Chapter 9
Formulating Management Strategy for International Tourist Hotel Using DEA

Shiuh-Nan Hwang and Te-Yi Chang

Abstract In the face of a highly competitive environment, it has long been considered important for a hotel to formulate a business competition strategy, strengthen corporate operations and upgrade quality of service. This paper is to discuss the management strategies formulation of the international tourist hotel industry in Taiwan based on the efficiency evaluation. First, data envelopment analysis (DEA), developed by Charnes et al. (Eur J Oper Res 2(6):429–444, 1978), is used to measure the relative managerial efficiency of the international tourist hotels in Taiwan. Through the Kruskal-Wallis, Taiwan's international tourist hotels are divided into different strategic group. Secondly, by way of factor analyses of industry strategies, a clear picture of the industry strategies and features are identified. Consequently, the appropriate management strategies for different market segments are discussed. The research shows that the efficiency of international tourist hotels is different due to their managerial styles. International tourist hotels can be categorized into three groups: international cooperation; domestic franchise; and independent. "Target market", "product differentiation", "the degree of vertical integration", "economics of scale", "location" and "competitive edges" is concluded as the key factors to the formation of the managerial strategies. These six variables are used to discuss the managerial strategies of each market segment. The result of this paper will provide useful information for future business management needs of managers. Also, they may serve as valuable reference to the relevant authority of tourism.

Keywords International tourist hotel • Efficiency evaluation • Management strategic • Data envelopment analysis

S.-N. Hwang (✉)
Department of Business Administration, Ming Chuan University, 250,
Chung Shan N. Rd., Sec. 5, Taipei 111, Taiwan, ROC
e-mail: snhwang@mail.mcu.edu.tw

T.-Y. Chang
Graduate Institute of Travel and Tourism Management, National Kaohsiung
University of Hospitality and Tourism, No. 1, Songhe Rd., Xiaogang Dist.,
Kaohsiung 812, Taiwan, ROC

9.1   Introduction

Strategy formulation is the set of processes involved in creating the strategies of the organization. The starting point in formulating strategy is usually SWOT analysis. One must first measure the comparative performance of the entire industry, before one may understand one's strengths and weaknesses. At the same time, one has to evaluate an organization's opportunities and threats. Therefore, a number of frameworks have been developed for identifying the major strategic alternatives that organizations should consider when choosing their strategies.

The strategy types in the study of Miller and Snow (1978) as well as the basic competitive strategy presented by Porter (1980, 1991) emphasize the relationship between strategy and changes in the external environment, when some scholars have presented core competencies (Ansoff 1990; Prahalad and Hamel 1990) and competitive advantage (Day 1994), focusing on the internal qualities of the organization as well as the research on the fit between resources and competencies. Base on the abovementioned research viewpoints, to understand the differences between the characteristics of various resources and the efficiency of resource input and utilization is the key to the organization improving business performance and building competitive advantage.

International tourist hotel operations not only require enormous capital and a huge labor force, but also modern equipment and sound management skills to improve service quality and enhance business performance. Conner (1991) and Okavarrueta (1996) went as far as to emphasize that organizations need to have specific resources and skills to enhance business performance. Roth et al. (1995) further clarified that for the service industry to produce good performance, an important factor of competitive advantage is strategic marketing and the integration of resources and service capabilities. There is a need to study the resources put in by the organization as well as the efficiency aspect of the output to enhance business performance and create competitive advantage for international tourist hotels.

In addition, with intense industry competition, coming up with a clear competitive strategy is the key to strengthening the corporate business form and raising the quality of service. Strategy group analysis provides a way to understand industry's competitive structure. After being first presented by Hunt in 1972, many scholars have focused on studies related to strategy groups. The study hopes to use strategy group analysis to categorize the international tourist hotel industry into groups according to different strategy styles and study the differences between them. Through group analysis, hotel managers will be able to understand the competitive position the entire industry is in as well as the strategy style of high-performing industry groups; this will serve as strong reference for managers in their choice of strategies.

Therefore, taking off from a performance evaluation standpoint, this study prioritizes the implications of multiple inputs and outputs of resource utilization efficiency. It uses the Data Envelopment Analysis (DEA) presented by Charnes et al. (1978) to evaluate the relative managerial efficiency of Taiwan's international

tourist hotels. Finally, based on the results of managerial efficiency and operational features of the hotel industry, this paper use the concept of strategy groups to divide Taiwan's international tourist hotels into different groups to study the business strategies appropriate for each group, creating competitive advantage and achieving the goal of sustainable business.

9.2 Research Problem

9.2.1 Issues

With the economic development and technological progress seen in recent years, barriers to international travel have gradually been eliminated. Moreover, with a boom in international trade, international exchanges have largely increased, contributing to a rapid growth in global travel and tourism. Tourism has not only become one of the largest sources of income for many countries but also has an effective means to stimulate global economic development.

Since Taiwan entered the martial law in 1949, the development of international tourism industries in Taiwan has encountered significant limitations. With the lifting of this law in 1985, tourist activities have grown and the number of tourist arrivals increased from 1.3 million in 1985 to 5.56 million in 2010. Revenues from travel and foreign currencies increased from US$919 million to US$8719 million in 2010. With the lifting of martial law in Taiwan, hotels have mushroomed nationwide. International hotel numbers have increased from 44 in 1985 to 68 in 2010.

To improve the ability to receive international travelers, hoteliers have aggressively joined international chain organizations. By bringing in the management skills, professional concepts, as well as management techniques and talents of these international chains, they hope to increase the number of international clients and expand their market base. These hoteliers also see a huge potential in Taiwan's tourism market.

In recent years, the number of business travelers has increased and newly operated hotels, such as the Hyatt, Westin, Prince, Sheraton, Shangrila, and Novotel, Crowne Plaze, Okura, Kagaya, W Hotel, Le Meridien have entered into the market. Amid fierce competition, the older hotels like the Grand Hotel, Ambassador Hotel, Mandarina Crown Hotel were refurbished to retain and attract new customers. Some hotels of independent operations joined franchise-chains, to increase management competencies, local hotel brands need to integrate innovation. Groups like the FIH Regent Group and the L'Hotel de Chine Group, to name a few, have been aggressively consolidating their brands to respond to the market's needs.

In the face of intense industry competition, the crucial issue is how to come up with a marketing competition strategy to strengthen the corporate operational form and raise the quality of service. Taiwan's hotels adopt two ways to respond to competition. First, they segment the market by targeting international travelers and domestic tourists so as to increase the sources of customers. Second, some hotels joined franchise-chains, outsourced management and acquired membership in

international hotel associations to introduce international management systems and promoting managerial capacities.

However, what kind of strategy is more effective in the highly competitive environment? When formulating any strategy, is it necessary to have a sound knowledge of relative managerial efficiency of a given hotel relative to the entire industry? What are the factors that affect managerial efficiency in the industry? Which hotels serve as positive examples? All of these help evaluate one's strengths and weaknesses in formulating strategies.

Therefore, this paper discusses two issues:

1. What is the relative managerial efficiency of international tourist hotels today? Will managerial efficiency differ in different market conditions, sources of customers, room size and management style?
2. What is the strategic management factors affecting international tourist hotels? How is the management performance of each group of hotels? What are their business strategies?

To answer the above questions, this paper used data envelopment analysis (DEA) to measure the managerial efficiency of international hotels in Taiwan. Based on patterns of operation, hotels are classified into three large groups: independent operations, domestic chains and international chain operations. International chain operations are further subdivided into franchise chain, management contract and membership.

