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Modeling Airline Crisis Management Capability: Brand attitude, brand credibility and intention

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ABSTRACT

Crisis management consists of a number of capabilities which evaluate crisis signals and implements actions to minimize damage. Both identifying these capabilities and understanding their influence on perceptions of brand attitude, credibility and intention to purchase offers significant theoretical and managerial insights. This paper, therefore, proposes a cause-effects model of perceived airline crisis management capabilities and their influence on brand credibility, brand attitude and purchase intention in the aftermath of large-scale Taiwanese airline strikes. Using data collected via an online survey, the study makes three contributions to airline crisis management. It, firstly, identifies a set of crisis management capabilities for strike-hit airlines, secondly, it offers a causal chain of perceived airline crisis management capabilities, brand attitude, brand credibility and purchase intention. Furthermore, it the full mediating effects of brand credibility and brand attitude in the causal chain. This study, thus, makes conceptual and methodological contributions to crisis management and purchase intention research and provides practical insights into effective airline crisis management and brand management for the airline industry.

1. Introduction

The airline industry has been hit extremely hard by the COVID-19 crisis, with consequences even graver than the sum of the events of 9/11 and the 2008 global financial crisis (Molenaar et al., 2020). The International Air Transport Association (IATA) has updated its analysis of the revenue impact of the COVID-19 pandemic on the global air transport industry and estimates that industry passenger revenues could plummet by $252 billion or 44% below 2019’s figure. This figure takes into account the severity of travel restrictions as well as the anticipated global recession. These estimates are a dramatic increase on earlier analyses of $113 billion loss of revenue just three weeks earlier. The current scenario is one in which severe travel restrictions will last for up to three months, followed by a gradual economic recovery later this year (Alexandre, 2020). Strategic options for airlines include determining the optimal size and dimensions of their networks and fleet, considering mergers and consolidation opportunities or restructuring their operating models. However, the most critical question currently concerns the duration of the crisis in light of government responses and the progression of the virus (Molenaar et al., 2020) but as yet there are no answers.

Unlike the comprehensive crisis faced by all airlines and, indeed, practically everyone else, this investigation draws on crises that arose from airline industrial action in Taiwan during 2016/2019 during which time three large-scale strikes initiated by flight attendants and pilots took place. The first strike was by China Airlines’ flight attendants in 2016, which affected more than 30,000 passengers and 123 flights. Airline revenue was reduced by about 300 m NTD, and about 200 m NTD to compensate travelers and travel operators (Wiki, 2016). The second strike was by China Airlines pilots in February 2019, which lasted for 7 days, in which 163 flights were cancelled and 30,000 travelers affected. The airline lost 825 m NTD in revenue and compensated travelers for losses and related expenses, totaling 154 m NTD and further compensation claims from travel agencies of 1bn NTD compensation, the total market value of China Airline has dropped by more than 3.4bn NTD (Wiki, 2019a). These two large-scale strikes China Airlines staff not only incurred significant loss of revenue but also exacts hidden losses such as image and goodwill - far harder to assess. In June 2019, a third
strike the longest and largest strike in Taiwan’s aviation history occurred, initiated by the Taoyuan Flight Attendants’ Union (TFAU). This strike lasted from June 20 to July 9, 2019, leading to the cancellation of 735 flights of EVA air with more 278,420 travelers affected and with cumulative revenue losses of 3.24 billion NTD and compensation for passenger losses and related expenditures of 805 million NTD (Wiki, 2019b). The average airline strike by a union not only brings about a decline in the brand’s shareholder equity (Becker and Olson, 1986) but may also have a significant redistributive effect on the whole industry in that whilst the value of the strike hit airline decreases, that of competing and strike-free airlines increases (De Fuco and Fuees, 1991). Evidence from strikes experienced by Lufthansa, indicates that not only do daily costs rocket but that passenger numbers subsequently decline (Atkins, 2010; Sheahan, 2016).

