

## **Effect of Price Change Alert on Perceptions of Hotel Attribute-based Room Pricing (ABP) versus Traditional Room Pricing (TRP)**

### **Abstract**

Aside from marketing information on traditional room rates, hotels and online travel agents (OTAs) are trying a new pricing technique based on the attributes of guestrooms. This research investigates how attribute-based room pricing (ABP) differs from traditional room pricing (TRP) in influencing consumer reactions when consumers receive a price change alert before (vs. after) sales. Through a series of experiments, we found that TRP and ABP result in similar alert attitude, brand attitude, and visit intention for presale price change alert. However, ABP leads to more favorable results for postsale price change alert. We examined the underlying mechanism and found that perceived fairness mediates the effect of pricing strategy on brand attitude, price alert attitude, and visit intention for postsale alert only. This research provides hotel managers and OTA marketers with guidance on when to send either type of price change message to consumers.

### **Keywords**

Attribute-based room pricing; Price alert; Perceived fairness; Pricing

### **Introduction**

The hospitality market has been facing fierce competition pricing. However, recent research pointed out that despite the success in revenue optimization, the traditional pricing

strategies often failed to consider hotel attributes that consumers value, thus difficult to sustain in the long term (Ampountolas et al., 2020; Kim et al., 2020; Vives & Jacob, 2020). With the development of the Internet and e-commerce, the cooperation and collaboration among different channels increase profit using pricing strategies (Yan, 2010). Hotel companies that use traditional pricing (TRP), such as demand-based pricing and best available rate (BAR) strategies, are facing new challenges due to the advancing technology, complex pricing mechanisms, and prevalence of internet booking (Erdem & Jiang, 2016; Guillet & Mohammed, 2015; Jiang & Erdem, 2018). Compared with these traditional pricing strategies, attribute-based pricing (ABP) offers new opportunities for revenue management by providing attribute price information of hotel rates (Sorrells, 2018).

Room attributes refer to room options such as view, pricing policies, and amenities. ABP, a relatively new term in the hotel industry, is about allowing customers to choose and customize the attributes of a hotel room from a pool of attribute choices presented to them (Sorrells, 2018). Theoretically, ABP inherits and advances partitioned pricing and hedonic pricing from the retail setting into the services and hospitality research in several ways (Boatwright & Nunes, 2001; Borle et al., 2005; Broniarczyk, et al., 1998; Chernev, 2006; Kahn & Wansink, 2004; Levin & Gaeth, 1988). Different from partitioned pricing, ABP does not differentiate between a product's base charge and a surcharge (Lee et al., 2014). ABP is also distinct from hedonic pricing in a sense that it explicitly presents the attribute price information instead of implicitly assessing the market values of the attributes (Rosen, 1974). Practically in the hospitality industry, this pricing approach is evolutionary because hotels that use this approach move away from the concept of room types that have been used in the hotel industry for a long time (Guillet, 2020; Roukas, 2017). With ABP, customers are in control of their purchase paths and choose the room attributes that are valuable

to them. For example, if a customer wants to stay at a hotel with his wife for a romantic weekend, he may prefer a king-sized bedroom with an ocean view. Each time the guest adds an attribute, the hotel system prices the attribute separately and the customer sees how each attribute affects the total room price. Today, hotel room and rate combinations are created arbitrarily by hotel industry professionals through traditional room pricing strategies. Customers are presented with room rate/type combinations, and they choose the one that fits their needs best. The Intercontinental Hotel Group is among the big brands that intend to implement ABP. Despite the prevailing interests and potential in ABP, to the best of our knowledge, there has been no academic investigation on the effect and mechanism of ABP in hotels. This research is among one of the first academic endeavors to understand consumer reactions to ABP in hotels.

Given that consumers have different perceptions on prices, their attitude and behavioral intentions vary; thus, marketers are reminded to pay attention to the fairness perception of consumers to succeed in the long run (Bolton et al., 2003; Kahneman et al., 1986a). Previous research has found that transparent and itemized pricing is preferred over opaque pricing (Tanford et al., 2011). Some strategies, such as providing historical price information, price explanation, and cueing costs, may be effective in increasing perceived fairness (Bolton et al., 2003). With the widespread use of dynamic pricing strategies, the presale price information varies depending on the factors including room inventory, room type available, and time of booking (Viglia et al., 2016). Presale prices are prices advertised by hotels and OTAs before consumers' purchase (Sanchez et al., 2006). Previous research indicates that the presale price information has a significant impact on consumer behavior, such as the evaluation of past prices, sensitivity to price losses, and purchase and brand decisions (Kalyanaram & Winer, 1995; Viglia et al., 2016). Therefore, practitioners use partitioned pricing (i.e. price presented in a format including a base price and