And strategic decision-making factors for the hotel industry is divided into six value activities: target market, product features, vertical integration level, economies of scale, geographical location, and competitive weapon to study the relationship between the management type of each hotel and business efficiency. The study's conceptual structure is seen in Fig. 9.1.
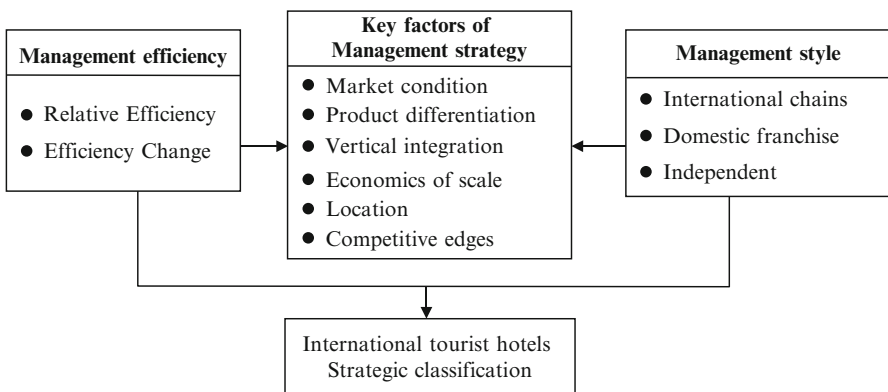

Fig. 9.1 Conceptual framework

9.2.2 Related Literature

Performance evaluation has been proven a vigor part of hotel management, not only be used as reference in decision-making, but also as the basis of improvement. Therefore, the measurement of efficiency becomes an important and broad-scope subject, particularly in hotel industry. For hotel operators, productivity is always a top priority (Brown and Dev 1999, 2000; Reynolds and Thompson 2007; Sigala 2004; Wang et al. 2006a, b). The concept of hotel productivity, like a spider web, wider includes efficiency, effectiveness, quality, predictability, and other performance dimensions (Sigala 2004). Brown and Dev (1999, 2000) also stated that productivity involves issues of efficient management, labor productivity (measurable), service productivity (elusive measures), and capital productivity.

As we can see, operational efficiency correlates closely to productivity. Therefore, efficient management becomes a main issue and objective for managers because this would affect the hotel productivity (Yang and Lu 2006; Brown and Ragsdale 2002; Sustainable Energy Ireland [SEI] 2001). In addition, many researches have proven that firms can improve hotel productivity through effective strategic decisions according to the demand and competitive conditions (Morey and Dittman 1995; Phillips 1996; Brown and Dev 1999).

However, there should be other factors coherent to productivity in hotel industry, as Anderson et al. (1999) suggested that the relative productivity of the hotel industry needed to take the mix and nature of services provided into account. Moreover, efficiency is often not easy to evaluate accurately because of difficultly determining an effective amount of resources. Recently, new techniques have been developed that have ability to compare the efficiency of similar service organization by explicitly considering their use of multiple inputs to produce outputs, including data envelopment analysis (DEA), the stochastic frontier approach, the thick frontier approach, and the distribution-free technique (Anderson et al. 1999).

Especially, DEA has been wider accepted and applied in many fields, such as in literature (Charnes et al. 1978), or in the performance/productivity of a hotel (Reynolds 2004; Reynolds and Thompson 2007). Wang et al. (2006a, b) employed the DEA and used the Tobit regression model to evaluate the efficiency determinants of the firms. Due to these researches, we could find out that DEA is an exceptional tool because it does not require an assumption about functional form of the model that underpins the relationships between the input and output variables (Hwang and Chang 2003).

In addition, Tsai et al. (2009) also pointed out that DEA is a rigorous tool in the analysis of firm-specific competitiveness factors because it provides a direct assessment between efficiency and financial performances. It also takes into consideration multiple input and output measurements to estimate relative efficiencies in the amount of decision-making units in international hotel chains. Especially, with the growing of prominent hotel groups, the use of DEA will be applied for more complex productivity analysis to obtain compilation of detail and quality data in more complicated and competitive environments. For example, the increasing

number of strategic alliances among the various segments of hospitality industry will intensify competition and also enhance the advantages of incumbent firms. Consequently, re-structuring or redistribution of resources in a business firm will inevitably influence the measurement of efficiency and productivity.

Few researchers have applied DEA to measure the efficiency change of hotels. Therefore, with the purpose of providing updated knowledge on theories, concepts, ideas and empirical studies on competitiveness in the context of tourism destinations and the hotel industry, this paper uses data envelopment analysis (DEA), developed by Charnes et al. (1978), and the Malmquist productivity index expressed by Färe et al. (1992), to measure the managerial efficiency of 51 hotels in 2010 and the efficiency change of 51 hotels from 2005 to 2010. Finally, based on the results of managerial efficiency and operational features of the hotel industry. This paper is to discuss the management strategies formulation of the international tourist hotel industry in Taiwan based on the efficiency evaluation.

9.3 Measuring Efficiencies of the International Tourist Hotels

9.3.1 Object of Study

The study based its sample on the international tourist hotels included in the 2010 Business Analysis Report of International Tourist Hotel Operations in the Taiwan Area printed in 2011. The first stage of the study analyzes the business efficiency of 51 international tourist hotels and the second stage conducted cross timeframe analysis from the years 2005 to 2010. Basic international tourist hotel data is show in Table 9.1.

9.3.2 Defining Input–Output Factors

Looking at the related local and foreign literature on international tourist hotel business performance, definition of input output may be different according to the purpose of the study and the model used. Johnson and Ball (1989) used the concept of productivity to measure hotel performance; input variables included labor, capital, raw materials, and energy, while output variables were occupancy rates and number of meals. Jeffrey and Hubbard (1994) and Chow et al. (1998) focused on occupancy performance; major influencing factors included number of foreign visitors, amount of marketing and promotional budget, and number of rooms for travelers. Tsaur and Tsai (1999) established the capital function of international tourist hotels; output variable being business income and input variables being number of rooms, labor costs, raw material expense, and utilities. Keh et al. (2006)

Table 9.1 The basic information of international tourist hotels in Taiwan

No	Hotel	Area	Room	Management style	Type of visitors	Type of hotels
H1	Grand Hotel Taipei	1	402	B	E	G
H2	Ambassador Hotel	1	432	C1	E	G
H3	Imperial Hotel	1	288	A	E	G
H4	Gloria Prince Hotel	1	220	A	E	G
H5	Emperor Hotel	1	97	A	E	G
H6	Riverview Taipei Hotel	1	201	A	E	G
H7	Caesar Park Hotel	1	388	C2	D	G
H8	Golden China Hotel	1	215	A	E	G
H9	San Want Hotel	1	268	C1	D	G
H10	Brother Hotel	1	250	A	D	G
H11	Santos Hotel	1	287	A	E	G
H12	The Landis Taipei Hotel	1	209	A	D	G
H13	United Hotel	1	243	A	D	G
H14	Sheraton Taipei Hotel	1	692	C1	D	G
H15	Royal Taipei Hotel	1	202	C1	D	G
H16	Howard Hotels Taipei	1	606	B	D	G
H17	Grand Hyatt Taipei	1	865	C1	D	G
H18	Regent Taipei	1	569	C2	D	G
H19	Sherwood Taipei	1	343	C3	D	G
H20	Shangri-La's Far Eastern Plaza Hotel Taipei	1	420	C2	D	G
H21	The Westin Taipei	1	288	C1	D	G
H22	Hotel Kingdom	2	457	A	E	G
H23	Hotel Holiday Garden	2	274	A	D	G
H24	Kaohsiung Ambassador Hotel	2	457	C1	D	G
H25	Grand Hi-Lai Hotel	2	436	A	D	G
H26	Howard Plaza Hotel Kaohsiung	2	283	B	D	G
H27	The Splendor Kaohsiung	2	592	B	D	G
H28	Han-Hsien International Hotel	2	311	B	D	G
H29	Hotel National	3	319	A	D	G
H30	Plaza International Hotel	3	226	A	E	G
H31	Evergreen Laurel Hotel (Taichung)	3	354	A	D	G
H32	Howard Prince Hotel Taichung	3	155	B	D	G
H33	Splendor Hotel Taichung	3	222	B	D	G
H34	Astar Hotel	4	168	A	E	G
H35	Marshal Hotel	4	270	A	E	F
H36	Parkview Hotel	4	343	A	E	F
H37	Hualien Farglory Hotel	4	381	A	D	F
H38	Landis Resort Yangmingshan	1	50	A	D	F