As part of managing a crisis, in such a way as to avoid returning to the pre-crisis state and to create a less strike-prone environment (Hatty and Hollmeier, 2003), the significance of branding (Grundy and Moxon, 2013), specifically brand attitude (Wang, 2014), brand credibility (Wang and Close, 2018) and intention to purchase needs clearer delineation. The purpose of this study is therefore to identify passenger perceptions of airline strike crisis management capabilities and how these capabilities influence brand credibility, brand attitude and passenger intention to use that airline brand. Specifically, it addresses the following points:

- Why airlines with better crisis management capabilities strengthen passenger attitudes towards airline brand, airline brand credibility and intention to use. To date, scholars have only investigated airline safety characteristics and trustworthiness with relation to passenger intention to use (Wang, 2014; Wang and Close, 2018). This study extends this work by investigating how airline crisis management capabilities influence passenger brand attitudes, brand credibility and intentions to use a specific airline brand.
- Owing to the homogeneity of service provision in airline transportation, airlines use brands as a means of differentiation (Doganis, 2006), however, with the loosening of regulations and environmental norms, distinctions between airlines have begun to undergo significant changes and differences (Collison and Boberg, 1987), thus prompting enquiry into how airlines manage brands in a crisis situation.

The structure of this paper is as follows: the conceptual background providing the reasoning for the formulation of the hypotheses, the methodology, the results and the conclusions.

## 2. Conceptual background and hypotheses formulation

In this section of the paper, the theoretical background to the study is presented beginning with crisis management.

### 2.1. Crisis management

Although crisis management is often envisaged as being concerned with natural disasters, firms have to deal with human induced crises such as strikes (Crandall and Menefee, 1996). Even if the strike or crisis cannot be averted, there is scope for improving the organizations preparedness through detection and prevention (Mitroff, Shrivastava and Udwadia, 1987). The management of crises consists of two distinct perspectives, one focused on the internal dynamics and the other directed externally at managing external stakeholders. (Bundy et al., 2017; Pearson and Clair, 1998). It has been asserted that by adopting a stakeholder-based model for crisis management a more favorable outcome might be achieved (Alpaslan et al., 2009). An essential element, therefore of crisis management, is for organizations to understand how key stakeholders might react to a crisis, what resources and information stakeholders might have available to assist in the management of a crisis, how stakeholders might be impacted by the crisis and how stakeholders might exert a negative impact on the organization’s ability to manage the crisis (Mitroff et al., 1996). From an internal perspective, crises, are intrinsically processual (Roux-Dufort, 2007) with three distinct stages being identified – pre-crisis prevention, crisis management and post-crisis outcomes but even then, the second and third stages are reliant on stakeholders (Bundy et al., 2017). It is evident that organizations need to learn from managing crises (Pearson and Mitroff, 1993), fine honing their cognitive and emotional capacities (Mitroff and Anagno, 2001; Williams et al. 2017).

### 2.2. Crisis management capabilities

Drawing on the framework developed by Bundy et al. (2017), this study defines airline strike crisis management capabilities as: the pre-crisis preparation and preparedness exhibited by airlines when facing a strike crisis, the ability to respond during a strike crisis, and the service resilience capability after strike crisis. As brand crises negatively affect brand attitude (Dutta and Pullig, 2011), there is a strong argument for airlines to acquire capabilities so that they can manage strikes effectively. Therefore, even if a strike is likely to occur, well-prepared and resilient organizations such as airlines are better protected (Mitroff et al. 1987) and in a better position to protect their brand and influence passenger intention to use. Within the airline industry specifically, challenges such as command incompetence, information ambiguity and coordination difficulties were identified (Yin and Jing, 2014). Later research proposed four capabilities as follows: command, coordination, information, and environmental pressure have been proposed (Chang et al. 2018). Whilst they provide an initial framework to airlines for managing crises, an essential additional learning that airlines need to engage in to overcome crises (for example, Pearson and Mitroff, 1993).