surcharges) instead of all-inclusive pricing (i.e. a single price that includes all costs) to increase consumer perceived price transparency (Greenleaf et al., 2016). However, a recent review on partitioned pricing shows that partitioned price (as opposed to all-inclusive price) yield mixed results on the willingness to pay, perceived value, and brand attitude of consumers (Greenleaf et al., 2016). Thus, the effects of the new ABP on hotel consumers must be investigated.

Marketers and OTAs try to stay connected with customers as much as they can by using e-communication (Li et al., 2015). Sending pricing information is one of the methods they use. Unlike the retail industry, which often advertises reduced prices (Bobinski et al., 1996), dynamic demand in the hospitality industry drives marketers to communicate price increase information to their consumers, which establishes reference prices in the minds of consumers. The timing of sales promotion is found to be affected by the reference price of consumers (Kalyanaram & Winer, 1995). Therefore, this research investigates the timing of the price change alert (i.e., presale vs. postsale) and argues how it affects the APB and TRP pricing on the reactions of consumers. The purposes of comparing the two types of pricing strategies include 1) investigating whether paying a low price generate the same attitude for ABP versus TRP; 2) examining with the ABP technique, whether the attitude of consumers be different between before and after sales price change information; and 3) discovering what the underlying mechanism is that explains the effects.

## **Literature Review**

### ***Pricing Strategies***

Hotel room rates change frequently because of the dynamic demands and pricing strategies (Law et al. 2007; Mattila & O'Neill, 2003). According to Collins and Parsa (2006), pricing can be

market-driven, customer-driven, or competition-driven. Pricing strategies, such as odd pricing, discount framing, best available rate (BAR), package/bundling, participative pricing, and flash deals/daily deals, are commonly used practices in the hospitality industry (Mattila & Gao, 2016). However, hotel pricing strategies have evolved over time. Traditionally, hotels set the price using cost-driven pricing to gain a profit margin based on product costs, while some hotels use competition-driven pricing to compete for market share (Nagle & Holden, 1995; Relihan, 1989). Demand-based pricing and past-price dependence rely on customer-driven and firm-driven costs and benefits, such as category penetration, brand market share, and brand demand sensitivity to price (Beldona & Kwansa, 2008). Dynamic pricing models such as price-posted mechanisms and price-discovery mechanisms offer the hospitality industry various marketing opportunities (Elmaghraby & Keskinocak, 2003; Haws & Bearden, 2006).

Demand-based pricing is a commonly used method in the hotel industry recently (Abrate & Viglia, 2016; Haws & Bearden, 2006; Melis & Piga, 2017; Sánchez-Pérez et al., 2019). As a price discrimination strategy, the demand-based pricing strategy indicates that prices should be charged depending on the customer, time, location, product, or channel (Armstrong & Kotler, 2000; Haws & Bearden, 2006). Aside from the traditional goods market, in which price change is more responsive to variation of costs than to variation of demands (Kahneman et al., 1986a), price increases and decreases are largely driven by demands in the service industry where the service products are perishable. However, the perceptions of consumers on the fairness, acceptability, reasonableness, and honesty of the pricing policies vary for different pricing tactics (Chen & Schwartz, 2008; Jiang & Erdem, 2018; Rohlfs & Kimes, 2007). Among them, time is one of the key factors that determines an optimal demand-based pricing strategy in the hotel industry (Chen & Schwartz, 2008; Guo et al., 2013). Hotel room rates can change depending on the time of the

day, week, or year. Therefore, the attitude and expectations of consumers change because of the price difference (Mattila & O'Neill, 2003).

### ***Attribute-based Pricing***

Aside from timing, attribute is another emerging concept in hotel pricing. ABP, which is not a new concept, has already been implemented in the airline industry by budget airlines. Budget airlines unbundle the airfare to the base price and offer customers priced choices for seat assignment, baggage allowances, early boarding, and meals. In the retail setting, consumer choices are affected by the perception of a variety of selection, presence, or absence of the consumers' preferred item, arrangement of an assortment, and repetition of items (Boatwright & Nunes, 2001). A typical assortment pricing differentiates the price according to product attribute or assortment. The product assortment can be based on size, structure, attractiveness, variety, and choice (Chernev, 2006). Assortment pricing has been shown to affect sales, consumer-perceived variety, and customer retention (Borle et al., 2005; Broniarczyk, et al., 1998; Kahn & Wansink, 2004). In the hospitality research, scholars have demonstrated the effect of assortment pricing on consumer's choice satisfaction (Choi et al., 2018).