(continued)

Table 9.1 (continued)

No	Hotel	Area	Room	Management style	Type of visitors	Type of hotels
H39	Lalu Hotel	5	96	A	D	F
H40	Hibiscus Resort	5	201	B	E	F
H41	Grand Hotel Kaohsiung	2	107	B	D	F
H42	Caesar Park Hotel Kenting	5	254	C3	D	F
H43	Howard Beach Resort	5	418	B	D	F
H44	Hotel Royal Chihpen	5	183	C1	D	F
H45	Taoyuan Hotel.	6	390	C1	E	G
H46	Hotel Royal Hsinchu	6	208	B	D	G
H47	Hsinchu Ambassador Hotel	6	257	A	D	G
H48	Hotel Tainan	6	152	A	E	G
H49	Tayih Landis Hotel Tainan	6	315	A	D	G
H50	Evergreen Laurel Hotel (Tainan)	6	197	B	D	G
H51	Formosan Naruwan Hotel	6	276	A	E	F

Note: Area: 1, Taipei; 2, Kaohsiung; 3, Taichung; 4, Hualien; 5, Scenic Area; 6, Others
Management style: A, Independent; B, Domestic chains; C, International chains (C1, Franchise; C2, Management Contract; C3, Membership)
Type of visitors: D, FIT (Foreign Independence tour); E, Group (Group tour)
Type of hotels: G, City hotel; F, Resort hotel

presented a three-stage measurement model from a marketing standpoint. Among these, efficiency measurement used total business expenditure and number of rooms as input variables and marketing expenditure as output variable; performance measurement used marketing expenditure as input variable and room and F&B revenues as output variables and; productivity measurement used total expenditure and number of rooms as input variables and room and F&B revenues as output variables. Hsieh and Lin (2009) used room revenue, F&B revenue, number of employees, business expenditure, occupancy rate, size of F&B size efficiency as output and input indicators and conducted Network DEA to measure hotel industry performance. Aside from these studies, many scholars have compared the efficiency of chain- and independently- operated hotels, most of them found that hotels with chain operations are more efficient than independently operated ones (Hwang and Chang 2003; Chiang et al. 2004; Wang et al. 2006a, b; Perrigot et al. 2009; Yu and Lee 2009).

Input resources for tourist hotels management include input material, staff, capital and equipment. These resources produce tangible and intangible services through front office and back office operations (Yasin et al. 1996). There were two primary revenues for tourist hotels in Taiwan: accommodation and meals. These constitute more than 80 % of total revenues of hotels. Other revenues include revenues from laundry, lease of store space, night clubs, service fee, all of which do not exceed 20 % of total revenues.

Among input factors, numbers of employees are used to represent input manpower, total floor area of room numbers and dining department is used to represent capital investments of hotel and operating expenses are used to represent cost of input changes. In summary, indicators used by the Taiwan Tourism Bureau for input–output factors are as follows:

Output Factors

- Room Revenue: refers to revenues from lease of rooms.
- Food and Beverages Revenue: refers to income derived from sale of food, snacks, alcohols, beverages in dining room, coffee room, banquet and night clubs.
- Other Revenues: refers to revenues other than the two items mentioned above. It includes operating revenues from lease of store spaces, laundry, swimming pool, ball courts, barber-shop, beauty salons and bookstores.

Input Factors

- Number of full-time Employees: refers to hired employees.
- Guest Rooms: refers to number of guest rooms in the hotel.
- Total Area of Meal Department: measured by total floor area.
- Operating Expenses: including salary, cost of meals, utility, fuel, insurance and other relevant operating costs.

9.3.3 Relative Efficiency Evaluation of Models

This paper uses data envelopment analysis (DEA), developed by Charnes et al. (1978). According to CCR model, developed by Charnes et al. (1978), the efficiency g_0 of a decision making unit (DMU) j_0 can be obtained by solving the following output- oriented CCR model:

$$1/g_0 = Min \ \sum_{i=1}^{m} v_i x_{ij_0}$$

$$s.t. \ \sum_{j=1}^{n} u_r y_{rj_0} = 1$$

$$\sum_{j=1}^{n} u_r y_{rj} - \sum_{j=1}^{n} v_i x_{ij} \leq 0$$

$$u_r, v_i \geqq \varepsilon > 0, \quad i = 1, \ldots, m \quad r = 1, \ldots, s \quad j = 1, \ldots, n$$

(9.1)

For computational convenience, the efficiency of any DMU j_0 can be solved by dual of M1. The dual of M1 can be written as follows:

$$1/g_0 = \text{Max} \ \ \theta + \varepsilon \left(\sum_{i=1}^{m} s_{ij_0}^- + \sum_{r=1}^{s} s_{rj_0}^+ \right)$$

$$s.t. \quad \sum_{j=1}^{n} \lambda_j x_{ij} + s_{ij_0}^- = x_{ij_0}$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - \theta y_{rj_0} - s_{rj_0}^+ = 0 \qquad (9.2)$$

$$\lambda_j, s_{ij_0}^-, s_{rj_0}^+ \geq 0, \quad \text{i} = 1, \ldots, \text{m}$$

$$\text{r} = 1, \ldots, \text{s}, \quad \text{j} = 1, \ldots, \text{n}$$

$$\theta \ \text{unconstrained}$$

The necessary and sufficient conditions for any DMU j_0 to reach efficiency are $g_0 = \theta^* = 1, s_{ij_0}^{-*} = s_{rj_0}^{+*} = 0$, where a star superscript to a variable is used to denote its optimal solution (Charnes et al. 1978). For efficient DMUs, their efficiency value is 1 form the efficient frontier. The target provides benchmark for an inefficient DMU j_0 can be derived from $x_{ij_0}' = x_{ij_0} - s_{ij_0}^{-*}$ and $y_{rj}' = \theta^* y_{rj_0} + s_{rj_0}^{+*}$, where the slacks $s_{ij_0}^{-*}$ imply inputs surpluses and slacks $s_{rj_0}^{+*}$ imply outputs shortfalls. Besides, (9.2) identifies a set of corresponding efficient DMUs said to form a peer group for each inefficient DMU. Peer units are associated with basic λ_j. Since the efficiency value is 1 for all efficient DMUs on the efficient frontier, Anderson and Petersen (1993) proposed a modified model of (9.2) to increase the discrimination power for every efficient DMU by adding a constrain $j \neq j_0$.

