHs could introduce the visitors to other chain member ITHs and hence indirectly increase chain members' profits. Moreover, if visitors have not chosen a lodging place, then ITHs in a chain system are more likely to be selected due to prestige.

Because of catastrophic natural disasters and increasing threats of terrorism recently, Min, Min, Joo, and Kim (2009) point out that the hotel industry has been stricken by increasing competition and declining revenues. They suggest that hoteliers should execute more proactive strategies to make their operations leaner, including reducing their debt ratio, increasing their profit margin, conducting competitive niche marketing, and striving for continuous improvement in service quality (Min et al., 2009). Taiwan is without exception, and its hotel industry also has fierce competition. Therefore, management performance is always a vital issue for hoteliers.

Limitations and Future Studies

The present study provides several contributions to the international tourist hotels research by incorporating some "financial performance" variables into a statistical regression model. Despite these contributions, there are several limitations. First, international tourist hotels are only one type of lodging service. Future studies could apply the framework employed in this research to other lodging services, such as hotels and hostels, to confirm its generalizability. Second, this study only collected data from Taiwanese ITHs; however, ITHs located in other countries may have some different factors affecting their financial performance. This category of ITHs may be underrepresented in the current research. Future studies can overcome this limitation by collecting data from other countries with a purposive sampling method. Third, the study selects two conventional financial performance variables; future researchers may want to explore whether there are other variables affecting the financial performance of ITHs.

References

Almajali, A. Y., Alamro, S. A., & Al-Soub, Y. Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman Stock Exchange. *Journal of Management Research*, *4*(2), 266.

Alvarez Gil, M. J., Burgos Jiménez, J., & Céspedes Lorente, J. J. (2001). An analysis of environmental management, organizational context and performance of Spanish hotels. *Omega*, *29*(6), 457–471.

Anderson, R. I., Fish, M., Xia, Y., & Michello, F. (1999). Measuring efficiency in the hotel industry: A stochastic frontier approach. *International Journal of Hospitality Management*, *18*(1), 45–57.

Capon, N., Farley, J. U., & Hoenig, S. (1990). Determinants of financial performance: A meta-analysis. *Management Science*, *36*(10), 1143–1159.

Chen, C. F. (2007). Applying the stochastic frontier approach to measure hotel managerial efficiency in Taiwan. *Tourism Management*, *28*(3), 696–702.

Chen, C. T., Hu, J. L., & Liao, J. J. (2010). Tourists nationalities and the cost efficiency of international tourist hotels in Taiwan. *African Journal of Business Management*, *4*(16), 3440–3446.

Chen, J., Koh, Y., & Lee, S. (2011). Does the market care about RevPAR? A case study of five large US lodging chains. *Journal of Hospitality & Tourism Research*, *35*(2), 258–273.

Chen, M. H. (2010). The economy, tourism growth and corporate performance in the Taiwanese hotel industry. *Tourism Management*, *31*(5), 665–675.

Chen, M. H. (2011). The response of hotel performance to international tourism development and crisis events. *International Journal of Hospitality Management*, *30*(1), 200–212.

Chi, C. G., & Gursoy, D. (2009). Employee satisfaction, customer satisfaction, and financial performance: An empirical examination. *International Journal of Hospitality Management*, *28*(2), 245–253.

Chittithaworn, C., Islam, M. A., Keawchana, T., & Yusuf, D. H. M. (2011). Factors affecting business success of small and medium enterprises (SMEs) in Thailand. *Asian Social Science*, *7*(5), 180.

Chou, T. Y., Hsu, C. L., & Chen, M. C. (2008). A fuzzy multi-criteria decision model for international tourist hotels location selection. *International Journal of Hospitality Management*, *27*, 293–301.

Enz, C. A., & Canina, L. (2002). The best of times, the worst of times: Differences in hotel performance following 9/11. *Cornell Hotel and Restaurant Administration Quarterly*, *43*(5), 41–52.

Haugland, S. A., Myrtveit, I., & Nygaard, A. (2007). Market orientation and performance in the service industry: A data envelopment analysis. *Journal of Business Research*, *60*(11), 1191–1197.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, *46*, 1251–1271.

Hsu, L. T., & Jang, S. (2007). The postmerger financial performance of hotel companies. *Journal of Hospitality & Tourism Research*, *31*(4), 471–485.

