sustainability

MDPI

Article

Perceptions of Customers as Sustained Competitive Advantages of Global Marketing Airline Alliances: A Hybrid Text Mining Approach

Gang-Hoon Seo [1,*] and Munehiko Itoh [2]

[1] Graduate School of Business Administration, Kobe University, Kobe 657-8501, Japan
[2] Research Institute for Economics and Business Administration, Kobe University, Kobe 657-8501, Japan; itohm@rieb.kobe-u.ac.jp
* Correspondence: 163b115b@stu.kobe-u.ac.jp; Tel.: +81-80-4764-7504

Received: 22 June 2020; Accepted: 31 July 2020; Published: 3 August 2020

Abstract: Over the past several decades, the aviation industry has been reshaped, centering on global alliances, and these have grown exponentially. However, it is still not clear whether they are achieving sustained competitive advantages, and what are the specific competitive advantages of the three alliances (oneworld, SkyTeam, Star Alliance) arising on the customer side. This study aims to examine whether global alliance groups outperform the non-alliance group, how the three alliances differ regarding passengers' perceptions, and what their competitive advantages are. A hybrid text mining analysis was adopted as this study's method. Frequency tests, *t*-tests, one-way analysis of variance tests, and three-step mediated regression analyses were performed using 6393 ordinal and word-of-mouth (WOM) data. We found that the degree of passengers' perceptions of alliances was low, the non-alliance group outperformed the alliance groups, and there were no significant differences between alliances on service rating and sentiment score. Only oneworld has competitive advantages that link to passengers' service rating and sentiment score. These findings imply that alliances could not ensure competitive advantages that derive from customers' perceptions, and although passengers partly perceived several selling points, their differentiation strategies are not successful.

Keywords: global marketing strategy; global airline alliance; competitive advantage; passengers' perceptions; word of mouth; service rating; sentiment score; hybrid text mining analysis

1. Introduction

The aviation industry is a representative core industry of the world and has tremendous economic, political, and technological significance [1]. According to the International Air Transport Association (IATA), 1% of world GDP was spent on air transport in 2019, which is estimated at almost $900 billion [2].

However, the aviation industry faces various fundamental problems. Considering recent cases related to COVID-19 and the global spread of the virus, bankruptcies and financial problems surrounding even major airlines have frequently occurred. For example, Thai Airways, the flagship airline of Thailand is likely to be restructured under the supervision of a bankruptcy court. Virgin Australia, Australia's second-largest domestic air carrier, is currently near collapse. These facts show that the aviation industry is extremely vulnerable to environmental changes [3], which can bring about a decrease in profitability. Despite the deregulation of the U.S. aviation market in the 1970s and the privatization of the European market in the 1980s [4], as well as the end of the "Two airlines" regulation in Australia, in 1990, and the fact that the globalization of the world aviation industry [5] has progressed, each country still maintains strict regulatory restrictions, and strong market barriers exist [3].

In this situation, participating in a global airline alliance becomes an ideal and common strategy for airlines to avoid regulatory restrictions while widening global networks and meeting the change in demand from passengers pursuing "seamless travel" [6–8]. Therefore, global airline alliances have grown exponentially [9]. In particular, there is a consensus that three alliances—oneworld, SkyTeam, Star Alliance—have dominated the aviation industry [10–15].

With the increase in the market presence of global airline alliances, many scholars have begun to pay attention to this issue. In past studies, the network strategies of global airline alliances [16], factors of alliance's success [17], differences among mission statements of the three global airline alliances [18], themes related to who benefits from an alliance [19], and human resource management issues of global airline alliances [20] were discussed. In particular, the impacts of airlines participating in alliances, namely the competitive advantages of global airline alliances, have been a central topic in this research field. Scholars have focused on changes in financial performance [4,7,19] and traffic performance such as passenger volume [4,6,7,21], revenue passenger kilometers (RPKs) [4,22], load factor [4,7,19,22–24], available seat kilometers (ASKs) [23], and environmental performance [25].

However, several uncertainties surrounding the competitive advantages of global airline alliances exist. The uncertainties can be classified into five categories: 1. measuring collective competitive advantages of alliances, 2. competitive advantages on the customer side, 3. measuring the timing of competitive advantages, 4. methodologies, and 5. recognition of the existence of the three major alliances in the aviation industry.

The first uncertainty in previous works concerns whether it is worth measuring alliance groups' collective competitive advantages and if they can be measured. It is generally recognized that measuring alliance groups' overall competitive advantage is hard work due to its complexity and the effect of external factors [3]. However, as firms' competition has moved from firm versus firm-level competition to group versus group-level competition [17,19,26–28], and as the aviation industry is unexceptional in this phenomenon [28], it can be said that there is no doubt as to the importance of measuring alliance groups' competitive advantages, even though it is necessary to partly admit the methodological limitation.

Several studies have sought to measure competitive advantages of global airline alliances from customers' perceptions [8,15,29]. However, relevant previous studies mainly deal with strategic and operational issues on the firms' side [8,29], while little attention has been given to the competitive advantages of global airline alliances from customers' perceptions [1,4,8,14,15,29–34].

Furthermore, the timing of measuring the competitive advantages of global airline alliances is a substantial issue. Most of the past studies were based on early and middle-stage performances of alliances, which means that there are apparent limitations on clarifying their long-term and sustained competitive advantages. Global airline alliances have gradually developed and evolved in response to environmental changes [11,29]. Recently, the three existing global airline alliances have had time to reap sustained competitive advantages, because 2020 marks the 23rd anniversary of the formation of Star Alliance (as well as the 21st anniversary of oneworld and the 20th anniversary of SkyTeam), the first and biggest global airline alliance. Therefore, now is the ideal time to measure the competitive advantages of a global airline alliance. Moreover, the aviation industry operates in an extremely volatile climate [35], so 20 years is long enough to witness substantial variations in individual carrier performance.

There are various research methods and approaches across several research disciplines, and these methodologies have been useful for measuring the firm side's competitive advantages. For example, review research [19], economic research models using airlines' panel data [4,5], information management research using firms' information data [18], a business management research method that utilizes airlines' performance data [25], and empirical studies through questionnaire surveys of firms' managers and passengers [7,8,29] have been done. However, it can be said that research using semantic methodologies that shed light on passengers' complex perceptions of airlines and alliances' service levels, and the sentiments they experienced, are still very rare [4].

