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The market structure, conduct and performance paradigm re-applied to the international tourist hotel industry

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This paper presents a market structure, conduct, performance model (SCP) of industrial economics to estimate causes and effects among the international tourist hotel industry. Previous literature could not confirm the causality of the hotel industry, therefore, this paper develops a comprehensive model, based on realistic data of hotels, which allows the analysis of the system through three simultaneous equations, market share, advertising, and profitability. In a sample of 360 Taiwanese international tourist hotels, from 1995-2006, three-stage least squares results indicate that: (1) two-way causes and effects exist between the market structure and strategic behavior, which is detected from the incentive pattern of the SCP model; (2) a brand positive effect shows on the market share; (3) a firms' profitability is positively, and significantly, impacted by market share, but is affected negatively by total operating costs and capital intensity, which confirms hotel industry issues regarding capital.

Key words: Hotels, market structure, conduct, performance.

INTRODUCTION

This paper employs a market structure, conduct, performance model (SCP), as based on industrial economics (Scherer and Rose, 1990; Shepherd, 1990), to investigate causal flows and feedback effects among international tourist hotel markets. It further identifies the variables that affect the hotel market structure, a firms' strategic behavior, and performances.

The Taiwanese government has developed a major tourist industry over the past ten years, and China's liberalization of overseas tourism and the 911 terrorist attacks in the U.S., has resulted in increased international tourism for East Asia and the Pacific area. Potential demand for hotels was greatly increased with the changes to cross-straight travel to Taiwan for tourists from China. Taiwan is a top priority destination of tourists from China since the liberalization of overseas tourism,

as based on the relationship of "blood is thicker than water", thus, the hotel market structure was altered by the entrance of new competitors. This growth trend of international tourism in Taiwan (Table 1) has resulted in the expansion of local chain hotels and induces international chain hotels, such as Four Seasons, Kagaca, and Hyatt to enter into Taiwan's hotel market.

International tourist hotel are the nuclear products of the tourism industry, and thus, there are much earlier research focusing on the variables of hotels' performance (Table 2). However, most studies concentrated on identifying the factors that affect the performance of hotels. Only few studies attempted to obtain the relevant causes and effects among hotel market structure, conduct, and performance.

Much literature confirmed the performance of firms was associated with market structure and firms' strategic behavior (e.g., advertising). Scherer (1980) demonstrated that advertising promoted market power which is the ability of a firm to alter the market price of a good or service by differentiating products and decreased market

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Table 1. Market structure, advertising and performance of international tourist hotels in Taiwan (1995~2006).

Year	No. of hotels	No. of rooms	Total revenue (million US dollars)	Average market share rate	Average advertising	Average occupation rate of room (%)	Average daily rate (US dollars)	Operating COST (million US dollars)	Average production value per employee
1995	53	16714	991	0.019	0.015	61	96	1328	0.051
1996	53	16964	1044	0.027	0.014	60	95	957	0.052
1997	54	16845	963	0.032	0.015	62	95	851	0.054
1998	53	16558	991	0.024	0.013	57	79	888	0.047
1999	56	17403	1031	0.022	0.015	59	86	937	0.050
2000	56	17057	1053	0.021	0.014	61	91	948	0.056
2001	58	17815	894	0.019	0.012	58	81	835	0.049
2002	62	18790	853	0.011	0.012	58	78	793	0.046
2003	62	18776	838	0.019	0.012	55	79	746	0.046
2004	61	18705	1008	0.035	0.012	65	89	91	0.053
2005	60	18385	1069	0.023	0.011	71	92	909	0.061
2006	60	17733	1066	0.026	0.010	69	98	936	0.053

Source: Taiwan Tourism Bureau (1995-2006).

power by increasing the quantity of information available to consumers regarding prices. Hence, advertising could affect market structure and profit. However, market structure and profit also could affect advertising. Delorme et al. (2002) confirmed the market structure, conduct and performance determined their internal relationships jointly. This paper aims to address issues of causal flows and feedback effects among the hotel market structure, conduct, and performance by using an econometric model (SCP). The early PIMS model (profit impact of market strategies) concerned in how to improve the profitability by a business's strategies and reallocating resources. However, this PIMS model was the absence of the feedback effects between the profitability and market strategies. In this paper, we use the SCP model to estimate these causal flows and feedback effects among the hotel market structure, conduct (strategies), and performance. The SCP

model, by Bain (1951, 1956) was usually applied to the manufacturing industry. The primary SCP model concerned with one-way relationships from market structure to conduct and performance. More, Bain (1951) claimed that market structure affected the firms' performance directly but did not go through by market behavior. Davies (1996, 1999) and Pan (2005) addressed Bain's (1951, 1956) rationale to the hotel sector (Figure 1). Davies and Downward (1996) first used this model in the service sector of UK hotels and adopted a linear relationship between hotel performance, concentration, market share, and unemployment rates by using the ordinary least squares (OLS) regression model. Davies (1999) attempted to test how the market structure and performance interacted by using OLS and confirmed the feedbacks relationship between market share and performance. However, the inter-relationship between market share and other firm