Accordingly, this study summarizes airline crisis management actions with reference to Chang et al. (2018), Yin and Jing (2014), and Doug and Hugh (2008), developing a framework of crisis management capabilities to include those five. Command should cover clear authority and full authorization of senior management, emergency response of operating units, clear command chain, decentralization, duties and responsibilities of senior management, implementation of standard operating procedures, crisis response management team, regular crisis management training programs, crisis drills and preparedness drills, and links to external rescue and medical services. Coordination includes internal coordination of emergency management, feedback and review, timely communication with relevant groups, personnel scheduling, logistics support, coordination with government agencies, coordination with company partners, communication with the media, communication with the victim’s family, and communication with the injured passenger. Information should be transparent, accurate and timely. Environmental pressure covers responses to pressure from stakeholders such as publics, governments, media that address complexity and uncertainty. Finally, learning comprises improving resilience, learning from experience and solutions.

Based on existing studies, this investigation develops second-order reflective construct that measures airline strike crisis management capabilities. The hypotheses are:

- H7a …… H7n. Perceived airline crisis management capability consists of several underlying dimensions: command (H7a), coordination (H7b), information (H7c), learning (H7d), response (H7e) …… environmental pressure (H7n).

In the following section, the second part of the model that pertains to brand attitude/credibility and intention to use is presented. In particular, further insight is needed on how passengers might perceive the relationship of crisis management capabilities on their attitudes to the airline brand, its credibility and their subsequent intention to use.
2.3. Branding and crisis management

From the passenger perspective as opposed to the airline itself, additional airline capabilities come into play, for example, safety, professionalism and punctuality are important considerations when choosing an airline (Medina-Muñoz et al., 2018). Passenger intention to use a particular airline, however, will be influenced both by brand preference and brand equity (Wang, 2014), therefore, passenger perceptions of an airline having strong crisis management capabilities are likely to influence their intentions to use a particular airline brand. Research into brand management includes investigation into brand crises where advice has been to take an analytical approach to the crisis and to adopt a forthright communications strategy with substantive changes to behaviors (Greyser, 2009). The ability of a brand to weather a crisis is also embedded in existing consumer attitudes (Pullig et al., 2006), which means that stronger brands are better able to withstand crises (Cleeren et al., 2008; van Heerde et al., 2007) but much of this work refers to product brands rather than services and airlines in particular. Knowledge about a brand crisis in transport or airlines is and how it affects passenger brand attitudes and intention to use is limited in spite of airline crises being quite common (Mason, 2001; Ray, 1999) and worldwide. We contend that the combining passenger perceptions of crisis management combined with brand perceptions and how that combination impacts on intention to use extends passenger and consumer theory in airline transport.

The theoretical foundation of this study rests on the theory of planned behavior (TPB), which over the years has received extensive attention from researchers in various disciplines and is widely used to explain consumer decision-making behaviors. Past researches (Wang and Ngamsiriudom, 2015a, 2015b; Wang and Hsu, 2016; Lee et al. 2018) revealed that TPB has a solid performance in observing and predicting consumer behavior intentions. In the context of airline crisis management, TPB enables novel insight into the perceptions, attitudes, and behaviors of airline passengers of airline crisis management capabilities. Brand attitude is a fairly stable summary evaluation of a brand, which goes on to stimulate consumer behavior (Spears and Singh, 2004). The following hypotheses are therefore developed beginning with H1.

H1. Perceived airline crisis management capability positively influences passenger brand attitude.

As well as and attitude, brand credibility is a related but distinct brand outcome and is defined as the plausibility of the information conveyed by a brand so that consumers perceive that it has the ability to deliver its promise (Erdem and Swait, 1998, 2004; Erdem et al., 2006). Brand credibility affects consumer choice of brand (Erdem and Swait, 2004) and moderates price sensitivity (Erdem et al., 2002). Whilst it is an established construct (e.g., Erdem et al., 2006; Erdem and Swait, 2004; Rao and Ruekert, 1994; Rao et al., 1999; Wernerfelt, 1988), brand credibility has yet to be considered as a function of crisis management capability in aviation. Airlines can attempt to build brand credibility through concentrating on information strategies about crisis management capabilities. Information on crisis management capability may strengthen ensure consumer intentions to use. Favorable brand attitudes may also affect brand credibility.

H2. Perceived airline crisis management capability significantly influences passenger intention to use.

H3. Perceived airline crisis management capability positively influences brand credibility.

H5. Passenger attitude towards brand positively impacts brand credibility.