9.3.4 Measurement of Efficiency Change

The method for measuring an organization's efficiency can be extended to measure the change of an organization's efficiency with the combination of the Malmquist productivity approach (Cave et al. 1982). As shown in Fig. 9.2, F_t represents the efficient frontier at period t, and F_{t+1} the efficient frontier at period $t + 1$. $A_t(x_t, y_t)$ and $A_{t+1}(x_{t+1}, y_{t+1})$ represent the inputs-outputs vector of a DMU A at period t and $t + 1$, respectively. To propose the method for measuring the efficiency change from the time periods t to $t + 1$, the efficiency distance functions $D^{t+1}(x^t, y^t)$ are defined (which use the efficient frontier period $t + 1$ as the reference set for measuring the efficiency of a certain DMU A at period t, as the following linear programming problem:

Fig. 9.2 The output based measurement of efficiency change

$$D^{t+1}(x^t, y^t) = \text{Max } \theta$$
$$s.t. \quad \sum_{j=1}^{n} \lambda_j^{t+1} x_{ij}^{t+1} \leq x_{ij}^t$$
$$\sum_{j=1}^{n} \lambda_j^{t+1} y_{rj}^{t+1} \geq \theta y_{rj0}^t \qquad (9.3)$$
$$\lambda_j^{t+1} \geq 0, \qquad i = 1, \ldots, m$$
$$r = 1, \ldots, s, \quad j = 1, \ldots, n$$
$$\theta \text{ unconstrained}$$

Similarly, we also can define $D^t(x^{t+1}, y^{t+1})$, which is to use the efficient frontier period t as the reference set for measuring the efficiency of a certain DMU A at period $t+1$, as the following linear programming problem:
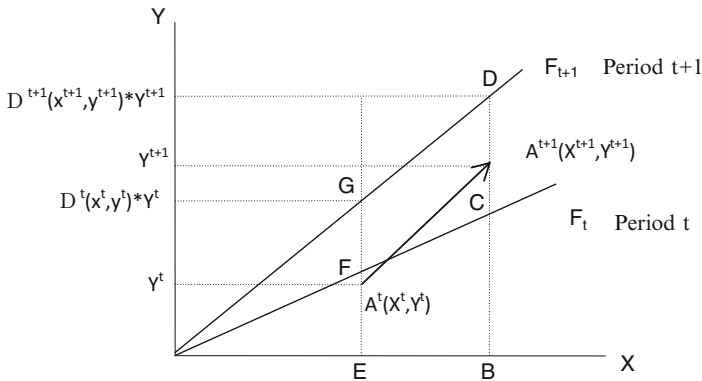
$$D^t(x^{t+1}, y^{t+1}) = \text{Max } \theta$$
$$s.t. \quad \sum_{j=1}^{n} \lambda_j^t x_{ij}^t \leq x_{ij}^{t+1}$$
$$\sum_{j=1}^{n} \lambda_j^t y_{rj}^t \geq \theta y_{rj}^{t+1} {}_0 \qquad (9.4)$$
$$\lambda_j^t \geq 0, \qquad i = 1, \ldots, m$$
$$r = 1, \ldots, s, \quad j = 1, \ldots, n$$
$$\theta \text{ unconstrained}$$

Obviously, both $D^t(x^t, y^t)$ and $D^{t+1}(x^{t+1}, y^{t+1})$ are output-oriented CCR model as (9.2). From the geometric meaning of aforementioned distance function in Fig. 9.1, we know that:

$$D^t(x^t, y^t) = EF/EA^t, \quad D^{t+1}(x^{t+1}, y^{t+1}) = BD/BA^{t+1},$$
$$D^t(x^{t+1}, y^{t+1}) = BC/BA^{t+1}, \quad D^{t+1}(x^t, y^t) = EA^t/EG$$

According to the Malmquist productivity index expressed by Färe et al. (1992) following Cave et al. (1982), the shift in efficiency (SIE) from period t to period $t + 1$ can be described by BD/BC and EG/EF. The geometric average of BD/BC and EG/EF can be used to measure the SIT, as represented by (M5)

$$SIE_{t,t+1} = \left[\frac{BD}{BC} \frac{EG}{EF} \right]^{1/2} = \sqrt{\frac{D^{t+1}(x^{t+1}, y^{t+1})D^{t+1}(x^t, y^t)}{D^t(x^{t+1}, y^{t+1})D^t(x^t, y^t)}} \qquad (9.5)$$

Also the catching-up in efficiency (CIE) from period t to period $t + 1$ can be represented by (M6), which represents the ratio between the relative efficiency of a DMU at period $t + 1$ against that at period t.

$$CIE_{t,t+1} = \frac{BA^{t+1}/BD}{EA^t/EF} = \left[\frac{D^{t+1}(x^{t+1}, y^{t+1})}{D^t(x^t, y^t)} \right]^{-1} = \frac{D^t(x^t, y^t)}{D^{t+1}(x^{t+1}, y^{t+1})} \qquad (9.6)$$

$CIE_{t,t+1} \times SIE_{t,t+1}$ can be used to measure the total efficiency change (TEC) from the time period t to period $t + 1$; that is

$$TEC_{t,t+1} = CIE_{t,t+1} \times SIE_{t,t+1}$$
$$= \frac{D^t(x^t, y^t)}{D^{t+1}(x^{t+1}, y^{t+1})} \sqrt{\frac{D^{t+1}(x^{t+1}, y^{t+1})D^{t+1}(x^t, y^t)}{D^t(x^{t+1}, y^{t+1})D^t(x^t, y^t)}}$$
$$= \sqrt{\frac{D^t(x^t, y^t)D^{t+1}(x^t, y^t)}{D^t(x^{t+1}, y^{t+1})D^{t+1}(x^{t+1}, y^{t+1})}} \qquad (9.7)$$

(9.7) is the same as Malmquist productivity index, that is we use Malmquist productivity index as a measure for efficiency change (Fig. 9.2).

9.4 Managerial Efficiency of International Tourist Hotels

9.4.1 Relative Managerial Efficiency

Based on (9.2) CCR model and the Andersen and Petersen model, an evaluation of input–output information published in the Taiwan Tourism Ministry "Analytical Report on Management of International Tourist Hotels" was conducted in 2010 (Taiwan Tourism Bureau 2011). Results, in order of relative managerial efficiency, relative efficiency, reference set and frequency which DMU is in reference set, are shown in Table 9.2. Hotels with the value of 1 means that relative efficiency of hotels

Table 9.2 Efficiency analysis for international tourist hotels in 2010

No	Hotel	CCR efficiency	Reference groups	A&P efficiency	Frequency	Rank
H1	Grand Hotel Taipei	1.0000	H1	9.8003	1	1
H2	Ambassador Hotel	0.9843	H18, H48, H50	0.9843	0	15
H3	Imperial Hotel	0.6235	H7, H18, H50	0.6235	0	48
H4	Gloria Prince Hotel	0.7513	H7, H18, H42	0.7513	0	45
H5	Emperor Hotel	0.8072	H13, H34, H42	0.8072	0	39
H6	Riverview Taipei Hotel	0.9275	H7, H18, H50	0.9275	0	18
H7	Caesar Park Hotel	1.0000	H7	5.8410	25	1
H8	Golden China Hotel	0.8837	H7, H18, H50	0.8837	0	22
H9	San Want Hotel	0.8488	H18, H19, H20	0.8488	0	28
H10	Brother Hotel	0.8907	H18, H50	0.8907	0	21
H11	Santos Hotel	0.8375	H7, H18, H42	0.8375	0	31
H12	The Landis Taipei Hotel	0.8456	H18, H19, H42	0.8456	0	29
H13	United Hotel	1.0000	H13	2.4811	1	1
H14	Sheraton Taipei Hotel	0.9138	H7, H17, H18, H39, H42	0.9138	0	19
H15	Royal Taipei Hotel	0.9110	H18, H19, H20, H42	0.9110	0	20
H16	Howard Hotels Taipei	0.8106	H7, H18, H28, H39	0.8106	0	37
H17	Grand Hyatt Taipei	1.0000	H17	1.7664	1	1
H18	Regent Taipei	1.0000	H18	3.1782	28	1
H19	Sherwood Taipei	1.0000	H19	8.1835	4	1
H20	Shangri-La's Far Eastern Plaza Hotel Taipei	1.0000	H20	5.23814	3	1
H21	The Westin Taipei	0.9389	H18, H39	0.9389	0	16
H22	Hotel Kingdom	0.8555	H7, H18, H42	0.8555	0	26
H23	Hotel Holiday Garden	0.8581	H7, H34, H42	0.8581	0	25
H24	Kaohsiung Ambassador Hotel	0.7722	H7, H18, H50	0.7722	0	44
H25	Grand Hi-Lai Hotel	0.8138	H18	0.8138	0	36
H26	Howard Plaza Hotel Kaohsiung	0.7936	H7, H34, H50	0.7936	0	41
H27	The Splendor Kaohsiung	0.6934	H7, H18, H50	0.6934	0	46
H28	Han-Hsien International Hotel	1.0000	H28	4.0805	5	1
H29	Hotel National	0.8716	H18, H28, H50	0.8716	0	23