Finally, even though it is recognized that the three global airline alliances have been predominant for several decades in the aviation industry [7,8,19,20,36], little research has focused on their relative competitive advantages and differentiation.

Recognizing the above uncertainties, this study aims to examine whether airlines participating in global alliances outperform non-alliance airlines, how the three major alliances differ on passengers' perceptions as measured by service ratings and sentiment scores, and what the sustained competitive advantages of current alliances are.

2. Theoretical Background

2.1. Global Airline Alliances and Passengers

A global airline alliance is defined as any cooperative arrangement among two or more global airlines to realize their strategic goals and improve their competitive advantages.

Past studies have pointed out that airlines have formed and participated in global alliances to seek strategic and economic merits. For airlines, global alliances are a significant strategic resource and a learning tool [27]. Through an international alliance, an airline can expand its global networks [36] and strengthen its market status. Through co-purchasing fleets and fuel, and sharing ground staff, lounge facilities, fleet maintenance fees, and computer reservation systems with alliance partners, airlines can reduce their operating costs [5].

These merits of global alliances link to airlines' competitive advantages [3–5,17,19,22,25,27,36,37]. An airline's competitive advantage is the capability of an airline to create more economic value than its competitors in the same market [37]. On the other hand, a sustained competitive advantage means an advantage that can last over a much longer term [38]. In Barney's early work [39], a sustained competitive advantage did not refer to a period of calendar time. Rather, he thought that "whether or not a competitive advantage is sustained depends upon the possibility of competitive duplication" [39] (p. 102). On the other hand, in Jacobsen [40], "sustained" or "longer time" is recognized as a time-series. In his work, 20 years of return-on-investment (ROI) data of companies listed on the New York and American Stock Exchanges were analyzed.

An airline's fundamental motive for participating in an alliance is gaining a sustainable competitive advantage [41]. Through a global alliance, airlines obtain resources related to sustainable competitive advantages such as skills, technologies, and knowledge that could not be held before [17]. Airlines can deal with environmental uncertainties, share information, and minimize transaction costs with partners [27]. Moreover, airlines can decrease input costs and enjoy economic benefits [5]. There has been an extensive discussion about global alliances' positive impact on the performance of airlines [7,21–23]. In particular, Iatrou & Alamdari [7] analyzed perceived impacts by airlines belonging to four alliances: Wings, Star Alliance, oneworld, and SkyTeam. Participation in global alliances is considered beneficial to their revenue. Park & Zhang [21] claimed that an alliance affects the traffic increase of members, and it can improve an airline's profit. Zou & Chen [26] reported that the profit margin of an airline is positively associated with the number of their code-sharing partners.

The formation of, and participation in, global airline alliances might also impact passengers, in a positive or negative way. Passengers can enjoy a lower airfare due to airlines' lower operational costs [11,21,27,42]. Air travelers can enjoy better and extended options [8,11,29,43] because global alliances are realizing travelers' seamless travel and a variety of flight routes through widening global networks. Extended and integrated alliance lounge access is also beneficial for passengers. Priority members of Star Alliance have available more than 1000 lounges [44], SkyTeam can use 750 lounges [45], and oneworld has access to 650 lounges worldwide [46]. In addition to these, passengers' convenience can be improved. Decreasing layover times between connections, and increasing non-stop long-haul flights and one-stop check-in for passengers can be realized through better coordination among alliance members [43]. Through an alliance affiliation, the perceived risk of passengers is reduced. When passengers transfer from A airline to B airline, risks related to loss of baggage and

missing a transfer flight frequently occur. Due to a closer collaborative relationship between alliance members, several passengers' risks can be reduced [47]. On the other hand, global alliances also have negative effects on air travelers. Due to the characteristic "anti-competitiveness" of global alliances, they harm the overall social surplus, and thereby negatively affect passengers [48]. Besides, airlines' destinations shrink as alliances monopolize flight routes [18].

In summary, a global airline alliance has a significant impact on passengers, and while passengers get various benefits from it, participating in an alliance of airlines does not always guarantee customer benefits.

2.2. Perceptions of Passengers as Sustained Competitive Advantages of Global Airline Alliances

According to Gayle [49], scheduling convenience is an important factor in passengers' airline choices. Dolnicar et al. [50] showed that price and status as a national carrier are key drivers of airline loyalty. Furthermore, through a global alliance affiliation, airlines can realize smoother scheduling and sell cheaper tickets. As most global airline alliances consist of national carriers, it can be said that passengers' positive perceptions toward airlines and global alliances link to a competitive advantage.

However, only a few studies have examined competitive advantages of global airline alliances deriving from the customers' perceptions. Goh & Uncles [29] found that 60% of 221 passengers responded that global alliances offer benefits. According to Weber & Sparks [15], the ease of transfers between flights, smoother baggage handling, one-stop check-in services, and better assistance in case of problems were identified as significant benefits enjoyed by passengers with regard to global alliances. Wang [8] reported that a global airline alliance affiliation positively affects passengers' perceived brand equity, brand preference, and purchase intention.

On the other hand, utilizing a relatively novel data source and introducing a new methodology, such as a text mining approach including perceived service level and emotion analysis of passengers' word of mouth (WOM), could provide insight and lead to the development of global airline alliance studies. Airline passenger reviews are recognized as a valuable resource that captures passengers' preferences, satisfaction, and experience information, which is of use to both operators and other customers [32,51]. Due to the growth of social network services (SNS), passengers can promptly and easily share their service experience [32]. By referring to passengers' WOM, airlines can conduct better decision making for improving their service level [32]. Analyzing passengers' WOM has become an unexceptional part of the aviation industry [34]. In addition, other passengers can make a better choice through indirect service experiences. Customer-generated information and its emotional dimensions are considered more reliable and informative than information from vendors and third parties, and therefore, passengers' WOM significantly influences other passengers' service choices [14].

2.3. Research Questions

We found that five main research gaps still exist: 1. the problem of measuring collective competitive advantages of global airline alliances, 2. the value of perceptions on the passenger side related to research topics, 3. the problem of measuring timing, 4. the possibility of new methodologies, and 5. the recognition of the existence of the three major alliances in the aviation industry. These research gaps can be bridged by investigating global airline alliances' competitive advantages, along with the perceptions of air passengers using a novel methodology. Based on previous discussions, this study set the two following research questions:

RQ 1: Comparing airlines which do and do not belong to global alliances, are there differences in terms of passenger perception, sentiment, awareness, and service experience?
RQ 2: Comparing the three major global airline alliances, are there differences in terms of passenger perception, sentiment, awareness, and service experience?