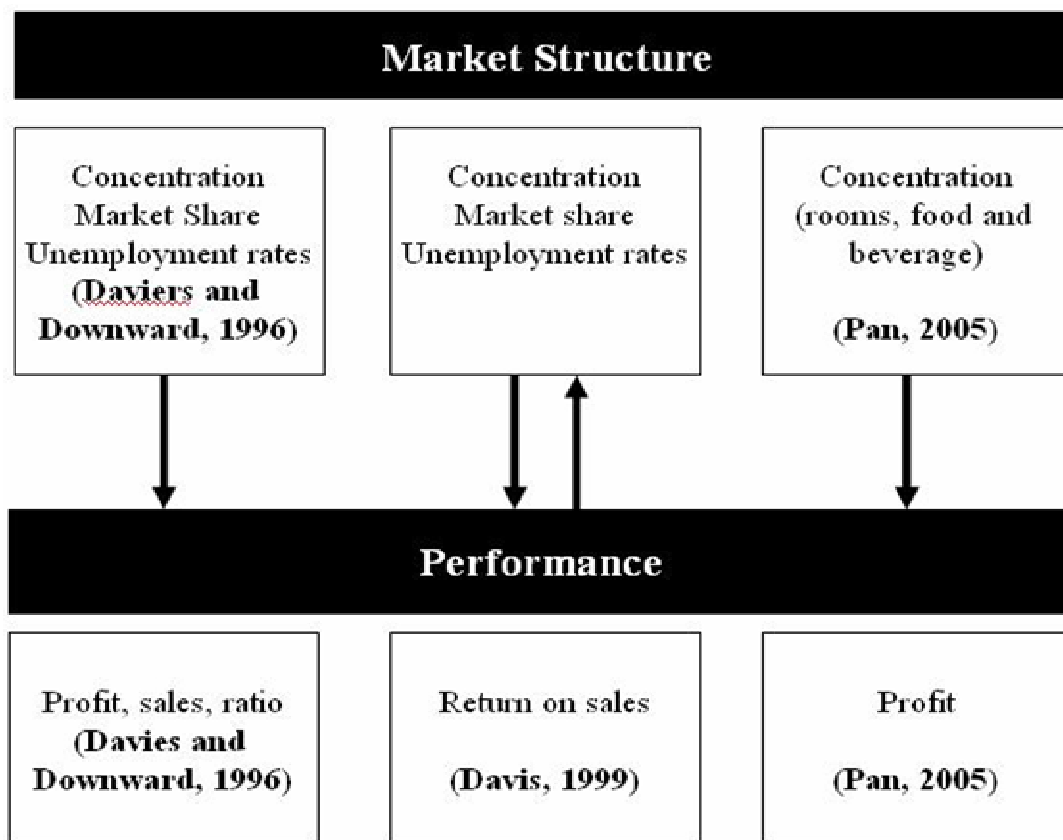
specific variables was unclear due to a lack of hotel characteristic data, such as occupation rate of rooms, daily rates, number of employees, star rating, services provided, internationalized chain, and advertising expenditures.

As Pan (2005) mentioned that Davies's (1999) approach failed to detect the effects of hotels and he adopted panel data of the international tourist hotel in Taiwan to investigate relationships between market structure (rooms, food and beverages) and profitability by OLS. Nevertheless, Davies (1999) and Pan (2005) proposed Bain's (1951, 1956) model that market structure directly influenced the performance of a firm with no clear intermediate effects between market structure and strategically behaviors.

Bain's early paradigm (1951, 1956) has been extensively developed by others, such as Scherer and Ross (1990) and Shepherd (1990), who recognized the multiple feedback effects and

Table 2. Studies on the hotel performance.