An individual's intentions represent their motivation to perform a particular behavior (Eagly and Chaiken, 1993), which in this study is represented by TPB (Fishbein & Ajzen, 1975). Intention is a key criterion variable in a typical TPB model and has been previously used in tourism, hospitality, and travel research (Alvarez and Campo, 2014; Casaló et al., 2010). It is argued that there is a positive effect of brand credibility and brand attitude on, in this research, passenger willingness to use an airline service (Daneshwary and Schwer, 2000). This model tests the extent to which brand attitude, brand credibility and intentions are associated (see for example MacKenzie, Lutz, and Belch, 1986; MacKenzie and Spreng, 1992) within the context of airline crisis management capability.

H4. Passenger attitude towards the airline brand positively affects their intention to use.

H6. Airline brand credibility positively affects passenger intention to use.

Having developed the model of airline crisis management capability and their influence on brand attitude, credibility and intention to use, the study now provides detail of the methodology.

3. Methodology

3.1. Data collection and sampling

The model of airline crisis management capability is based upon a framework of perceptions, attitudes and intention to use. In addition to the antecedent of brand attitude, we have reasoned that perceived crisis management capability and brand credibility are significant. The model hypothesizes that perceived crisis management capability has both direct and indirect impacts on airline brand credibility and passenger intention. The data were collected by means of a survey that consisted of items drawn from existing consumer behavior literature. Brand attitude was measured with five items (Brett et al., 2008; Mitchell and Olson, 1981; five items), brand credibility with seven items (Erdem and Swait, 2004) and intention to use with two items (Jameson and Bass, 1989; Putrevu and Kenneth, 1994). For crisis management sub-dimensions, 19 items were adapted from a range of sources (Chang et al., 2018; Doug and Hugh, 2008; Yin and Jing, 2014). The wordings of the items were slightly modified so that they fitted the context of the study. As the scale was drawn from existing sources written in English, the questionnaire used in Taiwan was translated from English to Mandarin Chinese involving translation, back-translation, followed by third-party re-translation (Kotabe and Helsen, 2000). The items on brand attitude, brand credibility and intention were measured with a five-point Likert-type scale, with strongly disagree = 1 and strongly agree = 5.

The data for the study were collected using the Pollster online survey service in Taiwan (www.pollster.com.tw). The advantages of using this type of service is the large number of members, for example there are over 100,000 Pollster members. These members have already registered their real name supported by government-issued ID number. Fully registered members receive a mail invitation from Pollster to complete any new survey promptly. Members who complete a survey will earn points, dependent on the amount of time and the difficulty of the task. These points can be exchanged for cash. Members took ten days to complete this survey. However, 848 useable responses from the Pollster site were generated (see Table 1).

3.2. Data analysis

The first step in the analysis used exploratory factor analysis (EFA) to extract four factors from the airline crisis capability items as follows: coordination and integration (six items), management and learning (six items), command and information (five items) and assurance (two items) as shown in Table 2.

A further check using EFA to detect notable deviations from the structure of the constructs, in particular to see whether the data conformed to the multi-normality requirement required for Structural Equation Modeling (SEM) technique (McDonald and Ho, 2002). As the
data conformed to this requirement, the proposed model was tested in a two-stage structural equation framework, using confirmatory factor analysis (CFA). Here the aim was to assess the validity of the constructs prior to conducting structural path analysis. As common method variance (CMV) may present problems in behavioral research (Bagozzi and Yi, 2001), the CMV remedy procedure, the unmeasured latent method construct (ULMC, p-value \( \Delta \chi^2 = 0.962 \) showed an insignificant level of common method bias (Carson, 2007). After applying the CMV remedy procedure, the unmeasured latent method construct showed that the value of kurtosis ranged from \(-4.130\) to \(-1.295\) and of skewness ranged from \(-1.780\) to \(-0.077\) and so satisfied standard evaluation criteria (Mardia (1985). The measurement models were estimated using LISREL 8.80 (Jöreskog and Sörbom, 1989) with the goodness of fit indices summarized in Table 3. The chi-square statistics are significant at the 0.05 level, which is not unusual with a fairly large sample (Doney and Cannon, 1997). The values for comparative fit index (CFI), non-normed fit index (NNFI), root mean square error of approximation (RMSEA), and standardized root mean residual (SRMR) were all significant at the 0.05 level, which is not unusual with a fairly large sample (Doney and Cannon, 1997). The values for comparative fit index (CFI), non-normed fit index (NNFI), root mean square error of approximation (RMSEA), and standardized root mean residual (SRMR) were all significant at the 0.05 level, which is not unusual with a fairly large sample (Doney and Cannon, 1997).