Hu, J. L., Chiu, C. N., Shieh, H. S., & Huang, C. H. (2010). A stochastic cost efficiency analysis of international tourist hotels in Taiwan. *International Journal of Hospitality Management*, *29*(1), 99–107.

Hu, J. L., Shieh, H. S., Huang, C. H., & Chiu, C. N. (2009). Cost efficiency of international tourist hotels in Taiwan: A data envelopment analysis application. *Asia Pacific Journal of Tourism Research*, *14*(4), 371–384.

Kimes, S. E. (2001). How product quality drives profitability: The experience at Holiday Inn. *Cornell Hotel and Restaurant Administration Quarterly*, *42*(3), 25–28.

Lee, S., & Park, S. Y. (2009). Do socially responsible activities help hotels and casinos achieve their financial goals? *International Journal of Hospitality Management, 28*(1), 105–112.

Levin, A., & Lin, C. F. (1992). *Unit root test in panel data: Asymptotic and finite sample properties* (Discussion Paper No. 92–93). University of California at San Diego.

Levin, A., & Lin, C. F. (1993). *Unit root test in panel data: New results* (Discussion Paper No. 93–56). University of California at San Diego.

Manson, E. (2006). RevPar needs an overhaul. *Caterer & Hotelkeeper*, *196*, 16.

Min, H., Min, H., Joo, S. J., & Kim, J. (2009). Evaluating the financial performances of Korean luxury hotels using data envelopment analysis. *Service Industries Journal*, *29*(6), 835–845.

Mishra, A., Wilson, C., & Williams, R. (2009). Factors affecting financial performance of new and beginning farmers. *Agricultural Finance Review*, *69*(2), 160–179.

Morey, R. C., & Dittman, D. A. (1995). Evaluating a hotel GM's performance. *Cornell Hotel and Restaurant Administration Quarterly*, *36*(5), 30–35.

Prasad, K., & Dev, C. S. (2000). Managing hotel brand equity: A customer-centric framework for assessing performance. *Cornell Hotel and Restaurant Administration Quarterly*, *41*(3), 22–24.

Sainaghi, R. (2011). RevPAR determinants of individual hotels: Evidences from Milan. *International Journal of Contemporary Hospitality Management*, *23*(3), 297–311.

Sharma, A., & Upneja, A. (2005). Factors influencing financial performance of small hotels in Tanzania. *International Journal of Contemporary Hospitality Management*, *17*(6), 504–515.

Shieh, H. S. (2012a). The greener, the more cost efficient? An empirical study of international tourist hotels in Taiwan. *International Journal of Sustainable Development & World Ecology*, *19*(6), 536–545.

Shieh, H. S. (2012b). Does cost efficiency lead to better financial performance? A study on Taiwan international tourist hotels. *Journal of Hospitality Financial Management*, *20*(1), 17–30.

Shieh, H. S., & Deng, W. L. (2012). Setting standards for green: An analysis of Taiwan green hotel rating program. *Actual Problems of Economics*, *136*(10), 544–553.

Shieh, H. S., Hu, J. L., & Gao, L. Y. (2014). Tourist preferences and cost efficiency of international tourist hotels in Taiwan. *International Journal of Marketing Studies*, *6*(3), 35–48.

Shieh, H. S., Hu, J. L., & Liu, T. Y. (2016). An environment-adjusted dynamic efficiency analysis of international tourist hotels in Taiwan. *Current Issues in Tourism* (forthcoming).

Sin, L. Y. M., Tse, A. C. B., Heung, V., & Yim, F. H. K. (2005). An analysis of the relationship between market orientation and business performance in the hotel industry. *International Journal of Hospitality Management*, *24*(4), 555–577.

Taiwan Tourism Bureau. (2002–2011). *Operating report of international tourist hotels in Taiwan*. Taipei: Author.

Tsaur, S. H. (2001). The operating efficiency of international tourist hotels in Taiwan. *Asia Pacific Journal of Tourism Research*, *6*(1), 73–81.

United Nations World Tourism Organization. (2015). *UNWTO Annual Report*. Madrid, Spain: Author.

Xiao, Q., O'Neill, J. W., & Mattila, A. S. (2012). The role of hotel owners: The influence of corporate strategies on hotel performance. *International Journal of Contemporary Hospitality Management*, *24*(1), 122–139.