Paper	Method	Input	Output
Morey and Dittman (1995)	Data envelopment analysis (DEA)	Total operating expenditure, average occupation rate of room, average daily rate, Number of rooms, number of employees: (54 U.S. hotels)	Total revenue
Anderson et al. (1999)	Stochastic frontier approach	Return on sales, number of rooms, number of employees (48 U.S. hotels)	Total revenue
Tsaur (2001)	DEA	Average occupation rate of room, average daily rate, number of rooms, number of employees (53 Taiwan hotels)	Total operating revenue
Hwang and Chang (2003)	DEA	Number of rooms, number of employees, operating expense (45 Taiwan hotels)	Revenue of food and beverage
Wang et al. (2006)	DEA	Number of rooms, Number of employees, total area of meal department (54 Taiwan hotels)	Revenue of food and beverage, Revenue of rooms
Chen (2007)	Stochastic frontier approach	Price of labor, price of food and beverage, price of materials (55 Taiwan hotels)	Total revenue

**Figure 1.** Schemes of Davies (1996, 1999) and Pan (2005).

causation flows that existed in the SCP model, which were overlooked by Bain (1951, 1956). This paper proposes a reexamination and refinement of the original SCP model in an effort to explore multiple feedback

effects and causation flows of hotel markets, which Davies (1999) and Pan (2005) failed to mention, through the consideration of such insights as hotel characteristics, and referred to in the empirical model.

LITERATURE REVIEW

Market structure

According to the operation analysis report of Taiwan Tourism Bureau, there are two groups of hotels in Taiwan, that is, international tourist hotels and ordinary tourist hotels. Most of the international tourist hotels are rated four-star or five-star and the ordinary tourist hotels are three-star. Since the data of ordinary tourist hotels are not available, this paper does not include the ordinary tourist hotels.

A growing trend for international tourists in Taiwan accelerated the international investment in international tourist hotels market. In the earlier year (1995), there were 53 international tourist hotels with a total of 16,714 rooms (Table 1). In 2006, more international tourist hotels entered into this market that contributed to low average market share rate lying between 0.01 - 0.03 (Table 1).

Scherer and Ross (1990) postulated the definition of the market structure as characteristics of market organization, such as, the numbers of consumers and the degree of market power. Davies (1999) has confirmed the positive significant relationship between the market share as an index of the market structure and performance in the hotel sector. Therefore, this paper is to take the market share data for calculating the market structure index.

Conduct

Scherer and Rose (1990) suggested the conduct in the SCP model was related with the firms' product strategies, innovation and advertising. Hotels are distinctive in the service provided sector and the two variables, product strategies and innovation often tested by those manufacturing industries (Kraft, 1989) are excluded. As indicated in Table 1, the advertising expenditure (the mean of advertising expenditure / return on sales) always maintained over 1% of the total return on sales that showed those hotels' managers speculated the effects of advertising on sales.

A much number of studies have tried to find an explanation for market structure and advertising. Scherer (1980, ch14) confirmed that the advertising promoted the consumer loyalty and market share. The latest study (Resende, 2007) offered an evidence which indicated the advertising variables exerting the positive effect on concentration but the negative effect with respected to profitability. Some literature show that the advertising is an increasing function of sales return, as for example the studies by Vlachvei and Oustapassidis (1998); Willis and Rogers (1998). Israeli et al. (2000) identified the significant effects of advertising on the competition and financial performance. In sum, a bulk of empirical literature considered the advertising strategies referred to the market structure and performance.

Performance

In SCP model, it has been recognized that the performance of a firm is associated with market structure and strategies (behavior) of a firm (Scherer and Rose, 1990). The considerations of different aspects of market performance are, such as, production efficiency, advanced technology, product quality and profit rate. The hotel performance considered the input variable referred to operation cost (Morey and Dittman, 1995; Anderson et al., 1999; Tsaur, 2001), average production value per employee (Tsaur, 2001), average occupation rate of room (Morey and Dittman, 1995), average daily rate (Morey and Dittman, 1995; Anderson et al., 1999).

Additionally, the output variable selected from much literature (Tsaur, 2001; Hwang and Chang, 2003; Wang et al., 2006; Chen, 2007) is the total revenue as in this study. The input and output data of performance of international tourist hotels in Taiwan are reported in Table 1. The total revenue, daily rate and operating cost tends toward being increasing which indicates the market demand of the international tourist hotels in Taiwan are growing up and competitive.