### 3.3. Measurement model, reliability, and validity

The sample size of 848 was believed to be sufficiently large to compensate for any model misspecification and model complexity (Hair et al., 2006). Checks were also made for possible univariate and multivariate outliers but no significant violations were found. The analysis showed that the value of kurtosis ranged from \(-0.565\) to \(1.295\) and of skewness ranged from \(-1.780\) to \(-0.077\) and so satisfied standard evaluation criteria (Mardia (1985). The measurement models were estimated using LISREL 8.80 (Jöreskog and Sörbom, 1989) with the goodness of fit indices summarized in Table 3. The chi-square statistics are significant at the 0.05 level, which is not unusual with a fairly large sample (Doney and Cannon, 1997). The values for comparative fit index (CFI), non-normed fit index (NNFI), root mean square error of approximation (RMSEA), and standardized root mean residual (SRMR) were all significant at the 0.05 level, which is not unusual with a fairly large sample (Doney and Cannon, 1997).

### Table 1

| Characteristics | Full Sample, N = 848 | Gender | Marital Status | Age | Job | Reason to take airplane | Annual frequency to take airplane | Who pays for air ticket | Did you pay attention to airline strike? | Annual travel cost | Frequent reserved cabin type |
|----------------|----------------------|--------|---------------|-----|-----|--------------------------|-----------------------------------|------------------------|----------------------------------|-------------------|-----------------------------|
| # | % | Male | Female | Unmarried | Married | Under 20Years | 21-30Years | 31-40Years | 41-50Years | 51-60Years | Above 61Years | Students | Government/Education | Service Industry | Financial Industry | Agriculture/Farm/ Fishing | Transportation | Business | Travel/tourism | Studying | Less than 1 time | 1-3 times | More than 3 times | Themselves | Company partly funding | Company fully funding | Did you pay attention to airline strike? | Yes | No | Less than 50000 NTD | 50001 to 100000 NTD | More than 100001 NTD | Economy | Business | First |
|----------------|----------------------|--------|---------------|-----|-----|--------------------------|-----------------------------------|------------------------|----------------------------------|-------------------|-----------------------------|
| 468 | 55.2 | 380 | 44.8 | 198 | 23.3 | 10 | 1.2 | 81 | 9.6 | 172 | 20.3 | 153 | 18.0 | 380 | 44.8 | 52 | 6.1 | 249 | 29.4 | 207 | 24.4 | 44 | 5.2 | 20 | 2.4 | 312 | 36.8 | 750 | 88.4 | 7 | 8 | 398 | 46.9 | 395 | 46.6 | 55 | 6.5 | 745 | 87.9 | 50 | 5.9 | 53 | 6.3 | 620 | 73.1 | 228 | 26.9 | 413 | 48.7 | 364 | 42.9 | 71 | 8.4 | 754 | 88.9 | 80 | 9.4 | 14 | 1.7 |

### Table 2

| Results of EFA analysis on airline crisis management capability. |
|----------------|---------------|
| Coordination/ Integration | Management and Learning | Command/ Information | Assurance |
| 4.82 | .751 | .734 | .733 |
| .816 | .696 | .646 | .763 |
| .763 | .754 | .730 | .717 |
| .904 | .836 | .802 | .78336 |
| 27.585 | 49.980 | 69.570 | 78.336 |

*Note: Results of EFA were generated from principal component analysis with rotated Varimax, accumulated variance explained had reached 78.336%; meanwhile, Kaiser-Meyer-Olkin 0.953, Bartlett test 15058.542, df = 171, sig. = .000.
considered acceptable for the proposed model (Hu and Bentler, 1999) and are as follows: 0.95 for CFI and NNFI, 0.06 for RMSEA, and 0.08 for SRMR. Since the results from goodness-of-fit indices were acceptable and the firm theoretical basis for the proposed model, no further modifications were made to the model specifications.