In the hospitality industry, the price differentiation criteria include the physical attributes (e.g., facilities and amenities), location-specific attributes (e.g., local attractions, climate, and beach), reputation (e.g., star classification and brand affiliation), and, most importantly, timing (Abrate et al., 2012; Chen & Schwartz, 2008). Yang et al. (2009) used *Kano's model* (Kano et al. 1984) and the *refined Kano's model* (Yang, 2005) to categorize hotel pricing strategies of service items into must-have, attractive, one-dimensional, and indifferent. The corresponding pricing strategies were recommended on the basis of these service attributes (Yang et al., 2009; Kim et al.,

2020). From the cost-driven pricing perspective, Hung et al. (2010) found that the hotel size, hotel age, market conditions, and number of housekeeping staff per room affect hotel room rate. Moreover, the chain affiliation, hotel facilities, technological resources, room size, and parking availability were also found to influence hotel price (Sánchez-Pérez et al., 2019). ABP signals the price transparency that reveals information on how price is allocated to each attribute of the total room price (Carter & Curry, 2010).

Specifically, Choi and Mattila (2006) found that compared with nonexistent and limited information, providing full information on room rates can enhance the perceived fairness of consumers, especially for American consumers, regardless of whether consumers gain a better or worse rate outcome. Fairness heuristic theory indicates that judging the outcome fairness is sometimes difficult because individuals may not know the alternatives. Similarly, based on the Heuristic-Systematic Model of Information Transparency, Miao and Mattila (2007) also argue that as long as heuristic cues such as pricing information is available, people would engage in such heuristic process mode and form price fairness judgment. Therefore, consumers are more confident and more willing to pay for transparent price than less transparent price (Miao & Mattila, 2007). Consequently, compared with TRP, customers are more likely to understand the reasons of price differences are actually based on product attribute differences with ABP. Thus, ABP can provide procedure fairness cues and serve as a heuristic substitute to the outcome judgement (Choi & Mattila, 2006; Haws & Bearden, 2006; Miao & Mattila, 2007; Van den Bos et al., 1997). Therefore, we argue that compared with TRP, ABP results in a high level of consumer attitude and visit intention because of the perceived fairness of the price change.

**H1:** ABP has a more positive effect on alert attitude, brand attitude, and visit intention than TRP.

### *The Effect of Price Change Alert*

Aside from room rates, contextual information can lead to different perceived motives of the change from customers (Campbell, 1999). Drawing on the principles of mental accounting (Thaler, 1985), previous hospitality research has demonstrated consumer reactions to price changes such as price discounts and price presentations (Kim & Tanford, 2020; Noone & Mattila, 2009). Consumers are sensitive to factors such as past prices, competitor prices, and cost, but these factors underestimate the influence of inflation (Bolton et al., 2003; Haws & Bearden, 2006). Past price is one of the key reference points that determine the price judgment of consumers (Bolton et al., 2003). Regardless of the types of reference prices, paying a low price is usually given much more weight than other information (Cowley, 2008). Thus, we formulate a hypothesis in which the price increase information that is sent presale versus postsale leads to different reactions for ABP and TRP.

In this research, we specifically argue that the timing of the price change information moderates the effect of pricing strategy on consumer reactions. Time plays a critical role in hotel revenue management (Chen & Schwartz, 2013). Based on the neoclassical economic theory, prior research indicates that expected price change determines a consumer's purchase decision of buying now or later (Jacobson & Obermiller, 1990). As time changes, the expectations on prices change (Haws & Bearden, 2006). The timing of offering the price change alert is an indicator of "price to pay" (presale) versus "last price paid" (postsale). Specifically, previous research demonstrates that consumers not only prefer itemized pricing, but they may also tolerate rate increases if the rate is perceived as transparent (Tanford et al., 2011). Therefore, for presales alert, the TRP or ABP does not make a difference when the price is not paid by the consumer. Additionally, the prospect theory



(Kahneman & Tversky, 1979) suggests that consumers consider their purchase price as a “loss” or a “gain” depending on whether is greater or smaller than the reference price (Krishnamurthi et al., 1992). If a reference price (i.e. “price paid”) is evoked, consumers attribute, assume, and infer about costs and profits on the basis of pricing information, which results in the fairness perception and price satisfaction of consumers (Bolton et al., 2003). Thus, for postsale alerts, the ABP increases that shows that the attribute price information results in the “gain” perception which is higher than the reference price paid. Such postsale ABP price increase generates more favorable reactions (i.e. positive attitude and willingness to stay) than the TRP increase.