METHODOLOGY

Model specifications

Figure 2 illustrates the pattern of causes and effects that guide this study. Cowling and Waterson (1976) set up an explicit theoretical model of the relationship between market structure and performance. The SCP model in terms of simultaneous equations with a system composing three equations of market structure, conduct and performance has been emerged by Delorme et al. (2002). Proceeding from the prior studies and theoretical background on the SCP model of the hotel sector, this paper treats three endogenous hotel variables, market share, advertising, and profitability jointly determined.

$$MS = f(AD, PF, X_1)$$

$$AD = f(MS, PF, X_2)$$

$$PF = f(MS, AD, X_3)$$

Where MS denotes market share, AD denotes firm advertising, and PF denotes firm profitability. X_1 , X_2 , and X_3 are vectors of exogenous variables. The three empirical equations are further defined as follows.

Market share equation

The market share is governed by advertising activities (AD) for mature products (Nguyen, 2006). The higher advertising intensity is expected to result in higher market share ($a_1 > 0$). Two published literatures (Davies, 1999; Matovic, 2002) have confirmed the positive significant relationship between the market share, as an index of the market structure and performance (PF) ($a_2 > 0$). Therefore, this paper intends to take the market share data, which

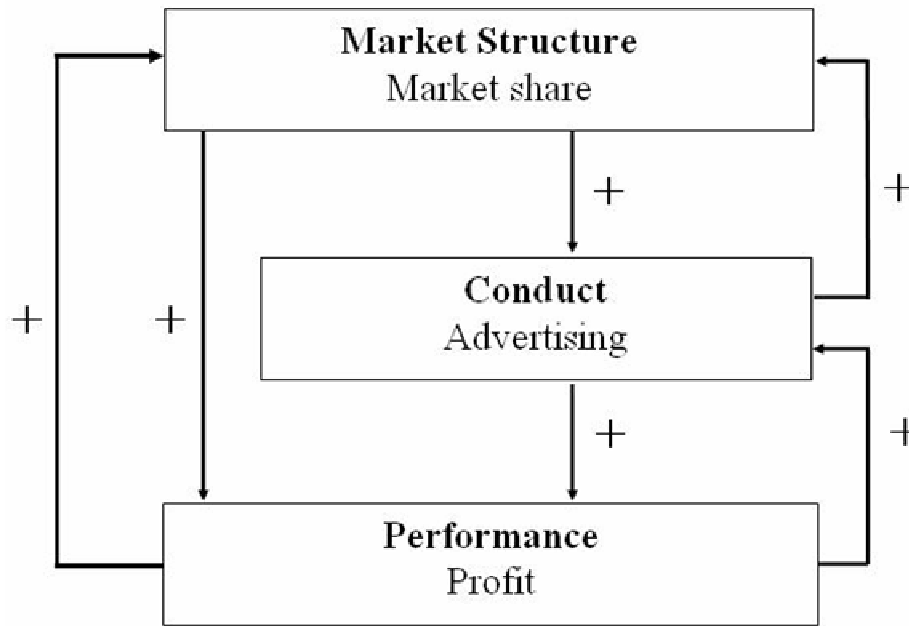


Figure 2. SCP model of hotels.

is primarily concerned with sales, to calculate the market structure index. The industrial sales growth rate (ISAG) and sales growth rate (SG), as proposed by Oustapassidis et al. (2000), who suggested that, an increase of a firm's sales growth is expected to positively affect the market share ($a_3 > 0$), where as due to increased entry opportunities of growing industries, market shares are expected to be lower ($a_4 < 0$). Occupation rates (OCPY) (Greenberg, 1986; Morey and Dittman, 1995; Tsaur, 2001; Wu et al, 2008), brand recognition (INTL) and chain (CHAIN) (O'Neill and Mattila, 2006) are essential to the sales of hotels ($a_5 > 0, a_6 > 0, a_7 > 0$). We estimate the market share equation as follows,

$$MS = a_0 + a_1AD + a_2PF + a_3SG + a_4ISAG + a_5OCPY + a_6CHAIN + a_7INTL \quad (1)$$

Advertising equation

Considerable literature examines the relationship between market structure and advertising. Oustapassidis et al. (2000) suggested if the market share affected advertising intensity, the relationship was expected positively and they confirmed the inference ($b_1 > 0$). Israeli et al. (2000) identified significant effects from advertising on both competition and financial performance (PF) ($b_2 > 0$). Strickland and Weiss (1976) postulated that advertising intensity is one of the determinations of concentration, and their results suggested an inverted-U form relationship exists between concentration and advertising intensity.