Subsequently the quality and adequacy of measurement models was investigated by assessing its unidimensionality, reliability, convergent validity, and discriminant validity. Unidimensionality was assessed on the basis of principal component analyses performed on all items with all items loading at 0.65 or higher on the hypothesized factors. No significant cross-loading was identified thus supporting unidimensionality for each of the studied constructs. For composite reliability, again, there was evidence that all the Cronbach alpha values exceeded the suggested 0.6 benchmark (Baggozzi and Yi, 1988).

For CFA, convergent validity, that is the degree of association between measures of a construct, was assessed by examining t statistics related to the factor loadings. All the t statistics are statistically significant at the 0.05 level, suggesting that the indicator variables provide good measures with their respective construct (Hair and Panter, 1995). The average variances extracted (AVE) values relating to the constructs are at or higher than 0.50, which also provide evidence of convergent validity (Fornell and Larcker, 1981). Discriminant validity was checked using a series of chi-square difference tests on the nested models to find out whether their values are significantly lower for the unconstrained models where the phi coefficient is constrained to unity (Anderson, 1987). The critical values related to the Chi-square difference at the 0.05 significance level are higher than 3.84 in all possible pairs of constructs, suggesting that the models are unrelated. It seems safe to conclude therefore that the constructs in the study meet standard reliability and validity checks.

4. Empirical results

The sample size (N = 848) is considered sufficiently large for model specification and further analysis. The overall fit of the model is reasonable. Simultaneous maximum-likelihood-estimation procedures are used to examine relationships among perceived crisis management capability, brand attitude, brand credibility, and intention (Table 4).

The analysis results reveal that all significant relationships between latent constructs match the hypothesized directions, except for H2 (crisis management capability—intention). In our proposed models, perceived airline crisis management capability consists of four sub-dimensions, they are: command and information, coordination and integration, management and learning, and assurance. Meanwhile, perceived airline crisis management capability has significant positive effects on brand attitude and brand credibility, supporting H1, and H3. Further, brand attitude has significant positive effect on both brand credibility and intention, supporting H4 and H5; brand credibility positive significant affects intention, supporting H6. As to the structure of the second order perceived crisis management capability, perceived crisis management capability were proved to consist of four sub-dimensions (command/perceived crisis management capability, perceived crisis management attitude and brand credibility, supporting H1, and H3. Further, brand management and learning, and assurance. Meanwhile, perceived airline crisis management capability consists of four sub-dimensions, including coordination and integration, management and learning, and assurance.

Since the construct of perception of airline crisis management capability didn’t have a significant influence on air passengers’ intention, we proceeded to examine the mediating effects (Sobel, 1982) of brand attitude (BA) and brand credibility (BC). Specifically, both brand attitude and brand credibility are thought to mediate the relationship between air passengers’ perception of airline crisis management capability (ACMC) and intention (I).

The analytic results shown in Table 5 that for the mediating effect of brand attitude, the direct paths between perceived airline crisis management capability and brand attitude and perceived airline crisis management capability and intention are significant. When controlling for brand attitude, the relationship between perceived airline crisis management capability and passenger intention to use remains

| Table 3: Measurement scales and summary statistics. |
|-----------------------------------------------|
| Command and Information (ICAO, 2014; MOTC, 2015; Yin and Jing, 2014) (Mean = 4.30, Reliability = 0.950, AVE = 0.86) |
| - Clear lines of authority and sufficient authorization from top management |
| - Information flow is clear and unblocked |
| - Information disclosed is transparent, complete, accurate and consistent |
| - Responsibilities and accountabilities of top managers and crisis response management team |
| - Prompt and timely disclosure of information |

| Coordination and Integration (Mean = 4.05, Reliability = 0.820, AVE = 0.83) |
| - Internal coordination for emergency management |
| - Feedback and review on plan |
| - Timely communication with relevant parties |
| - Coordination with government agencies |
| - Coordination with company partners |
| - Communication with the media |