3. Methodology

3.1. Methods

Text mining is a method for analyzing unstructured text data such as official documents or internet web pages, and for extracting a useful structured pattern, knowledge, and insight [52]. In general, text mining is based on the traditional content analysis method and shares principles with it [20].

For text mining analysis, linguistic, statistical, and machine learning analysis techniques are utilized [52]. Text mining is categorized into several types: natural language processing, keyword extraction, topic frequency analysis, topic clustering, social network analysis, co-occurrence network analysis, gender prediction, sentiment analysis, and tense analysis. Hybrid text mining analysis includes more than two text mining methods or mixes text mining analyses and other methods. In particular, sentiment analysis helps to estimate the writer's emotion and attitude toward firms' products and services [53], which might be very useful for measuring the perceived level of firms' competitive advantage by passengers [14,51].

In this study, we adopt a hybrid text mining approach in order to avoid prior empirical studies' limitations, by maximizing the merits of text mining methods as a nonreactive measurement technique [52], and seek to assess the passengers' perception of the firms' competitive advantages.

3.2. Research Design

We adopted the research framework from He et al. [54]. This framework involves three stages of the text mining process: 1. data collection, 2. data analysis, and 3. actionable intelligence. Table 1 shows each stage and the corresponding tasks.

Table 1. Research framework.

Stage 1	Stage 2	Stage 3
Data Collection	**Data Analysis**	**Actionable Intelligence**
Data Source ↓ Data Collection ↓ Creating a Database	Database ↓ Pre-processing ↓ Applying Text Mining ↓ Results	Results ↓ Viewing Results to Identify Patterns, Issues, Trends, Models ↓ Discussions, Recommendations & Actions

Source: adapted and moderated from He et al. [54].

In the first stage, we collected data from the data source. After that, pre-processing was conducted using KH-Coder version 3 [55] and SentiStrength [56], before conducting each text mining analysis. Both kinds of software have been utilized and trusted in relevant business management studies (e.g., [44,57,58]). The pre-processing consisted of tokenization [54], removing stop-words and word stemming.

In the second stage, hybrid text mining analyses were carried out. Initially, based on the opinion lexicon, a sentiment score of a WOM was calculated using an ordinal score. If a word had a positive meaning, it was included in the "+ scores"; if it had a negative meaning, in was included the "− scores". Neutral words were considered as "0 scores". The sum of these scores is the sentiment score of the sample.

After that, we conducted frequency tests. In addition, *t*-tests of service ratings and sentiment scores and one-way analysis of variance (ANOVA) tests to compare the three alliances were carried out using IBM SPSS Statistics 23 between airlines belonging to global alliances and airline groups that do not participate in alliances. In addition to these, three-step mediated regression analyses were introduced.

3.3. Materials and Data Collection

We collected airline service ratings and WOM from a popular and well-known airline review aggregation website, Skytrax [59]. Skytrax announced that they have no commercial association with any airline [60]. Data were collected for 100 airlines, from 2017 to 2019. Data consisted of summed and averaged ordinal ratings for service, seats, and lounges (a possible range of 1–10, with higher scores indicating higher ratings), and open-ended text responses. WOM were transformed into sentiment scores using SentiStrength. SentiStrength's sentiment score ranges from −5 (extremely negative) to 5 (extremely positive), as was scaled to 0–10 for subsequent analyses.

Overall, 5345 pairs of ordinal ratings associated with the text from 58 airlines belonging to the three global airlines and 1048 data from 12 airlines that do not participate in the three global alliances were collected. Concerning the latter airlines, we have referred to the leading airline groups by revenue and traffic in Flightglobal's world airline rankings 2018. In particular, we focused only on full-service carriers (FSCs), as most global alliance members mainly adopt the FSC business model, and it is possible that passenger's expectations and service experience differ according to the airlines' business model.

Table 2 shows the subject groups and airlines in this study, and Tables 3 and 4 contain descriptive data of airline attributes, service ratings, and sentiment scores.

Table 2. Subject groups and airlines in this study.

Alliances	Number of Members	Alliance Duration	Founding Members	Airlines
oneworld	13 airlines	21 years	American Airlines, British Airways, Cathay Pacific Airways, Qantas	Finnair, Iberia, Japan Airlines, LATAM, Malaysia Airlines, Royal Air Maroc, S7 Airlines, SriLankan Airlines, Fiji Airways
SkyTeam	19 airlines	20 years	Aeroméxico, Air France, Delta Air Lines, Korean Air	Aeroflot Russian Airlines, Aerolíneas Argentinas, Air Europa, Alitalia, China Airlines, China Eastern, Czech Airlines, Garuda Indonesia, Kenya Airways, KLM Royal Dutch Airlines, Middle East Airlines, Saudia, TAROM, Vietnam Airlines, Xiamen Air
Star Alliance	26 airlines	23 years	Air Canada, SAS Scandinavian Airlines, Thai Airways International, United Airlines, Lufthansa	Aegean Airlines, Air Canada, Air China, Air India, Air New Zealand, ANA All Nippon Airways, Asiana Airlines, Austrian Airlines, Avianca, Brussels Airlines, Copa Airlines, Croatia Airlines, EGYPTAIR, Ethiopian Airlines, EVA Air, LOT Polish Airlines, Shenzhen Airlines, Singapore Airlines, South African Airways, Swiss International Air Lines, TAP Air Portugal, Turkish Airlines,
Non-alliance airlines	12 airlines			

Source: [43–45] and the authors' work.

Table 3. Descriptive data of airline attributes.

Airlines Belonging to Global Alliances	(Oneworld)	(SkyTeam)	(Star Alliance)	Non-Alliance Airlines	Total
5345	1232	1710	2403	1048	6393

Source: the authors' work.

Table 4. Descriptive data of airline service ratings and sentiment scores.

Variable	0	1	2	3	4	5	6	7	8	9	10	Total
Service rating	0	1812	650	493	321	295	307	439	643	672	761	6393
%	0	28.3	10.2	7.7	5.0	4.6	4.8	6.9	10.1	10.5	11.9	100%
Sentiment score	20	434	913	1175	3835	6	6	4	0	0	0	6393
%	0.3	6.8	14.3	18.4	60	0.1	0.1	0.1	0	0	0	100%

Source: the authors' work.