**H2a:** For presale alerts, the TRP and ABP increases lead to similar alert attitude, brand attitude, and visit intention.

**H2b:** For postsale alerts, ABP increase leads to more favorable alert attitude, brand attitude, and visit intention than TRP increase.

### ***Perceived Fairness***

We argue that the differential effects of ABP and TRP on consumer reactions are driven by consumer-perceived price fairness. Fairness is a global measure of price acceptability (Lichtenstein et al., 1988; Maxwell, 2002). Price fairness perception involves a comparison with a standard, reference, or norm (Xia et al., 2004). On the basis of the principle of dual entitlement (Kahneman, et al., 1986b), previous research on price fairness argues that companies are entitled to a reference profit and consumers are entitled to a reference price. Despite the dual entitlement principle which suggests that consumers perceive it as fair when a price increase results from increase in costs, it is unclear whether this effect applies to different pricing strategies such as ABP

and TRP. While ABP increase shows the price increase information of a specific attribute, TRP increase does not provide such information. Thus, there is a gap in the literature regarding how consumers perceive price fairness for the price increase of TRP and ABP. Moreover, this study will demonstrate how consumer attitude and behavioral intention to a hotel are influenced by the fairness perception under the two pricing strategies (Choi & Mattila, 2003, 2009).

Consumer satisfaction is shaped partially by perceived price fairness (Bolton et al., 2003). Recent research indicates that price increases lead to unfairness perception because of the market power of the firm and the controllability of the market (Lu et al., 2019). Campbell (2007) also found that the source of price change moderates the effect of price changes on perceived price fairness. Different from the price-discovery specialized platforms (e.g. Priceline), most OTAs and hotel websites adopt a price-posted mechanism (i.e. hotel room rate set by the hotel) (Haws & Bearden, 2006). Therefore, consumer perceived fairness is extraordinarily critical in influencing consumer behaviors (Malc et al., 2016).

Fairness perception is a determinant of the willingness and resistance of consumers to pay (Miao & Mattila, 2007) and is often triggered when the actual price is higher than the reference price (Maxwell, 2002). A high price is considered unfair, which results in negative outcomes, such as exiting, complaining, asking for refunds, switching, and negative word-of-mouth (Equity Theory, see Huppertz et al., 1978; Wirtz & Kimes, 2007). Contrarily, fair perception leads to positive reactions including increased perceived value and willingness-to-pay (Miao & Mattila, 2007). Consequently, consumers who suspect the unfairness of the price are likely to search for alternatives (Kahneman et al., 1986a, Kahneman et al., 1986b). Based on Kahneman et al. (1986a and 1986b) and Bolton et al. (2003)'s work, the current research argues that fairness perception depends on the joint effects of pricing strategy and price alert timing, which further impacts

consumer attitudes and behavioral intentions. Specifically, we argue that the fairness perception is only evoked when a price is paid (i.e., postsale) and considered as a reference price (Bolton et al., 2003; Greenleaf et al., 2016). Such fairness perception directly affects consumers' attitudes towards the brand (Maxwell, 2002), as well as their behavioral intention to the brand (El Haddad et al., 2015). Accordingly, we argue that perceived fairness mediates the effect of the pricing strategy on price alert attitude, brand attitude, and visit intention only for postsale condition (vs. presale condition).

**H3:** Joint effect of pricing strategy and price alert timing on the alert attitude, brand attitude, and visit intention of consumers is mediated by consumer-perceived fairness.

[Insert Figure 1 Here]

The proposed framework depicted in Figure 1 incorporates pricing strategy (ABP vs. TRP) as an independent variable and timing of price alerts (presale vs. postsale) as a moderator. The framework also depicts perceived fairness as a predictor of price alert attitude, hotel brand attitude, and visit intention.