Advertising is initially expected to increase with low concentration and to decrease with high concentration (Greer, 1971). This paper considers concentration (CR_4) and squared concentration (CR_4^2),

which are motivated by a possible inverted-U relationship, as suggested by Strickland and Weiss (1976) and Greer (1971) ($b_3 > 0, b_4 < 0$).

If the hotel's sales grow up, the relationship between the advertising and the sales growth rate could be positive with a high growth rate leading to higher advertising intensity. ($b_5 > 0$). When a market (industry) is growing, gains in sales from advertising may be delayed, or show a loss in sales, due to other firm's advertising (ISAG) (Oustapassidis et al., 2000) ($b_6 > 0$). Most hotels in a given product class (CLASS) are interchangeable in the customers' mind, and hotel class affects the advertising which creates a particular picture of a product (Lewis, 1990) ($b_7 > 0$). This paper postulates a class dummy variable; a five-star class hotel assumes a value of 1, and 0 otherwise. The advertising equation takes the form of:

$$AD = b_0 + b_1MS + b_2PF + b_3CR_4 + b_4CR_4^2 + b_5SG + b_6ISAG + b_7CLASS \quad (2)$$

Profitability equation

The SCP model recognizes that a firm's performance is associated with market structure and the firms' strategies (Scherer and Rose, 1990). A stream of research confirmed a positive relationship between hotels' profit and advertising intensity (AD) (Greenberg, 1986) ($c_1 > 0$), market share (MS) (Miller, 1990) ($c_2 > 0$), earnings growth rate (ISAG) (Nkomo, 1987) ($c_4 > 0$) and a negative relationship with total operating costs (TOC) (Greenberg, 1986; Morey

and Dittman, 1995; Anderson et al., 2000; Tsaur, 2001) ($c_8 < 0$). The PIMS model also confirmed that market share and profitability are positively related ($c_2 > 0$). These references also suggest that the market share, advertising intensity, sales growth rate, and total operating costs are considered in this profitability equation.

The concentration ratio (CR_4) is included to test whether the concentration of the hotel market is a positive determinant of profitability, as based on previous works by Pan (2005) ($c_3 > 0$). Minimum efficiency scale (MES) is a term used in industrial economics to denote the smallest output that a firm can produce at a minimum long run average cost. A larger MES is a barrier to market entrance as more capital is required. As a MES increases, the more a given sized firm must grow to realize maximum efficiency (Audretsch, 1995), which suggests the MES is as a barrier of entrance. A high MES firm, with market power, is capable of reaching higher profits ($c_5 > 0$).

The assets value (K) (Barros and Alves, 2004) is a barrier to market entrance which expected to be positive associated with profit ($c_6 > 0$). Chathoth and Olsen (2007) also confirmed the market value of asset was positively contributed to the performance of a restaurant ($c_6 > 0$). The higher labor intensity (L) is associated with less performance (Campos-Soria et al., 2005) which is especially negative relevant to profit ($c_7 < 0$). According to explanatory considerations of literature, the profitability equation is estimated as:

$$PF = c_0 + c_1 AD + c_2 MS + c_3 CR_4 + c_4 ISAG + c_5 MES + c_6 K + c_7 L + c_8 TOC \quad (3)$$

Measurement of variable and data source

Table 3 summarizes the definition of each variable and measurement. The basic data source of this study is operational analysis reports for international tourist hotels, as obtained from the Taiwan Tourism Bureau, for the period of 1995-2006, which includes responses from all the international tourist hotels in Taiwan. In the hotel sector, some characteristics, such as, average occupation rate, local chains, international chain, and hotel class rating, are particularly different from examined manufacturing sectors. The year 2007 is excluded because advertising expenditure data was not available for that year. A limitation of this study is that its data source is limited to the secondary data compiled by the Tourism Bureau. However, the internal information such as service qualities and atmospheres can not be measured using the above data set. Furthermore, the data set does not provide the information about ordinary tourist hotels.

The descriptive statistics of international tourist hotels in Taiwan are reported in Table 4. CR_4 is 0.29 which indicates the monopolistic market (Shepherd, 1990, P14). The data set is available to permit using a panel data set to explore the cause flows and feedback effects.

This study uses balanced panel data (36 firms \times 11 years, excluded from those missing values are identified over the eleven-year period) to investigate the interrelated relationship among market share, profitability and advertising intensity.