| Management and Learning (Mean = 4.08, Reliability = 0.789, AVE = 0.79) |
| - Keep complete crisis management related data for further implications |
| - Learning and improving from the crisis experience |
| - Regular crisis management training programs and exercises |
| - Referring to similar crisis from other airlines, learning and improving for a better crisis management capability |
| - Personnel scheduling and logistic support |
| - Response and action under complicated situations, governmental pressure and partners |

| Providing assurance (Mean = 3.92, Reliability = 0.870, AVE = 0.81) |
| - Airline service staff are reliable, providing safety air transport service for passengers |
| - Airline service staff has full authorization from airline, providing qualified air transport service politely. |

| Brand Attitude (Brett et al., 2008; Mitchell and Olson, 1981) (Mean = 3.92, Reliability = 0.870, AVE = 0.81) |
| - I can fully understand the sincerity of airline when airline is handing a crisis |
| - I’m satisfied with airline’s compensation measures during strike crisis |
| - I have bought products due to the influence of properly crisis management. |
| - I keep using an airline brand only because of properly crisis management. |
| - Properly crisis management help me to remember an airline brand. |

| Brand Credibility (Erdem and Swait, 2004) (Mean = 2.03, Reliability = 0.935, AVE = 0.73) |
| - This brand reminds me of some brand who is competent and knows what they are doing. |
| - This brand has the ability to deliver what it promises. |
| - This brand delivers what it promises. |
| - This brand’s products claims are believable. |
| - Over time, my experiences with this brand have led me to expect it to keep its promises, no more and no less. |
| - This brand has a name you can trust. |
| - This brand doesn’t pretend to be something it isn’t. |

| Intention (Jamieson and Bass, 1989; Putrevu and Kenneth, 1994) (Mean = 4.26, Reliability = 0.807, AVE = 0.82) |
| - It’s my pleasure to take this airline brand again. |
| - It’s my pleasure to recommend my relatives to take this airline brand. |

With N = 664, $\chi^2 = 1089.34$ (p = 0.00, df = 434), $\chi^2$/df = 2.51, GFI = 0.94, CFI = 0.99, RMSEA = 0.038.

significant with beta being reduced from 0.589 to .125 - indicative of a partial mediating effect. Following similar processes, analyses of the mediating effect of brand credibility indicate that the direct paths between perceived airline crisis management capability and brand credibility and perceived airline crisis management capability and intention are all significant. Once more, after controlling for brand credibility, the relationship between perceived airline crisis management capability and intention is insignificant with the coefficient being reduced from 0.589 to .053, which is indicative of a full mediating effect. To conclude,
whereas brand attitude has partial mediating effects on the relationship between perceived airline crisis management capability and intention, brand credibility has a full mediating effect on the relationship between perceived airline crisis management capability and intention. The results above indicate that passengers perceive airline brands having crisis management capability if the airline retains complete crisis management related data, learning from the crisis experience (Pearson and Mitroff, 1993), apply regular crisis management training programs and exercises, referring to similar crises from other airlines, have better capability in personnel scheduling and logistic support, and response and action under complicated situations, governmental pressure and partners. In addition to the management and learning factor, coordination/integration, command/information, and finally, providing assurance are all constructs with significant effectiveness perceived by passengers on airline crisis management capability (see Fig. 1). Providing assurance emerges strongly from this research as a factor in crisis management, where it has been often overlooked (see for example MacLeod, 2015). Most of crisis management related studies focused on managing the crisis itself and/or solving the strike movement. Our study revealed that not only is crisis management itself important, but also the service provided by staff, in particular their reliability. Moreover, such service needs to be offered without breaching usual standards of politeness. In times of strikes and other upheavals, passengers are not tolerant of breaches of usual service levels nor may they understand their role in such situations (Elliott et al., 2005).