## **Methodology**

### **Study 1**

To test H1, Study 1 used a survey method to evaluate the attitude of consumers toward attribute-based rates versus traditional room rate information. A total of 120 participants were recruited from an online panel via a research company. Due to the homogeneous sampling

requirement of the current research (hotel customers), the participations were screened to ensure they had hotel booking experience within the past one year. Participants were required to imagine that they were going on vacation to City XYZ for the next four days. They browsed for hotels on a travel website in the morning and booked a room at Hotel XYZ. In the afternoon, they received an email indicating that, “Alert: Price Increase for hotel XYZ.” In the ABP condition, the participants read “↑ USD \$20. Now: Double Bed (USD \$80) with Harborview (USD \$65) (total: USD \$145). Was: Double Bed (USD \$70) with Harborview (USD \$55) (total: USD \$125).” In the traditional room sale rate condition, the participants read “↑USD \$20. Now USD \$145. Was USD \$125” (See appendix Figure 3 and Figure 4 for the stimuli). The room rate was set according to the average daily rate of the hotel industry in the U.S., which is around \$130.5 U.S. dollars (Statista, 2019).

## **Measurement**

Participants were first asked to rate their attitude toward the alert email (AA) (i.e., “How do you feel about the price alert you received?” – bad/good; negative/positive; irritating/not irritating; unfavorable/favorable, Cronbach’s alpha = 0.968) (Stevenson, Bruner, and Kumar, 2000), attitude toward the hotel brand (BA) (i.e., “As a hotel brand, you think the hotel XYZ is” – displeasing/pleasing; not likable/likeable; unenjoyable/enjoyable; unattractive/attractive, Cronbach’s alpha = 0.958) (Kwun & Oh, 2007), and visit intention (VI) (i.e., “To what extent would you like to stay at this hotel when you travel to the same destination?” and “How interested would you be in staying at this place next time you travel to the same destination?” – not at all/extremely, Cronbach’s alpha = 0.976) on a seven-point Likert scale. The demographic information was collected in the end. These scales were adapted from established instruments to ensure content validity and reliability.

To further verify unidimensionality, content, convergent, and discriminant validity of the scale, the measurement was subjected to exploratory factor analysis and confirmatory factor analysis to. First, a principle component analysis was used to examine the dimensionality. We observed how a single factor emerged for each of the proposed constructs of the model, providing satisfactory evidence of unidimensionality for the measure. Besides, the model fit indices for the overall measurement model had a good fit ( $\chi^2= 132.48$ ,  $df = 48$ ,  $p<0.05$ ;  $\chi^2 /df = 2.76$ ; CFI = 0.959; IFI = 0.959; RMR= 0.072). All factor loadings for items were significantly greater than 0.5 ( $p < 0.01$ ), and the average variance extracted (AVE) ranged between 0.703 and 0.955, indicating convergent validity (Hair et al., 2010). As a measure of discriminant validity, the AVE values for any two constructs were compared with the square of the correlation estimate between them. Results show that all of the AVE values were greater than the squared correlation estimates demonstrating discriminant validity (Hair et al., 2010). In addition, the Cronbach's alpha values indicate sufficient scale reliability (0.820 to 0.976). Overall, the results showed that the measures in this study possessed adequate reliability and validity (See Table 2).

[Insert Table 2 Here]

## **Analysis and Results**

### ***Participants***

Among the 120 participants, the average age of the sample was 58 years. Approximately 47 percent of the participants were female, and approximately 88 percent were Caucasian. Approximately 60 percent of the participants held bachelor's degrees and above. Approximately 82 percent of the participants had household incomes of \$40,000 or above. All participants had

traveled and booked a hotel within the previous year (See Table 1 for the demographic information).

[Insert Table 1 Here]

### ***ANOVA***

To test H1, a series of one-way ANOVAs was performed on alert attitude (AA), brand attitude (BA), and VI with univariate follow-ups.

The ANOVA results revealed a significant interaction effect between pricing strategy and alert time on AA ( $F [1, 118] = 14.132, p\text{-value} < 0.01$ ), BA ( $F [1, 118] = 18.438, p\text{-value} < 0.01$ ), and VI ( $F [1, 118] = 13.789, p\text{-value} < 0.01$ ). Furthermore, simple effect tests showed that participants reported more favorable AA for ABP ( $M_{ABP} = 2.76$  vs.  $M_{TRP} = 1.68, t [1, 118] = 14.13, p\text{-value} < 0.01$ ), BA ( $M_{ABP} = 3.46$  vs.  $M_{TRP} = 2.40, t [1, 118] = 18.43, p\text{-value} < 0.01$ ), and VI ( $M_{ABP} = 3.01$  vs.  $M_{TRP} = 1.98, t [1, 118] = 13.79, p\text{-value} < 0.01$ ) after booking. Therefore, H1 is supported.