This paper implements first-differencing transformation of variables to eliminate the issues caused by omitting variables and unobserved effects (Wooldridge, 2002) and to lose 36 observations of one time period. The final number of observations is 360 observations. Three equations are presented as follows:

$$\Delta MS_{it} = a_0 + a_1 \Delta AD_{it} + a_2 \Delta PF_{it} + a_3 \Delta SG_{it} + a_4 \Delta ISAG_{it} + a_5 \Delta OCPY_{it} + a_6 \Delta CHAIN_{it} + a_7 INT_{it} \quad (4)$$

$$\Delta AD_{it} = b_0 + b_1 \Delta MS_{it} + b_2 \Delta PF_{it} + b_3 \Delta CR_{4it} + b_4 \Delta CR_{4it}^2 + b_5 \Delta SG_{it} + b_6 \Delta ISAG_{it} + b_7 \Delta CLASS_{it} \quad (5)$$

$$\Delta PF_{it} = c_0 + c_1 \Delta AD_{it} + c_2 \Delta MS_{it} + c_3 \Delta CR_{4it} + c_4 \Delta ISAG_{it} + c_5 \Delta MES_{it} + c_6 \Delta K_{it} + c_7 \Delta L_{it} + c_8 \Delta TOC_{it} \quad (6)$$

The differenced equations may contain serial correlation and heteroscedasticity. This paper then examines whether the differenced variables have serial correlation by using the Wooldridge test (Wooldridge, 2002). The null hypothesis suggests that these equations do not possess serial correlations and pose no cause for concern in equations regarding advertising intensity, market share, and profitability. This paper also examines the test for groupwise heteroscedasticity. The analytical results show that three equations exits strong evidence of groupwise heteroscedasticity. To accommodate the situation of heteroscedasticity, this paper uses a three-stage least squares (3SLS) method to examine the jointly determined relationship among market share, profitability and advertising intensity.

This paper proposes a simultaneous-equation system to model the above relationship by a SCP framework. Ordinary least squares (OLS) estimation of system equations will generate biased and inconsistent estimators due to correlation between independent variables and disturbance term of equations. The estimation of the model using the 3SLS technique is essential difference by the OLS of Davies (1996, 1999) and Pan (2005).

There are two approaches for estimation of simultaneous models, one is to estimate each equation separately using limited information estimator (e.g., method of two-stage least squares, limited-information maximum likelihood) and the other one is to calculate estimators by using full information of the entire system of equations (e.g., method of three-stage least squares, full-information maximum likelihood and generalized method of moments). The latter methods generate estimators that are generally more efficient (asymptotically) than the former ones if there is heteroscedasticity or autocorrelation.

In the systems methods, three-stage least squares (3SLS) estimators are more robust with non-normally distributed disturbances than full-information maximum likelihood (FIML) estimators (Greene, 2003). Therefore, this paper uses 3SLS to estimate the system equations. This paper tested the existence of simultaneity using the Hausman test (1978). If the market share, advertising, or profitability present endogeneity, then the null hypothesis that market share, advertising, or profitability are exogenous will be rejected. These variables then can be deemed endogenous. As shown at Table 5, an endogeneity problem does exist in market share and advertising equations. Additionally, these three equations satisfied the order and rank conditions of identification.

EMPIRICAL RESULTS

Before presenting the results of 3SLS estimation, this paper uses the Wooldridge test (Wooldridge, 2002) to check the problems of serial correlation, and the test results show that F values (MS0.672, AD0.151, PF1.373)

Table 3. Definitions and measurement of variables.

Variables	Definition and measurement
MS (market share)	The percentage of total revenue in the hotel market, as captured by firm <i>i</i>
AD (advertising intensity)	Advertising expenses divided by revenue
PF (profitability)	Aggregated, before tax, ratio of accounting profits to total revenue, shown as a percentage
SG (sales growth rate)	Firm <i>i</i> changes to sales dividends, as compared with the previous year's total revenue
ISAG (industrial sales growth rate)	Industry <i>i</i> changes in revenue dividends, as compared to the previous year's total revenue
OCPY (average occupation rate)	Actual daily revenue divided by the total number of available room
CHAIN (local chain)	A dummy variable, which assumes a value of 1 if the hotel is a member of local chain, and 0 otherwise
INTL (international brand)	A dummy variable, which assumes a value of 1 if the hotel is a member of an international chain, and 0 otherwise
CR ₄ (concentration rate)	The sum of the market share of hotels ranked within the top four firms
CLASS (class of hotels)	Hotel class
MES (the minimum efficiency scale)	The average revenue of those firms whose sum is over 50% of the total industrial revenue
K (capital intensity)	Firm <i>i</i> total assets over total revenue in each year
L (labor intensity)	Firm <i>i</i> number of employees over total revenue in each year
TOC (total operating costs)	Total cost

Table 4. The descriptive statistics of international tourist hotels in Taiwan (1995 ~ 2006).