In Table 4, we find that the range of service ratings is relatively evenly distributed, but generally, the sentiment scores of passengers are quite low (99.8% of passengers' sentiment scores were distributed in the low score range).

3.4. Measurement and Coding

Before applying frequency tests, a *t*-test, a one-way ANOVA test, and three-step mediated regression analyses, the variables were defined and coded.

Independent variables include "alliance affiliation" and "alliance type". Alliance affiliation is a dummy variable indicating whether an airline belongs to a global alliance or not. Alliance type is a nominal variable showing that an airline belongs to one of the three global alliances.

This study uses service ratings and sentiment scores as dependent variables to measure the competitive advantages of global airline alliances as shown in passengers' perceptions. Service ratings are ordinal data showing the service levels of airlines [4]. Sentiment scores are ordinal data indicating passengers' negative, positive, or even neutral emotion levels toward the airline service they experienced.

Initially, we used as mediator variables the "type of passenger (such as international passenger or domestic passenger)", "purpose of travel (such as business purpose or leisure purpose)", "aspect of service (such as airline service or seat or lounge)", and "class of flight service (such as economy class or business class or first class)".

After that, in order to extract passengers' service experience dimensions for using mediated variables, a factor analysis was carried out by varimax rotation. Maximum iterations for convergence were set at 25. As a result, among the highly mentioned words by passengers, we found 11 word groups. Each group included several words, as follows: 1. "class" and "business", 2. "food", "lounge", "selection", "drink", 3. "crew" and "cabin", 4. "delay", "departure", "hour", 5. "room" and "leg", 6. "baggage", "bag", "luggage", 7. "legroom", "seat", "economy", 8. "service" and "customer", 9. "people", "board", "gate", "plane", 10. "trip", "return", "way", and 11. "attendant" and "flight". Referring to previous studies (e.g., [13,29,30,43,61–63]), we coded each word group as follows: 1. "business class service", 2. "kitchen and lounge service", 3. "attitude of ground and flight crew", 4. "on-time departure and arrival performance", 5. "comfort of seat", 6. "baggage handling service", 7. "economy class and seat", 8. "customer service", 9. "boarding service", 10. "trip", and 11. "flight attendant service".

Table 5 shows the variables and results of coding.

Table 5. Variables and codings.

Types of variables	Variables	Definition and Description	Source
Independentvariables	Alliance affiliation	Whether an airline belongs to a global alliance or not. The dummy is equal to 1 if an airline participates in one of the three global alliances and equal to 0 if an airline is not a member of these alliances.	Global alliances and airlines' webpages
	Alliance type	The global alliance that an airline belongs to. 1 indicates oneworld member airlines, 2 indicates SkyTeam members, and 3 indicates Star Alliance partners.	
Dependent variables	Service rating	The service level of airlines and alliances. This ordinal indicator is measured on a scale from one (lowest) to ten (highest).	Skytrax, [4]
	Sentiment score	Passengers' positive, neutral, or negative emotion level toward the airline service they experienced.	The authors' work
Mediator variables	Type of passenger	Type of passenger. The dummy is equal to 1 if a passenger is an international passenger and equal to 0 if a passenger is a domestic passenger.	Skytrax
	Purpose of travel	Flight purpose of passengers. The dummy is equal to 1 if a passenger has a business purpose and equal to 0 if a passenger has a leisure purpose.	Skytrax
	Aspect of service	Aspect of service that a passenger experienced. 1 indicates airline service, 2 indicates seat, and 3 indicates lounge service.	Skytrax
	Class of flight service	Class type that passengers experienced. 1 indicates economy class, 2 is business class, 3 is first-class.	Skytrax
	Business class service	Business class service passengers experienced. It includes the following words: class, business	The authors' work
	Kitchen and lounge service	Kitchen and lounge service passengers experienced. It includes the following words: food, lounge, selection, drink	[29,30,61–63]
	Attitude of ground and flight crew	Attitude of ground and flight crew passengers perceived. It includes the following words: crew, cabin	[29,30,61,63]
	On-time departure and arrival performance	On-time departure and arrival performance passengers experienced. It includes the following words: delay, departure, hour	[13,29,43,61,63]
	Comfort of seat	Comfort of seat passengers experienced. It includes the following words: room, leg	[29,43,61,63]
	Baggage handling service	Baggage handling service passengers experienced. It includes the following words: baggage, bag, luggage	[13,29,30,61–63]
	Economy class and seat	Economy class and seat passengers experienced. It includes the following words: legroom, seat, economy	The authors' work
	Customer service	Customer service passengers experienced, such as flight cancellations, one-stop check-in, and assistance in case of problems. It includes the following words: service, customer	[13,29,30,63]
	Boarding service	Boarding service passengers experienced. It includes the following words: people, board, gate, plane	The authors' work
	Trip experience	Trip experience passengers perceived. It includes the following words: trip, return, way	The authors' work
	Flight attendant service	Flight attendant service passengers experienced. It includes the following words: attendant, flight	[62]

3.5. Test Validity

In order to examine the test appropriateness for three-step mediated regression analyses, the presence of autocorrelation toward residuals and multicollinearity was tested.

Because the Durbin-Watson test values of this study's variables were near 2, we have estimated the absence of autocorrelation toward residuals. It is generally assumed that if the value is near 0 or 4, autocorrelation toward residuals exists [64,65].

Lastly, for the testing of multicollinearity, tolerance was checked. The tolerances of this study's variables were higher than 0.2. A bottom line of appropriate tolerance is required to be more than 0.2 [25]. Therefore, we can confirm sample appropriateness due to the absence of autocorrelation toward residuals and multicollinearity problems.

4. Results

Frequency tests were performed to demonstrate how global alliances are perceived when passengers use global alliance members' services and whether the degree of alliance perception between the three alliances differs.

Table 6 indicates the results of the frequency tests. Only 2.9% of passengers mentioned global alliances. Moreover, among them, the global alliance that was most often mentioned by passengers was Star Alliance (1.5%). The second most often mentioned alliance was SkyTeam (0.8%), and the third was oneworld (0.7%).

Table 6. Results of frequency tests.

Mentions of Alliance	(Oneworld)	(SkyTeam)	(Star Alliance)	None	Total
187	42	49	96	6206	6393
2.9	0.7	0.8	1.5	97.1	100%

Source: the authors' work.