(continued)

Table 9.2 (continued)

No	Hotel	CCR efficiency	Reference groups	A&P efficiency	Frequency	Rank
H30	Plaza International Hotel	0.7825	H7, H18, H50	0.7825	0	43
H31	Evergreen Laurel Hotel (Taichung)	0.8161	H7, H18, H50	0.8161	0	34
H32	Howard Prince Hotel Taichung	0.8515	H7, H18, H28, H50	0.8515	0	27
H33	Splendor Hotel Taichung	0.5476	H18, H48, H50	0.5476	0	49
H34	Astar Hotel	1.0000	H34	2.0881	9	1
H35	Marshal Hotel	0.8059	H7, H34, H50	0.8059	0	40
H36	Parkview Hotel	0.8318	H7, H18, H50	0.8318	0	32
H37	Hualien Farglory Hotel	0.8159	H7, H34, H42	0.8159	0	35
H38	Landis Resort Yangmingshan	1.0000	H38	21.4328	0	1
H39	Lalu Hotel	1.0000	H39	11.9023	3	1
H40	Hibiscus Resort	0.5420	H7, H34, H50	0.5420	0	50
H41	Grand Hotel Kaohsiung	0.4920	H18	0.4920	0	51
H42	Caesar Park Hotel Kenting	1.0000	H42	5.7204	13	1
H43	Howard Beach Resort	0.8182	H7, H34, H42	0.8182	0	33
H44	Hotel Royal Chihpen	0.8106	H19, H20, H42	0.8106	0	38
H45	Taoyuan Hotel.	0.8608	H7, H34, H42	0.8608	0	24
H46	Hotel Royal Hsinchu	0.9362	H7, H18, H50	0.9362	0	17
H47	Hsinchu Ambassador Hotel	0.6410	H7, H18, H28, H50	0.6410	0	47
H48	Hotel Tainan	1.0000	H18, H50	2.0119	1	1
H49	Tayih Landis Hotel Tainan	0.7897	H7, H18, H28, H50	0.7897	0	42
H50	Evergreen Laurel Hotel (Tainan)	1.0000	H50	1.6502	20	1
H51	Formosan Naruwan Hotel	0.8391	H7, H34, H42	0.8391	0	30

are all located at the efficient frontier of all 51 hotels. Reference groups of hotels with the value of less than 1 are hotels with the most relative efficiency, thus are all located in efficient frontiers. For example, the reference groups of Ambassador Hotel include Regent Hotel, Hotel Tainan and Evergreen Plaza Hotel (Tainan).

The results showed that there were 14 hotels with value of 1, namely The Grand Hotel, Caesar Park Taipei, United Hotel, Grand Hyatt Hotel, Regent Hotel, Sherwood Hotel, Far Eastern Plaza Hotel, Han-Hsien Hotel, Astar Hotel, Landis Resort, Lalu Hotel, Caesar Park Hotel Kenting, Hotel Tainan and Evergreen Plaza hotel. Some excel in output, while some have appropriate management of input resources. Sherwood Hotel, Regent Taipei, Grand Hyatt Hotel and Imperial hotel are part of an

international alliance reservation organization and have excellent performance in terms of room revenues. The Meals revenues of Grand Hotel Taipei, Sherwood Hotel and Far Eastern Plaza Hotel are higher than room revenues. It can be said that their efficiencies are outstanding. Meanwhile, The Lalu Hotel and Caesar Park Hotel Taipei have efficiently utilized input resources such as human resources and equipment. Thus, they were all located at the efficient frontier.

Hotels which have relatively poor efficiency values include Splendor Hotel Taichung, Tsengwen Hibiscus Resort and Grand Hotel Kaohsiung, with a value of less than 0.6. Inasmuch as room revenues, meals revenues and other revenues are less than other hotels, their efficiency for the current period is relatively poor. The Splendor Kaohsiung invested an excessively high amount on operating expenses and has poorly utilize its human resources which explains its poor efficiency. Tsengwen Hibiscus Resort's output efficiency indicator performance is far lower than the standards of industrial peers and revenues from rooms and meals are not ideal. The reason why Grand Hotel Kaohsiung performs poorly is due to the fact that it has a poor room efficiency.

Generally speaking, the overall results show an average efficiency value of 0.8591, a standard deviation of 0.1292, there were 14 hotels with an efficiency value of 1.

9.4.2   Change of Managerial Efficiency

The model for measuring the efficiency change, as mentioned previously in this paper, is used to examine the managerial efficiency change of international tourist hotels over the year from 2005 to 2010. The results are listed in Table 9.3 in order of the value of efficiency change.

The results indicate there were 9 hotels with efficiency change gather than 1. This means that over the past 4 years, managerial efficiency of 9 hotels has been improving, with Evergreen leading. There were 42 hotels with efficiency change less than 1. This means that managerial efficiency change of 42 hotels has been declining with splendor Hotel Taichung has poorest record. This is because suffered from financial crisis in 2008, which is influenced inflation.

The correlation coefficients between efficiency change and following items: relative efficiency in 2005, relative efficiency in 2010, Shift in technology in 2005–2010 and catch up efficiency in 2005 to 2010 are listed in Table 9.4. It showed that the efficiency change of 51 international hotels between 2005 and 2010 in Taiwan is positively correlated with relative efficiency in 2010. However, the efficiency change is negatively correlated with relative efficiency in 2005. For example, H50, H51 and H22 have lagging relative efficiency in 2005 but made great improvement over the past 5 years. H4, H5 and H39 have a good relative efficiency in 2005 but little efficiency change in the past 5 years.