Variables	AD	MS	PF	CR ₄	SG	ISG	MES	K	L	TOC	OCPY	CHAIN	INTL	CLASS
Mean	0.012	0.019	0.031	0.290	0.026	0.024	0.057 ^b	1851.275	0.026 ^a	0.0182 ^b	0.635	0.240	0.19	0.720
S.D.	0.128	0.131	1.157	0.033	0.343	0.069	0.348	9.316	0.323	0.864	0.137	0.429	0.389	0.457

Note: a: Employ/million US dollars. b: Billion US dollars.

at Table 5 are insignificant, thereby suggesting that serial correlation is not a problem. This paper tests for groupwise heteroscedasticity by using modified Wald tests. The analytical results show the significant χ^2 values (MS14027, AD135.88, PF175.36) at Table 5, providing evidence of groupwise heteroscedasticity. Thus, this study uses 3SLS method which performs well in the case of heteroscedasticity while dealing with simultaneity to estimate the jointly determined relationships among market share, advertising, and profitability.

Table 5 and Figure 3 indicate some important issues regarding simultaneous causes and effects among hotel market structures, advertising, and performances. In the market share equation, the coefficient of advertising intensity (AD) is unexpected negatively but significantly, indicating that the advertising does not drive market share. What appears to be negative and significant is the advertising. We expect it could be intensive competition of hotel market. The hotel industry shows positive effects of industry sales growth (ISAG) on market share, indicating that the hotel industry sales growth occurs from the demand for hotels, and which increase is led by original and new entry hotels. The fact of industry sales growth mentioned in the previous introduction section is also confirmed in the part. The results of this paper

confirm that, a hotel entering into the international system (INTL) depends on reputation effects, which exerts the expected positive and statistically significant effects on market share. This finding is consistent with the study from O'Neill and Mattila (2006). Furthermore, the profit does not affect the market share significantly. The results show that the profit does not increase the market share due to the characteristics of monopolistic competition.

In the advertising equation, The R square of advertising intensity equation presented in Table 5 is 0.121. This means that the included variables together explain about 12.1% of the variation in advertising intensity for the sample of hotels. This may not seem like a high percentage. But we note that there are some other industries, firms or behavior characteristics including strategic goals or management affinity that contribute to advertising intensity. The directions of CR₄ and CR₄² coefficients were as expected, and insignificant, which does not support the inverted U-shape relationship between CR₄ and advertising. However, the advertising is affected positively by hotel's market share and class. The hotels with greater market shares and higher star class ratings tend to have higher advertising expenditures. The results from the market share equation and advertising equation are very interesting. They show that the larger share firm

Table 5. 3SLS estimates of market structure, conduct, performance model.

Variables	MS	AD	PF
Constant	-0.002 (0.007)	-0.003 (0.012)	-0.082 (0.131)
AD	-0.222* (0.130)		1.690 (1.619)
MS		0.098* (0.059)	1.012* (0.551)
PF	0.002 (0.006)	0.005 (0.007)	
CR ₄		1.438 (7.041)	-7.803 (11.359)
CR ₄ ²		-3.469 (13.167)	
SG	-0.004 (0.012)	-0.001 (0.014)	
ISAG	0.285*** (0.109)	0.161 (0.140)	-1.081 (1.806)
MES			0.459 (0.304)
K			-0.068*** (0.006)
L			-0.463 (0.330)
TOC			-0.263*** (0.464)
OCPY	-0.004 (0.070)		
CHAIN	-0.046 (0.046)		
INTL	1.241*** (0.088)		
CLASS		0.300*** (0.047)	
R ²	0.291	0.121	0.316
Hausman test	25.48***	8.26***	0.66
Wooldridge test	0.672	0.151	1.373
Groupwise heteroscedasticity test	140.27***	135.88***	175.36***

Note: a. *, ** and *** denote statistical significance at 10%, 5%, and 1% level of significance, respectively. b. Standard errors in parenthesis.