T-tests and one-way ANOVA tests were performed. Table 7 shows the differences in service ratings and sentiment scores between the alliance group and the non-alliance group. Based on the results, it seems that non-alliance airlines significantly outperformed airlines participating in global alliances on both service rating (mean 5.21 > 4.79, $t = -3.644$, $p < 0.01$) and sentiment rating (mean 3.38 > 3.31, $t = -2.362$, $p < 0.05$).

Table 7. Differences of service ratings and sentiment scores between alliance and non-alliance.

Variable	Mean		SD		*t*-Value	*p*-Value
	Alliance	Non-Alliance	Alliance	Non-Alliance		
Service rating	4.79	5.21	3.403	3.467	−3.644	0.000 **
Sentiment score	3.31	3.38	0.988	0.946	−2.362	0.018 *

* $p < 0.05$, ** $p < 0.01$.

Besides, one-way ANOVA tests were performed to investigate whether there are any differences between the three alliance groups. Table 8 shows the differences in service ratings and sentiment scores among the three global alliance members. Results showed there are no significant differences among global alliance groupings concerning service rating and sentiment score.

Table 8. Differences of service ratings and sentiment scores among the three global alliances.

Variable	Alliance	Mean	SD	SE	F/p
Service rating	oneworld	4.79	3.369	0.096	0.967/0.308
	SkyTeam	4.70	3.364	0.081	
	Star Alliance	4.85	3.499	0.070	
Sentiment score	oneworld	3.36	0.991	0.028	2.262/0.104
	SkyTeam	3.30	0.981	0.024	
	Star Alliance	3.28	0.990	0.020	

* $p < 0.05$, ** $p < 0.01$.

To shed light on the competitive advantages of alliances mentioned significantly by passengers as positively impacting service levels and sentiment scores, three-step mediated regression analyses were carried out. Originally, the three-step mediated regression analysis was designed for investigating mediated effects among variables [66,67], so we adopted this model to examine passengers' service experience dimensions, several passenger characteristics (e.g., type of passenger, purpose of travel), and service options (e.g., aspect of service, class of flight service) which play mediator roles. Namely,

if a certain variable plays a mediator role with a positive or negative effect on service rating or sentiment score, it can be assumed that the variable is a competitive advantage or competitive disadvantage deriving from passengers' perceptions.

Table 9 shows the results of the three-step mediated regression analysis of the alliance group. In the first step, we found that there is a positive relationship between "alliance affiliation" and "business purpose". In the second step, we found that alliance affiliation negatively affected the service rating. In the third step, business purpose negatively affected the service rating. Therefore, we found that business purpose acts as a mediator variable. The result implies that passengers who have a business purpose only slightly perceived the service level of airlines participating in a global alliance. In other words, currently, global alliance members leave a weak impression on such market segments even though their main customer targets are business travelers.

Table 9. Results of the three-step mediated regression analysis of global alliance groups.

Stage 1	Stage 2			Stage 3		
	Business Purpose	**Service Rating**	**Sentiment Score**	**Service Rating**	**Sentiment Score**	**Tolerance**
Constant	0.573	5.211	5.311	4.004	5.002	
Alliance affiliation	0.203 (0.172) **	−0.420 (−0.046) **	−0.026 (−0.020)	−0.198 (−0.021)	−0.007 (−0.006)	0.956
Business purpose				−0.235 (−0.031) *	0.007 (0.007)	0.677
R square	0.003	0.002	0.000	0.213	0.922	
Adjusted R square	0.003	0.005	0.002	0.211	0.922	
F	18.425	29.903	13.277	96.124	4179.419	

* $p < 0.05$, ** $p < 0.01$.

Table 10 shows the results of the three-step mediated regression analysis of oneworld. In the first step, we found that there is a positive relationship between "oneworld" and "business class service", "comfort of seat", and "international passenger". In the second step, we found that oneworld negatively affected "service rating" and "sentiment score". In the third step, "business class service" negatively affected the service rating, "comfort of seat" positively affected the service rating, and "international passenger" affected the sentiment score. Therefore, we found that business class service, "comfort of seat", and "international passenger" act as mediator variables.

Table 10. Results of the three-step mediated regression analysis of oneworld.

	Stage 1			Stage 2		Stage 3		
	a	**b**	**c**	**d**	**e**	**d**	**e**	**f**
Constant	0.200	0.093	0.573	5.211	5.311	4.005	5.002	
oneworld	0.050 (0.047) **	0.038 (0.051) **	0.151 (0.136) **	−0.419 (−0.048) **	−0.051 (−0.042) *	−0.280 (−0.032) *	−0.021 (−0.018) **	0.555
a						−0.237 (−0.029) *	0.008 (0.007)	0.741
b						0.293 (0.031) **	−0.004 (−0.003)	0.917
c						−0.054 (−0.007)	0.010 (0.009) *	0.946
R square	0.002	0.003	0.033	0.002	0.001	0.214	0.922	
Adjusted R square	0.002	0.003	0.033	0.002	0.001	0.211	0.922	
F	4.406	7.249	73.800	5.067	2.887	86.589	3772.322	

Note: business class service (a), comfort of seat (b), international passenger (c), service rating (d), sentiment score (e), tolerance (f). * $p < 0.05$, ** $p < 0.01$.

5. Discussion

It is estimated that the results of frequency tests are due to the scale of the different members of each alliance. However, the fact that global alliances were rarely perceived by passengers is an interesting finding. According to Goh & Uncles [29], significant factors (they have suggested 20 factors) affecting the airline choice of passengers were "reputation for safety", "reliable baggage handling", and "most direct routes and fewest stopovers". In their study, "airline part of my preferred global alliance" was ranked 18. This fact implies that passengers still do not recognize the global alliance as an important part of airline service, even though global alliances have a strong power in the aviation industry and have evolved gradually over several decades. The results of *t*-tests suggest that, currently, airlines belonging to global alliances do not surpass non-alliance airlines on passengers' perceived service level and emotional experience. Although prior studies have reported that airlines have achieved competitive advantages on the firm side such as financial and traffic performance improvements versus their rivals through participating in global alliances [7,21–23], our findings show that they could not ensure competitive advantages on the customer side.