Table 9.3 Efficiency change analysis for tourism hotels in 2005–2010

No	Hotel	CIE	SIT	EC	No	Hotel	CIE	SIT	EC
H1	Grand Hotel Taipei	1.7190	0.6974	1.1988	H27	The Splendor Kaohsiung	1.0194	0.8653	0.8821
H2	Ambassador Hotel	0.8228	0.8065	0.6636	H28	Han-Hsien International Hotel	1.5718	0.5645	0.8873
H3	Imperial Hotel	0.7744	0.8674	0.6717	H29	Hotel National	0.9896	0.7079	0.7006
H4	Gloria Prince Hotel	0.5998	0.6269	0.3760	H30	Plaza International Hotel	0.7104	0.7787	0.5532
H5	Emperor Hotel	0.4099	0.9005	0.3691	H31	Evergreen Laurel Hotel (Taichung)	0.8220	0.8795	0.7230
H6	Riverview Taipei Hotel	1.1420	0.9115	1.0409	H32	Howard Prince Hotel Taichung	0.9137	0.8759	0.8004
H7	Caesar Park Hotel	1.0387	0.9618	0.9990	H33	Splendor Hotel Taichung	0.6040	0.5984	0.3614
H8	Golden China Hotel	0.9336	0.8459	0.7897	H34	Astar Hotel	1.0059	1.0003	1.0061
H9	San Want Hotel	1.0552	0.7060	0.7450	H35	Marshal Hotel	0.9335	0.7078	0.6608
H10	Brother Hotel	0.7028	0.8495	0.5971	H36	Parkview Hotel	0.9178	0.7858	0.7212
H11	Santos Hotel	1.0465	0.9618	1.0065	H37	Hualien Farglory Hotel	0.6189	0.9446	0.5846
H12	The Landis Taipei Hotel	0.8830	0.7483	0.6607	H38	Landis Resort Yangmingshan	1.9365	0.4311	0.8348
H13	United Hotel	0.9829	0.9072	0.8917	H39	Lalu Hotel	0.7473	0.5990	0.4476
H14	Sheraton Taipei Hotel	1.3222	0.6923	0.9154	H40	Hibiscus Resort	0.8270	0.8554	0.7074
H15	Royal Taipei Hotel	1.0842	0.7663	0.8309	H41	Grand Hotel Kaohsiung	0.6535	0.9319	0.6090
H16	Howard Hotels Taipei	0.8331	0.7250	0.6041	H42	Caesar Park Hotel Kenting	1.2906	0.7751	1.0003
H17	Grand Hyatt Taipei	0.9928	0.8829	0.8235	H43	Howard Beach Resort	0.5554	1.0659	0.5920
H18	Regent Taipei	1.0979	0.8164	0.8963	H44	Hotel Royal Chihpen	0.7545	0.7308	0.5513
H19	Sherwood Taipei	0.9599	0.6774	0.6502	H45	Taoyuan Hotel.	0.6998	0.9151	0.6404
H20	Shangri-La's Far Eastern Plaza Hotel Taipei	1.2076	0.8790	1.0615	H46	Hotel Royal Hsinchu	1.1040	0.8810	0.9726
H21	The Westin Taipei	0.8008	1.0303	0.8251	H47	Hsinchu Ambassador Hotel	0.7192	0.7871	0.5660
H22	Hotel Kingdom	1.2499	0.8551	1.0688	H48	Hotel Tainan	0.9665	0.7835	0.7573
H23	Hotel Holiday Garden	0.9302	0.7983	0.7426	H49	Tayih Landis Hotel Tainan	0.9987	0.8728	0.8717
H24	Kaohsiung Ambassador Hotel	0.8417	0.7040	0.5925	H50	Evergreen Laurel Hotel (Tainan)	1.9343	0.8800	1.7022
H25	Grand Hi-Lai Hotel	0.9933	0.8885	0.8825	H51	Formosan Naruwan Hotel	1.0981	0.9817	1.0781
H26	Howard Plaza Hotel Kaohsiung	0.9634	0.8843	0.8519					

Table 9.4 Correlation coefficients between efficiency change and efficiency of the tourism hotels in Taiwan

Efficiency	Correlation coefficients with efficiency change
Relative efficiency in 2005	-0.3606***
Relative efficiency in 2010	0.4811***
Shift in technology (SIT) in 2005–2010	0.8056***
Catching-up in efficiency (CIE) in 2005–2010	0.2775**

9.5 The Relationship Between Managerial Performance and Management Strategy

9.5.1 The Variance Analysis of Hotel Characteristics and Managerial Performance

This study further classified tourist hotels in accordance with different market conditions, location, sources of visitors, room size, management style and ranking to study the difference on managerial efficiency of different types of hotel as Table 9.5. Result of nonparametric Statistics reveled there were no significance in managerial efficiency due to source of visitors, area and market condition. However, there were significant differences in managerial efficiency due to differences in management style. As a result, evaluating a managerial efficiency of international hotel in Taiwan, is related its internationalization. For improving managerial efficiency, it is crucial to strength management techniques, to initiate competitive advantages and performance.

The management style can be divided in to three categories, international chains, domestic chains and independent. The management of efficiency of Domestic chain hotels was much less than international chain hotels. Of the three operating methods for international chains, efficiency value is highest on hotels which commissioned a professional hotel group to manage a hotel on its behalf through means of a management contract.

9.5.2 Strategic Factor of the Hotel Industry

Through analysis of strategic elements, we can understand the possible business strategy and crucial characteristics of the hotel industry, which can be further categorized into appropriate strategy activities. Through the results of the abovementioned variance test, the performance of international tourist hotels vary due to a difference in management type, including international cooperation, local chain, and independent operation. Six value-added activities considered as factors behind the strategies and decisions of the hotel industry including target market, product features, vertical integration level, economies of scale, geographical location, and competitive weapon are also further explained (see Table 9.6).

Table 9.5 Difference verification of the efficiency for the 51 tourism hotels in Taiwan

Classification		Sample size	Efficiency	Std. dev.	Mann-Whitney U (p-value)	Kruskal-Wallis χ^2 (p-value)
Market condition	City hotels	39	0.8681	0.1155	−0.606 (0.545)	0.367 (0.545)
	Resort hotels	12	0.8296	0.1689		
Source of visitors	FIT	34	0.8671	0.1316	−0.878 (0.380)	0.771 (0.380)
	Group	17	0.8431	0.1268		
Location	Taipei	25	0.8964	0.1088	–	5.23 (0.156)
	Taichung	7	0.7730	0.1700		
	Kaohsiung	11	0.8244	0.1507		
	Scenic area	8	0.8652	0.0839		
Room size	Under 200 rooms	9	0.8845	0.1707	–	3.124 (0.373)
	201–300 rooms	21	0.8192	0.1330		
	301–400 rooms	10	0.8841	0.0834		
	Above 401 rooms	11	0.8914	0.1129		
Management style	International chains	15	0.9317	0.0772	–	9.545 (0.08) **
	Domestic chains	13	0.7696	0.1763		
	Independent	23	0.8628	0.0940		

9.5.2.1   International Cooperation Management Style

Three ways are used for the international cooperation management style: joining an international chain hotel system, signing a management contract, and entrusting management to the international hotel chain or joining a reputable worldwide hotel organization to become a member hotel. Representative hotels include the Hyatt, Far Eastern Shangri-La, Sherwood, and the Ritz.

International chain hotels in the Taiwan area are located in Taipei City's commercial center. The target market is very clear, these hotels are primarily urban business hotels, serving mainly business or conference/exhibition travelers. Methods of travel include Foreign Individual Travelers (FIT) and Group. Because FIT is primarily made up of business travelers, they usually stay for longer periods of time and in rooms that are in the higher price range. Moreover, the sources for these travelers are stable and easier to handle, their travel is not affected seasonally and brand loyalty is higher. Consequently, hotels with higher percentages of FIT find it easier to create higher quality of service.