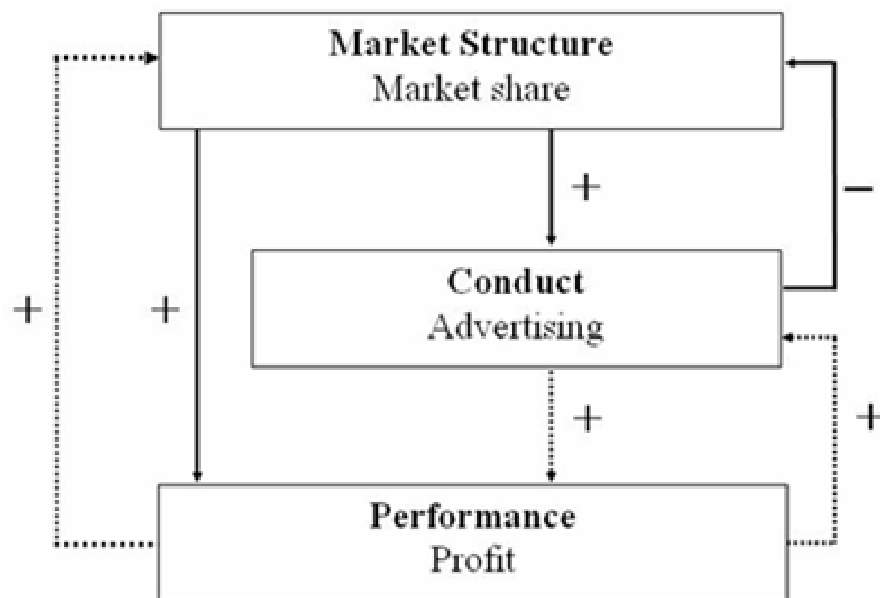


Figure 3. The empirical results of SCP model of hotels. Note: Significant effects (solid lines) and insignificant effects (dash line).

undertakes the advertising sunken cost can not gain market share. As Gillbert (1990) observed that, advertising by large chains provides greater sophistication that

promotes their particular segments, styles, and types of products. The results of this study, according to greater market shares, suggested that five- star hotels are more

willing than non-five star hotels to promote their services through advertising. The profit variable is not found to be significant in the advertising equation. The hotels gain from their market share (the result is from the following profit equation) and are not intent in advertising by their profit.

In a short summary, a simultaneous relationship exists between market share and advertising (Figure 3). These two-way causes and effects relationship indicates that higher market shares lead to increased intensity of advertising, and vice versa. The results support those contributed by Scherer and Rose (1990) and Shepherd (1990).

In the profitability equation, the effect of market share is as expected positively and significantly on a hotels' profit, as higher market shares assist in creating more profit. Furthermore, the advertising does not affect the profits of a hotel but the directions of coefficients were as expected. Most consumers prefer the well-known hotels. The other less celebrated hotels do not benefit from their advertising. Minimum efficiency scale does not exert the significant effect on the profitability that could be the low concentration structure of the hotel market in Taiwan. The barrier of entrance does not provide the enough market power to promote the profitability. However, the capital intensity is carried on the profitability unexpected negatively and significantly. This evidence reveals hotels in Taiwan do not make the most of their capacity to gain profit. Also the increased operational costs lead to a significant decrease of profits.

Conclusions and Implications

The aim of this paper is to reapply the SCP model, which tests causal flows and effects in Taiwan's international tourist hotels by identifying factors that affect hotel market structure, conduct, and performance. The evidences provide very different results from Pan (2005) and Davies (1999) to assess insight of the hotel industry.

This paper identifies two-way causes and effects that exist between market structure and their strategic behaviors. In particular, it identifies a positive response of market share to advertising, however, a negative effect of advertising to market share. A hotel with higher market shares is able to sustain heavy advertising intensity. However, any hotel that engages in high costs for advertising may create unexpected market share advantages due to the specificities from monopolistic market in Taiwan. This implies that those policymakers who perceive optimal advertising expenditures may avoid possible deadweight effects.

An internationally recognized brand significantly improves market shares directly and gains in profit indirectly. On the other hand, a lower concentration market also reveals an ease-entrance of market. This evidence clearly shows that brand value is an important factor in determining competitiveness, suggesting that

new entrant's strategy may benefit by joining an international chain. Furthermore, the star rating influences advertising expenditures, which suggests that five-star hotels shape their image and differences through advertising, more than non-five star hotels do, enabling them to achieve higher market shares. Finally, high market shares result in higher profits as similar to Pan (2005).

The two-way causes and effects strategies between market structure and strategic behaviors are provided in this paper. In spite of a wealth of information on the modern international tourist hotel industry, there is insufficient causal evidence within the sectors of profit to market share, and profit to advertising. Nevertheless, this investigation of SCP models in hotel industry practices could clearly benefit policymakers.

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