As similarly pointed out by Goh & Uncle [29], the results of one-way ANOVA tests might be affected by the fierce competitive setting in the aviation industry. The impact of global economic recession, fluctuations of oil prices, and market penetration by Middle-East premium airlines are the factors accelerating competition and deterioration in profitability in the aviation industry. Moreover, for this reason, airlines and alliances pursue differentiation. However, due to the similarity of business models and homogeneity of service product in the industry [32], differentiated strategies are hard to achieve [3,25].

The results of the three-step mediated regression analysis suggest that, among oneworld passengers, international passengers have positively perceived the effect of oneworld's service on their sentiment, and the passengers who significantly mentioned the seat, positively assessed oneworld's service level. However, the passengers who significantly mentioned business class service negatively assessed oneworld's service level. So, it is estimated that oneworld has competitive advantages related to the seat and international passengers, but competitive disadvantages concerning business class service.

However, in this study, we could not find any obvious competitive advantages or competitive disadvantages of Star Alliance or SkyTeam linked to passengers' perceptions. The finding that only oneworld had links to competitive advantages on the passenger side is consistent with Min & Joo [4], who noted that relatively small-scale alliances outperform bigger alliances. If the cooperation network between firms becomes too large, it becomes difficult to control, and there is the possibility that communication and the quality of the partners' cooperative relationship will become worse [4,68]. Although, over several years, oneworld has concentrated on customer marketing such as integrated frequent-flyer programs, co-branding, and a wider lounge access [29], they are the smallest alliance based on the number of members, and therefore it might be easier for them to set and maintain common strategic goals and service standards [12]. Moreover, oneworld is mainly composed of flagship airlines [18] and seems to be less diverse than other global alliances [12].

In general, international passengers and business class passengers, as well as passengers who have a business purpose, can be said to be the main targets of global airline alliances [14]. They are relatively less sensitive to airfares, and it is reported that these passengers expect flexibility, availability, and punctuality of airline service [14]. Moreover, they have low expectations of quality service in relation to food and beverages or in-flight entertainment facilities and programs. On the other hand, leisure travelers value these hedonic dimensions of airline service [63].

Lastly, many passengers focused on the seat. Since global alliances are deeply related to long-haul flights, this can be considered a very important component of airline and alliance service quality [14].

6. Conclusions

This research has addressed whether global airline alliances have sustained competitive advantages versus non-alliance airlines from passengers' perceptions (RQ 1), and what the sustained competitive

advantages of the three leading global airline alliances are (RQ 2). To clarify these research questions, we adopted a hybrid text mining approach and conducted frequency tests, *t*-tests, one-way ANOVA tests, and three-step mediated regression analyses. Although previous studies have pointed out that global alliances have genuine competitive advantages on the firms' side, we have concluded that, currently, global airline alliances do not have sustained competitive advantages versus non-alliance airlines, at least judging from passengers' perceptions. Concerning the latter research topic, we found that there are no differences between global alliances related to the degree of alliance perception, service level, or sentiment of passengers. Moreover, we found that only oneworld has several competitive advantages from passengers' perceptions.

6.1. Theoretical Contributions

As a first theoretical contribution, we tried to expand the existing knowledge on the long discussions regarding the competitive advantages of global airline alliances.

On the other hand, in previous studies, there are limitations regarding the clarification of the long-term and sustained competitive advantages of global airline alliances. We believe that our findings are closer to capturing their sustained competitive advantages and current realities.

We have focused on the existence of the three leading alliances and their differentiation. Even though they have a recognized status in the aviation industry, very little attention has been paid to the issue of their existence and differentiation.

Our consideration of various service dimensions, passenger characteristics, and service options, as well as the relatively rich volume of data, are also aspects of this study's originality.

6.2. Methodological Contributions

Other merits of this study are its various methodological contributions. Previous studies were mainly based on questionnaire surveys or interview methods to investigate passengers' perceptions. However, we believe that our study can avoid the prior studies' methodological limitations by maximizing the merits of advanced text mining methods.

In particular, using the sentiment score as the focal performance indicator was a novel attempt. Compared to simple types of early text mining studies, such as the ones only adopting frequency tests, this study has tried to accept various powerful text mining methods.

6.3. Practical Contributions

Our findings suggest that current global airline alliances could not attain overwhelming competitive advantages from passengers' perceptions as measured by service ratings and sentiment scores, and although passengers partly perceived the attraction of the alliances' service, the differentiation strategy of each alliance was not so successful. These results imply that global airline alliances should make more effort to identify and present their points of difference, not on the firm side but on the customer side. Moreover, global airline alliances and airlines should systematically manage passengers' perceptions and the service level, and they should focus more on passenger emotion.

Moreover, in the above frequency tests related to the degree of passengers' perceptions in an airline service context, the passengers almost completely failed to mention global alliances. The results suggest that global alliances should emphasize their role in the airline service context and strengthen their brand.

6.4. Limitations and Future Research

This study has some obvious limitations that future research should examine. This study has dealt with data from a single source. There are various and abundant data sources, such as TripAdvisor or even airlines' own web pages where customers can leave their opinions. However, TripAdvisor is a multi-purpose data source that includes hotel service and tourist attractions, while there are problems with the accessibility of WOM on airlines' web pages. For these reasons, we have selected

Skytrax, which specializes in airline service WOM. Future research should consider and utilize various data sources.

We have only used English WOM for this study's analyses due to its preponderance on the website. However, in future research, it is better to use data in various languages.

Furthermore, when drawing strategic and practical implications for detailed decision-making of alliances and airlines, it is necessary to bear in mind that other main drivers or factors might affect the competitive advantages of global alliances: volume of alliance members, alliance affiliation period, and whether an alliance is a founding member or not.

Although our main theoretical implication is based on the alliances' competitive advantage on the customer side, in future research, it is hoped that novel studies measuring an alliance's competitive advantage from both sides and adopting new academic perspectives, methodology, and data will be explored.

Finally, this study has only focused on global airline alliance partnerships. However, there is a long list of comparable relationships, such as between Etihad and its partners. Therefore, in future research, comparable relationships should also be discussed along with airline alliance partnerships.