For hotels joining international cooperation, in the value-added activities of strategic elements, there are competitive advantages like the transfer of

Table 9.6 Managerial strategy classification of International tourist hotels

Strategic classification	International chains		Domestic chains		Independent	
	Large-size hotel	Small and medium	City hotel	Resort hotel	City hotel	Resort hotel
Representative	Grand Hyatt Taipei, Far eastern, Westin Taipei, Caesar Park Hotel Kenting	Sherwood Taipei, The Landis, Imperial Taipei	Howard, Evergreen hotel, Regent Taipei, Hotel Royal Taipei	Kenting Howard, Hotel Royal Chihpen, Fleur De Chine	United Hotel, Emperor Hotel, Miramar garden, Hilai Hotel	The Lalu, Parkview, Formosan Naruwan
Market condition	International-oriented	International-oriented	International-oriented	Asia/International-oriented	International/Domestic-oriented	Asia/Domestic-oriented
Product differentiation	Business Hotel FIT/Group	Business FIT	Business FIT/Group	Domestic FIT Japanese Group	Business FIT	Domestic FIT Japanese Group
Vertical integration	Diversification (Self-Operation / Outsourcing)	Partial integration (Self-Operation / Outsourcing)	Diversification and Inter-industry alliance	Diversification and Inter-industry alliance	Combining with upstream, and downstream inter-industry	Combining with upstream, and down-stream inter-industry
Economics of scale	Global Reservation, Joint promotion, Management techniques, Personnel Training	Global Reservation, Joint promotion, Management techniques, Personnel Training	Joint Reservation, Joint promotion, Management techniques, Personnel Training	Joint Reservation, Joint promotion, Management techniques, Personnel Training	Inter-industry alliance, Joint promotion	Inter-industry alliance, Joint promotion, Developing new market segmentation in light season
Location	Decentralized management in Taipei City	Decentralized management in Taipei City	Metropolitan area, Decentralized management	Scenic area, Regional character	Metropolitan area, Regional character	Scenic area, Regional character
Competitive edges	International chains, Location, Product line stretching	Innovation ability, Location, International chains, Location	Diversification, Location	Diversification, Location	Location, price discrimination	Location

international management knowledge, the breadth and features of the product line, advantage of geographical locations, and economies of scale of joint room reservations. Hence, business performance is significantly better than hotels with other management styles.

9.5.2.2 Domestic Franchise Management Style

In recent years, amidst the competitive environment of international business management and accumulation of practical experience, local hoteliers have already learned to stay on top of the market pulse and business techniques. Many independently operated hotels have gradually made the transition to creating their own tourist hotel brands. These include the Howard Plaza, Evergreen, FIH Regent, Royal, and L'Hotel de Chine. Aside from joint marketing advantages such as joint room reservation and promotion as well as management technique sharing and manpower support to enhance image and visibility, local chain hotels do not have to deal with the membership conditions set by international chain systems. It also eliminates the limitations set by the enormous amount of management fee demanded by the foreign mother company as well as the difficulties in controlling and deploying manpower.

According to the target market and geographical characteristics, local chain hotels can be divided into two types: business hotels and leisure hotels. The product features of business hotels and the abovementioned business hotels of international cooperation are very similar. On the other hand, because they are mostly determined by the characteristics of geographic segmentation, the product features of leisure hotels should be based on the geographical features of the scenic area, the positioning of the target market, as well as the resources and features of the hotel per se, complemented by the use of product design and service strategies.

Summarizing the strategic elements of local chain hotels, the "competitive weapons" is "diversified product line extension strategy." This is using diversification business methods to develop domestic franchise hotels or the direction of related services, creating a synergy enhancing corporate brand image through exploiting advantageous conditions. Moreover, combining the strategy of cross-industry alliance of upstream and downstream tourism industries allows for complementary symbiosis, forming economies of scale and creating added value for travelers, resulting in competitive advantage.

9.5.2.3 Independent Management Style

Independent operation means the investor does not ask for outside assistance, preferring to be responsible for management and decision-making. Examples include Brother Hotel, Emperor Hotel, Tainan Hotel, and others. Based on "product features" and "geographical location," independently operated hotels can divided

into two major types: business hotels located in urban areas in the central and southern parts of Taiwan as well as leisure hotels in scenic areas.

These hotels use vertical integration, working with airlines and the travel industry to promote domestic package tours to create added value for customers, thereby achieving the economies of scale of joint promotions. In terms of "geographical location," the business hotels are usually located in southern and central parts of Taiwan. The main customers are local business travelers and these hotels create geographical advantage by virtue of its location. The market is segmented geographically; local newspapers and travel agencies as well as other local media and marketing channels are used to reinforce working relationships with local companies and expand the customer base. For example, United Hotel, located in Taipei's commercial center, emphasizes its professional services meeting the needs of American and European travelers and uses mid-range pricing strategy to separate it from the other international business hotels. This strategy has attracted businessmen who prioritize functionality and affordability, resulting in good occupancy performance. Tainan Hotel and Grand Hi-Lai Hotel take advantage of geographical segmentation, competing for the international business travelers' market in Southern Taiwan.

Summarizing the various strategy elements, for the "competitive weapon" element of independently operated hotels, what is worth thinking about is how to exploit the advantages offered by the hotels' geographical location and available resources, avoiding direct conflict with international chain hotels, and using differentiated pricing strategy to attract different segmented target markets. Furthermore, adopting the cross-industry alliance strategy of vertically integrated upstream and downstream tourism industries is a good move on the part of independently operated hotel to reach economies of scale and create customer value. Hotels, which do not operate as chains, should use this comparative advantage strategy to find the difference between itself and its competitors in terms of competitive factors and exploit these factors fully to create comparative competitive advantage.

9.5.3 The Relationship Between Strategy Group and Managerial Performance of International Hotels

The values of relative efficiency for measuring the competitiveness are represented on the horizontal axis. A smaller value represents a hotel with less competitiveness and managerial efficiency, is much urgent for improvement. A large value represents a hotel with more competitiveness and managerial efficiency. In addition, measuring the competitiveness are represented on vertical axis. A smaller value represents that managerial efficiency with a large move, has a potential of continuous development, vice versa. Based on the demand for and rate of progress of improvement, the 51 hotels in Taiwan can be classified into five categories as follows:

9.5.3.1 Hotels with High Competitiveness and a Fast Pace of Progress (Category A in Fig. 9.3)

These include Evergreen Hotel (Tainan), Far East Hotel, the Grand Hotel, Astar Hotel, Caesar Park Hotel (Kenting). These hotels have a relative efficiency of above 1 and an efficiency change above 1.0. Currently these hotels have excellent managerial efficiency. Over the past 5 years, these hotels have improved rapidly. This signifies that they are on the right track.

These groups of hotels are mostly international or local or hotel chains or conferral or management contract or cooperative international ventures or a locally created brand; these are the hotels considered to have management efficiency. For large-scale international business hotels which cater mainly to foreign individual tourists (FIT), in terms of strategy elements, because they have more rooms, they should receive group travelers in addition to FIT to raise the overall occupancy performance. Consequently, planning and designing separate floors for business and group travelers with difference décor and flow of movement may contribute to the customer segmentation. Small-scale international hotels with fewer rooms may

Fig. 9.3 The matrix of management decision for the 51 international hotels in Taiwan

use a differentiation strategy, emphasizing a more refined luxury. Hence, the hotels in this area may lock on to FIT as their target market, emphasizing the unique professional services specially designed for business travelers and refusing to receive group travelers. Features exclusive to this type of hotels will include room décor and flow of movement catering to business travelers, business center, international conference facilities, and innovative services.

In addition, in terms of the "economies of scale" element, international chain hotels have a purchasing scale of global room reservation, possessing a jointly shared reservation system, and it is the most advantageous way of achieving economies of scale. Looking at global competition, distributing and allocating the resources in the most appropriate manner and through international chain management (cooperation), it is possible to achieve the goals of technical transfer, joint room reservations, joint purchasing as well as personnel training and exchange. Joining the globally connected room reservation system is an important way for local hotels to acquire an international customer base. It is also one of the major reasons why many hotels choose to join a chain organization.

In summary, the positioning of the international chain business hotel market of this segment is very clear. It has the advantage of international hotel management and cooperation, which is complemented by competitive geographical location; resources are efficiently distributed, allowing for better business efficiency. An exemplary model for other hotels, this signifies that these hotels are doing the right thing business-wise. They should continue to be profitable and able to maintain market dominance.