5.2. Crisis management capability and brand attitude, credibility and intention

Perceived airline crisis management capability has positive significant effects on attitude, brand credibility and intention. However, the results show that perceived airline crisis management capability does not influence intention directly at a significant level. Thus, if air passengers perceived airline with outstanding crisis management capability, they will have a more favorable attitude toward the airline brand. The results are similar with brand credibility, where perceptions of crisis management capability engender belief in the brand, such as competence and trustworthiness. Although perceived crisis management capability had insignificant influence on air passengers’ intention, it is their brand attitude toward airline crisis management capability that transforms their perception into the intention to adopt the airline brand. Moreover, airlines with a strong brand credibility are more likely to benefit from the feedback of air passengers, while air passengers who perceived airline brand with excellent crisis management capability seek opportunities to echo their intention to adopt the airline brand. However, the presence of brand attitudes and brand credibility both weaken their intention directly from perceived airline crisis management capability.

Table 5
Tests for mediating effects.

| Mediators | Mediation Paths | Tests |
|-----------|-----------------|-------|
| Brand     | Perceived airline crisis management capability → Intention | .000**, beta = .589 |
|           | Perceived airline crisis management capability → Brand Attitude | .000**, beta = .672 |
|           | Perceived airline crisis management capability and Brand Attitude → Intention | ACMC to I = .125 |
|           | Brand Attitude partially mediates the relationship of Airline Crisis Management Capability and Intention |
| Brand     | Airline Crisis Management Capability → Intention | .000**, beta = .589 |
|           | Airline Crisis Management Capability → Brand Credibility | .000**, beta = .706 |
|           | Airline Crisis Management Capability and Brand Credibility → Intention | .162, beta ACMC to I = .053 |
|           | Brand Credibility fully mediates the relationship of cabin safety knowledge and intention |

**Denotes p ≤ 0.05.
management scenarios (for example, Cleeren et al., 2008; Greyser, 2009; van Heerde et al., 2007).

6. Conclusion

In this paper, we have presented a causal effects analysis of crisis management capabilities and brand attitude, capability and passenger intent to use as an extension of theory in air transport management. We now summarize the implications of the research.

6.1. Theoretical implications

Given the challenges in influencing passenger intentions in a highly competitive industry, the results of this study contribute to strategic airline crisis management in three novel ways. Firstly, this study demonstrates the capabilities from a passenger perspective which capabilities airlines need to build. Secondly, that process affects passenger attitude and credence in the brand, and in turn, intention to use. Thirdly, among the empirically supported dimensions of crisis management capability, the emergence of providing assurance is an important addition to the crisis management literature.

Furthermore, the study has highlighted the need to use second-order multi-dimensional crisis management capability as antecedent of airlines’ brand attitude, brand credibility and behavior intention. The evaluation study conducted has demonstrated the practical advantages of the causal analysis as a means of both examining an airline’s crisis management capabilities and efforts towards effective crisis management and brand management. In addition to its conceptual and methodological contributions to airline crisis management capability research, the outcomes of this study provide useful insights for the case airlines and other airlines to improve their capabilities for effective crisis management capability for strike or air safety crises. The results suggest that airlines can influence passenger intention to use by enhancing customer’s perception on brand attitude and brand credibility through making explicit to passengers their airline crisis management capabilities.

6.2. Managerial implications

The study has a number of implications for managers in the airline industry. The study indicates the benefits of visibly building crisis management capability as a means of enhancing passenger attitude towards the airline brand and its perceived credibility. There should be further advantages to the airline through communicating these capabilities within brand-led communications. Based on the relationships within the causal model (Fig. 1) airlines can that can upgrade passenger perceived brand attitude, brand credibility and hence intention to use. The novel dimension of providing assurance also has implications for staff development as it is they who are the ‘face’ in many instances of crisis management.

6.3. Limitations and further research

Whilst this study was initiated by crisis management during prolonged strikes of airlines in Taiwan, there is scope for extending this work into services, with much of the literature on crisis management investigating natural disasters and instances of product harm, no less that COVID19. As indicated by Elliott et al. (2005), services offer fertile ground for crisis management research, also given the nature of services and the role that branding plays therein (see for example de Chernatony and Segal-Horn, 2003). Specifically, such brand dimensions as loyalty and relationships are pertinent to airlines and services more generally.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jairtraman.2020.101894.

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