Author Contributions: Conceptualization, G.-H.S. and M.I.; formal analysis, G.-H.S.; methodology, G.-H.S.; project administration, G.-H.S. and M.I.; writing—original draft, G.-H.S.; writing—review and editing, G.-H.S.; funding acquisition, G.-H.S. and M.I. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Otsuka Toshimi Scholarship Foundation. The APC was funded by Grant-in-Aid for Scientific Research (A): Munehiko Itoh, of Japan Society for the Promotion of Science.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Jangkrajarng, V. Empirical Studies on Strategic Alliances in the Airline Industry. Ph.D. Thesis, Hitotsubashi University, Tokyo, Japan, 31 October 2011.
2. IATA. Available online: https://www.iata.org/en/publications/economics/ (accessed on 2 June 2020).
3. Kleymann, B.; Seristö, H. *Managing Strategic Airline Alliances*, 1st ed.; Ashgate: Hampshire, UK, 2004; pp. 15–42.
4. Min, H.; Joo, S.J. A comparative performance analysis of airline strategic alliances using data envelopment analysis. *J. Air Transp. Manag.* **2016**, *52*, 99–110. [CrossRef]
5. Oum, T.H.; Park, J.H.; Kim, K.; Yu, C.J. The effect of horizontal alliances on firm productivity and profitability: Evidence from the global airline industry. *J. Air Transp. Manag.* **2004**, *57*, 844–853. [CrossRef]
6. Park, J.; Zhang, A. An empirical analysis of global airline alliances: Cases in North Atlantic markets. *Rev. Ind. Organ.* **2000**, *16*, 367–384. [CrossRef]
7. Iatrou, K.; Alamdari, F. The empirical analysis of the impact of alliances on airline operations. *J. Air Transp. Manag.* **2005**, *11*, 127–134. [CrossRef]
8. Wang, S.W. Do global airline alliances influence the passenger's purchase decision? *J. Air Transp. Manag.* **2014**, *37*, 53–59. [CrossRef]
9. Cobeña, M.; Gallego, Á.; Casanueva, C. Diversity in airline alliance portfolio configuration. *J. Air Transp. Manag.* **2019**, *75*, 16–26. [CrossRef]
10. Hagmann, C.; Seeijn, J.; Vellenga, D.B. Exploring the green image of airlines: Passenger perceptions and airline choice. *J. Air Transp.* **2015**, *43*, 37–45. [CrossRef]
11. Janawade, V. Consumer perceived value of international networked services: An exploratory study of the case of an airline alliance. *Int. Bus. Res.* **2013**, *6*, 20–42. [CrossRef]
12. Kalligiannis, K.; Iatrou, K.; Mason, K. How do airlines perceive that strategic airline alliances affect their individual branding? *J. Air Transp.* **2006**, *11*, 3–21.
13. Tieran, S.; Rhoades, D.; Waguespack, B. Airline alliance service quality performance—An analysis of US and EU member airlines. *J. Air Transp. Manag.* **2008**, *14*, 99–102. [CrossRef]
14. Tsantoulis, M.; Palmer, A. Quality convergence in airline co-brand alliances. *Manag. Serv. Qual.* **2008**, *18*, 34–64. [CrossRef]

15. Weber, K.; Sparks, B. Consumer attributions and behavioural responses to service failures in strategic airline alliance settings. *J. Air Transp. Manag.* **2004**, *10*, 362–367. [CrossRef]
16. Dennis, N. Scheduling issues and network strategies for international airline alliances. *J. Air Transp. Manag.* **2000**, *6*, 75–85. [CrossRef]
17. Whipple, J.M.; Frankel, R. Strategic alliance success factors. *J. Supply Chain Manag.* **2000**, *36*, 21–28. [CrossRef]
18. Seo, G.-H. A content analysis of international airline alliances mission statements. *Bus. Syst. Res.* **2020**, *11*, 89–105. [CrossRef]
19. Morrish, S.C.; Hamilton, R.T. Airline alliances—Who benefits? *J. Air Transp. Manag.* **2002**, *8*, 401–407. [CrossRef]
20. Holtbrügge, D.; Wilson, S.; Berg, N. Human resource management at Star Alliance: Pressures for standardization and differentiation. *J. Air Transp. Manag.* **2006**, *12*, 306–312. [CrossRef]
21. Park, J.-H.; Zhang, A. Airline alliances and partner firms' outputs. *Transp. Res. E Logist. Transp. Rev.* **1998**, *34*, 245–255. [CrossRef]
22. Rajasekar, J.; Fouts, P. Strategic alliances as a competitive strategy: How domestic airlines use alliances for improving performance. *Int. J. Econ. Commer. Manag.* **2009**, *19*, 93–114. [CrossRef]
23. Lazzarini, S.G. The impact of membership in competing alliance constellations: Evidence on the operational performance of global airlines. *Strateg. Manag. J.* **2007**, *28*, 345–367. [CrossRef]
24. Assaf, A.; Josiassen, A. The operational performance of UK airlines: 2002–2007. *J. Econ. Stud.* **2011**, *38*, 5–16. [CrossRef]
25. Payán-Sánchez, B.; Pérez-Valls, M.; Plaza-Úbeda, J.A. The contribution of global alliances to airlines' environmental performance. *Sustainability* **2019**, *11*, 4606. [CrossRef]
26. Zou, L.; Chen, X. The effect of code-sharing alliances on airline profitability. *J. Air Transp. Manag.* **2017**, *58*, 50–57. [CrossRef]
27. Ireland, R.D.; Hitt, M.A. Mission statements: Importance, challenge, and recommendations for development. *Bus. Horiz.* **1992**, *35*, 34–42. [CrossRef]
28. Gomes-Casseres, B. Competitive advantage in alliance constellations. *Strateg. Organ.* **2003**, *1*, 327–335. [CrossRef]
29. Goh, K.; Uncles, M. The benefits of airline global alliances: An empirical assessment of the perceptions of business travelers. *Transp. Res. A Policy Pract.* **2003**, *37*, 479–497. [CrossRef]
30. Weber, K. Consumer Perceptions and Behavior: Neglected Dimensions in Research on Strategic Airline Alliances. *J. Travel Tour. Mark.* **2002**, *13*, 27–46. [CrossRef]
31. Evans, N. Collaborative strategy: An analysis of the changing world of international airline alliances. *Tour. Manag.* **2001**, *22*, 229–243. [CrossRef]
32. Brochado, A.; Rita, P.; Oliveira, C.; Oliveira, F. Airline passengers' perceptions of service quality: Themes in online reviews. *Int. J. Contemp. Hosp. Manag.* **2019**, *31*, 855–873. [CrossRef]
33. Liou, J.J.H.; Hsu, C.C.; Yeh, W.C.; Lin, R.H. Using a modified grey relation method for improving airline service quality. *Tour. Manag.* **2011**, *32*, 1381–1388. [CrossRef]
34. Akamavi, R.K.; Mohamed, E.; Pellmann, K.; Xu, Y. Key determinants of passenger loyalty in the low-cost airline business. *Tour. Manag.* **2015**, *46*, 528–545. [CrossRef]
35. Agusdinata, B.; Klein, W.D. The dynamics of airline alliances. *J. Air Transp. Manag.* **2002**, *8*, 201–211. [CrossRef]
36. Douglas, L.; Tan, G. Global airline alliances and profitability: A difference-in-difference analysis. *Transp. Res. A Policy Pract.* **2017**, *103*, 432–443. [CrossRef]
37. Peteraf, M.A.; Barney, J.B. Unraveling the resource based tangle. *MDE Manag. Decis. Econ.* **2003**, *24*, 309–323. [CrossRef]
38. Barney, J.B. *Gaining and Sustaining Competitive Advantage*, 4th ed.; Pearson: New Jersey, NJ, USA, 2011; pp. 16–17.
39. Barney, J. Firm resources and Sustained Competitive Advantage. *J. Manag.* **1991**, *17*, 99–120. [CrossRef]
40. Jacobsen, R. The persistence of abnormal returns. *Strateg. Manag. J.* **1988**, *9*, 415–430. [CrossRef]
41. Albers, S.; Koch, B.; Ruff, C. Strategic alliances between airlines and airports—Theoretical assessment and practical evidence. *J. Air Transp. Manag.* **2005**, *11*, 49–58. [CrossRef]
42. Bamberger, G.E.; Carlton, D.W.; Neumann, L.R. An empirical investigation of the competitive effects of domestic airline alliances. *J. Law Econ. Organ.* **2004**, *47*, 195–222. [CrossRef]