9.5.3.2 Hotels with High Competitiveness but a Slower Pace of Progress (Category B in Fig. 9.3)

Grand Hyatt, Regent Taipei, Sheraton Taipei, Sherwood Taipei, Hotel royal Hsinchu, Hotel Royal Taipei, Ambassador Taipei, Landis Resort Yangmingshan, The Lalu Sun moon lake, Plaza International Hotel, United Hotel and The Westin Taipei, the change efficiency is less than 1, these hotels have excellent performance so far. However, it has lagging improvement in these 5 years.

Hotels in this area display good business performance during this timeframe, thus belonging to the relatively efficient group. These are mostly hotels with international or local chains; the rest are independently operated business hotels. In addition, these hotels use various marketing tools like forming strategic alliances with airlines and credit card companies as well as getting involved in charitable activities to expand their customer base, raise visibility, and enhance corporate image.

Aside from the abovementioned direction of making room revenue a main focus, furthering the role of F&B banqueting—developing banqueting needs of local consumers in the area is also a development focus. Furthermore, there is a need to improve the hotel's exteriors and brand of service; style of renovation needs to

complement the unique features of the area. The strategy is for the hotel to become representative of the area it is located in.

For leisure hotels, they should find a way to integrate the resources of the local scene, developing exciting and creative travel design. Using the vertical integration model, they should form strategic alliances with airlines and travel agencies and step up low season promotion to improve occupancy and F&B performance. In doing this, the hotels should be able to become part of the highly efficient local chain hotel group.

9.5.3.3 Hotels with Medium Competitiveness but a Fast Pace of Progress (Category C in Fig. 9.3)

These include Hotel Kingdom, Santos Hotel, Formosan Naruwan Hotel. These Hotels have a relative efficiency of more than 0.85 but less than 0.9 and an efficiency change of more than 1. Currently, these hotels have medium managerial efficiency. However, they have experienced rapid efficiency change for the past 5 years. This means that the competitive advantage of these hotels is gradually increasing.

Hotels located in this area are primarily international chain hotels with plain performance; these include Rebar, Royal, and Ritz; main customers are foreign business travelers. Having the advantages from international cooperation, the hotels of this area should make adjustments in product features and resource distribution according to the needs of Japanese, European, or American business travelers. Becoming hotels distinct for their fine service and raising business efficiency are crucial strategic points. In addition, it is necessary to improve occupancy performance; using and promoting marketing strategies to reduce the difference in occupancy rates during peak and low seasons as well as to expand the F&B banqueting market by exploiting the advantage of being geographically accessible. In summary, the hotels in this area is a high potential group, which should be more aggressive in raising the level of efficiency to take the next step up towards being one of the highly efficient hotels.

9.5.3.4 Hotels with Medium Competitiveness but a Slow Pace of Progress (Category D in Fig. 9.3)

These include Tayih Landis, Golden China, San want, Grand Hi-Lai, Howard Hotels (Taichung, Kaohsiung, Kenting), Evergreen international (Taichung), Ambassador Taipei, Hotel Royal Chihpen, The Landis Taipei. These hotels have a relative efficiency of more than 0.75 but less than 0.9. Currently, these hotels have a medium managerial efficiency. Over the past 5 years, there has been a slight

decline in efficiency change in these hotels, there is a need for these hotels to improve and catch up with other hotels.

The hotels in this area need to improve in terms of business efficiency. Their main customers are individual or group business travelers from the US, Europe, and parts of Asia. Management should be focused on improving improper resource distribution to control business efficiency. Independently operated hotels which do not belong to any international chain should use this comparative advantage strategy and look for the competitive difference between itself and its competitors as well as fully exploiting this difference to create comparative competitive advantage. First, the hotel must do geographic segmentation, taking advantage of the area features; its target customers and market positioning should be very clear for the hotel to be able to attract international business travelers to that specific area. For leisure hotels with local travelers as their target customers, they can attract the local travel customer group who like high standard and luxurious vacation quality. However, leisure hotels are frequently affected by the difference in low and peak seasons. Consequently, developing a low season market is one effective way to go; hotels may offer higher discount rates during low season to reach new customers. In addition, independently operated hotels should find a way to respond timely to any advantages offered by environmental changes and decision-making should be extremely flexible. They should also form cross-industry alliances with upstream and downstream companies using the vertical integration strategy to provide diverse value-added services, creating customer value and improving business performance.

9.5.3.5 Hotels with Low Competitiveness but a Slow Pace of Progress (Category E in Fig. 9.3)

These include Imperial Hotel, Ambassador Hotel (Hsinchu), The Splendor Kaohsiung, The Grand Hotel (Kaohsiung), Hibiscus Resort. These hotels have a relative efficiency of less than 0.7 and efficiency change between 0.6 and 0.9. Currently, the competitiveness of these hotels are clearly lagging behind others. Over the past 5 years, managerial efficiency has been declining.

The hotels in this area are independently operated but have poor business performance. The main target customers are individual travelers and secondary target customers are group travelers; primary customer base is domestic and Japanese. Study of the room and F&B performance finds that the common problem is the unprofitability of the room department. Because occupancy rate is low and the manpower input is in excess, it results in inefficient use of resources, which is the main reason for falling behind other hotels in terms of business efficiency. It is recommended that hotels in this area should aggressively look into the current distribution and management system, modifying their strategies in terms of the overall industry development and market positioning. They should also study their available resources and competencies to come up with short-term and long-term improvement steps and strategies (Fig. 9.3).

9.6   Conclusion

As weekend travel becomes more and more a priority for most people, many business groups are competing to gain foothold into the hotel industry, which also means stiffer competition for those already in the industry. To create a stronger competitive advantage, it is first necessary to understand the business performance of the company in the said industry to enhance its competitiveness. This study makes use of the DEA model of Charnes et al. (1978) in evaluating the relative business performance of Taiwan's tourist hotels. At the same time, this is combined with the Malmquist Productivity Index from Färe et al. (1992), which evaluates the growth and reduction situation of management performance of 51 tourist hotels in Taiwan from 2005 to 2010.

Study results show that, overall, Taiwan's hotel industry show slight technical change; overall technical standards have improved, but not significantly. Efficiency change is higher than "catch-up in efficiency," meaning that production technology within the industry has improved and that it has resulted in the outward movement of the production frontier. Moreover, analysis of relative efficiency and technical change management matrix found a dire need for long-term planning controls to prevent worsening of management efficiency.

In addition, the study also looks into the effects of differences in business style, geographical location, number of guest rooms, and management style on business efficiency. It found that management efficiency of Taiwan's international hotels is significantly different due to management style, while there are no significant differences in terms of the nature of the hotel and geographical location. It is obvious from this that, to improve the management efficiency of Taiwan's international hotels, it is necessary to strengthen international management techniques, create competitive advantage, and produce business performance. Consequently, the study looks at the differences in management style and management efficiency and forms appropriate management strategies based on the results of the strategic value chain analysis.

Finally, based on the results of business efficiency gleaned from the situation of the total efficiency of the specific timeframe and the changes in technical efficiency across timeframes, the study divides the efficiency performance of international hotels into five groups in terms of three aspects: management style, strategic elements, and business performance to study the characteristics and business strategy of each group. Results of the study show that joining an international hotel chain is an important way for a hotel to gain unique skills. However, what is worth noting is, technical or management skills gained from franchising or affiliation are more of "resources" rather than of "skills." Only when these resources can be translated and internalized into organizational competencies, becoming a part of the operation of the organization can it cope with changes within the environment and maintain long-term advantage.

Aside from using data from a specific timeframe to analyze and measure the business performance of the international tourist hotel industry, the study

systematically uses the DEA model to also conduct passive analysis on changes in technical efficiency across various timeframes. Combined with the results from the evaluation of relative efficiency and efficiency change, this could provide a management strategy matrix, which is a valuable reference for managers in the hotel industry. It could also be an appropriate evaluation tool for supervising and auditing work in the hotel business.

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