43. Hannegan, T.F.; Mulvey, F.P. International airline alliances: An analysis of code-sharing's impact on airlines and consumers. *J. Air Transp. Manag.* **1995**, *2*, 131–137. [CrossRef]
44. Star Alliance. Available online: https://www.staralliance.com/en/lounges (accessed on 4 June 2020).
45. Skyteam. Available online: https://www.skyteam.com/en/lounges (accessed on 4 June 2020).
46. Oneworld. Available online: https://www.oneworld.com/airport-lounges?location= (accessed on 4 June 2020).
47. Veldhuis, J. The competitive position of airline networks. *J. Air Transp. Manag.* **1997**, *3*, 181–188. [CrossRef]
48. Brueckner, J.K.; Pels, E. European airline mergers, alliance consolidation, and consumer welfare. *J. Air Transp. Manag.* **2005**, *11*, 27–41. [CrossRef]
49. Gayle, P.G. Does Price Matter? Price and Non-Price Competition in the Airline Industry. In *Econometric Society 2004 North American Summer Meetings*; Econometric Society: Cleveland, OH, USA, 2004; Volume 163.
50. Dolnicar, S.; Grabler, K.; Grün, B.; Kulnig, A. Key drivers of airline loyalty. *Tour. Manag.* **2011**, *32*, 1020–1026. [CrossRef] [PubMed]
51. Liau, B.Y.; Tan, P.P. Gaining customer knowledge in low cost airlines through text mining. *Ind. Manag. Data Syst.* **2014**, *114*, 1344–1359. [CrossRef]
52. Pejić Bach, M.; Krstić, Ž.; Seljan, S.; Turulja, L. Text Mining for Big Data Analysis in Financial Sector: A Literature Review. *Sustainability* **2019**, *11*, 1277. [CrossRef]
53. Pang, B.; Lee, L. Opinion mining and sentiment analysis. *Found. Trends Inf. Retr.* **2008**, *2*, 1–135. [CrossRef]
54. He, W.; Zha, S.; Li, L. Social media competitive analysis and text mining: A case study in the pizza industry. *Int. J. Inf. Manag.* **2013**, *33*, 464–472. [CrossRef]
55. KH Coder. Available online: http://khcoder.net/en/ (accessed on 13 July 2020).
56. Senti Strength. Available online: http://sentistrength.wlv.ac.uk/ (accessed on 13 July 2020).
57. Agnieszka, N.; Marek, N. Experiencing Nature: Physical Activity, Beauty and Tension in Tatra National Park—Analysis of TripAdvisor Reviews. *Sustainability* **2020**, *12*, 601. [CrossRef]
58. Fabio, C.; Filippo, L.; Nicole, N. How to ask for technical help? Evidence-Based guidelines for writing questions on Stack Overflow. *Inf. Softw. Technol.* **2018**, *94*, 186–207.
59. Skytrax. Available online: https://www.airlinequality.com/review-pages/a-z-airline-reviews/ (accessed on 30 April 2020).
60. Skytrax. Available online: https://www.airlinequality.com/about-us/ (accessed on 11 July 2020).
61. Chan, D. The development of the airline industry from 1978 to 1998—A strategic global overview. *Manag. Dev.* **2000**, *19*, 489–514. [CrossRef]
62. Chang, W.-L.; Chiu, C.-L. Coopetition under alliance? Applying awareness-motivation-capability competitive dynamics perspective. *J. Bus. Econ. Manag.* **2016**, *17*, 701–716. [CrossRef]
63. Gilbert, D.; Wong, R.K.C. Passenger expectations and airline services: A Hong Kong based study. *Tour. Manag.* **2003**, *24*, 519–532. [CrossRef]
64. Durbin, J.; Watson, G.S. Testing for Serial Correlation in Least Squares Regression, I. *Biometrika* **1950**, *37*, 409–428. [PubMed]
65. Durbin, J.; Watson, G.S. Testing for Serial Correlation in Least Squares Regression, II. *Biometrika* **1951**, *38*, 159–179. [CrossRef] [PubMed]
66. Baron, R.M.; Kenny, D.A. The moderate-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *J. Pers. Soc. Psychol.* **1986**, *51*, 1173–1182. [CrossRef] [PubMed]
67. Van Dyne, L.V.; Graham, J.W.; Dienesch, R.M. Organizational citizenship behavior: Construct redefinition, measurement and validation. *Acad. Manag. J.* **1994**, *37*, 765–802.
68. Ginevičius, R. The effectiveness of cooperation of industrial enterprises. *J. Bus. Econ. Manag.* **2010**, *11*, 283–296. [CrossRef]