### **Study 2**

Study 2 employed a 2 (ABP vs. TRP) x 2 (alert time: presale vs. postsale) between-subject experimental design. A total of 140 participants from the same online panel as in Study 1, who had booked a hotel within the previous year, were recruited to participate in the experiment and were randomly assigned to one of the four conditions. Participants were required to imagine that

they were going on vacation to City XYZ for the next four days. They browsed for the hotels on a travel website in the morning and decided among a few options, including Hotel XYZ (presale)/booked a room at the Hotel XYZ (postsale). In the afternoon, they received an email indicating that, “Alert: Price Increase for hotel XYZ.” In the ABP condition, the participants read “↑ USD \$20. Now: Double Beds (USD \$80) with Harborview (USD \$65) (total: USD \$145). Was: Double Beds (USD \$70) with Harborview (USD \$55) (total: USD \$125).” In the traditional room sale rate condition, the participants read “↑USD \$20. Now USD \$145. Was USD \$125.”

## **Measurement**

Participants were first asked to rate their attitude toward the alert email (AA) (i.e., “How do you feel about the price alert you received?” – bad/good; negative/positive; irritating/not irritating; unfavorable/favorable, Cronbach’s alpha = 0.973) (Stevenson, Bruner, and Kumar, 2000), attitude toward the hotel brand (BA) (i.e., “As a hotel brand, you think the hotel XYZ is” – displeasing/pleasing; unlikable/likeable; unenjoyable/enjoyable; unattractive/attractive, Cronbach’s alpha = 0.962) (Kwun & Oh, 2007), and visit intention (VI) (i.e., “To what extent would you like to stay at this hotel when you travel to the same destination?” and “How interested would you be in staying at this place next time you travel to the same destination?” – not at all/extremely, Cronbach’s alpha = 0.958) on a seven-point Likert scale. Moreover, perceived fairness was measured using items from (i.e., “The process was fair” and “The rate was fair” – strongly disagree/strongly agree, Cronbach’s alpha = 0.877). Realism check was conducted by asking participants to indicate how realistic the scenario was (not at all/extremely). The demographic information was collected in the end.

## **Analysis and Results**

## ***Participants***

Among the 140 participants, the average age of the sample was 58 years. Approximately 50 percent of the participants were female, and approximately 84 percent were Caucasian. Approximately 60 percent of the participants held bachelor's degrees and above. Approximately 82 percent of the participants had household incomes of \$40,000 or above. All participants had traveled and booked a hotel within the previous year. They considered the scenario as highly realistic ( $M = 4.89$ ) (See Table 3 for the demographic information).

[Insert Table 3 Here]

## ***ANOVA***

Next, to test H2a and H2b, a series of 2 (pricing strategy: ABP vs. TRP) x 2 (alert time: presale vs. postsale) ANOVAs were performed on AA, BA, and VI with univariate follow-ups. The ANOVA results revealed a significant interaction effect between pricing strategy and alert time on AA ( $F [1, 136] = 4.461$ ,  $p\text{-value} < 0.05$ ), BA ( $F [1, 136] = 4.846$ ,  $p\text{-value} < 0.05$ ), and VI ( $F [1, 136] = 5.358$ ,  $p\text{-value} < 0.05$ ). Furthermore, simple effect tests showed that participants reported more favorable AA for ABP ( $M_{ABP} = 2.90$  vs.  $M_{TRP} = 1.95$ ,  $t [1, 136] = 4.610$ ,  $p\text{-value} < 0.05$ ), BA ( $M_{ABP} = 4.01$  vs.  $M_{TRP} = 2.94$ ,  $t [1, 136] = 7.536$ ,  $p\text{-value} < 0.05$ ), and VI ( $M_{ABP} = 3.70$  vs.  $M_{TRP} = 2.53$ ,  $t [1, 136] = 7.056$ ,  $p\text{-value} < 0.05$ ) after booking. Conversely, such differences were attenuated for presale conditions ( $p\text{-value} > 0.05$ ). Thus, H2a and H2b were supported (See Figure 2 for the interaction effects).



[Insert Figure 2 here]

### ***Moderated Mediation Analysis***

We followed Hayes' (2017) PROCESS procedure (Model 7) with the recommended bias-corrected bootstrapping technique (number of bootstrap samples = 10,000). The reason for utilizing PROCESS model is because of its advantages in conditional process analysis and its suitability in consumer research (see Hayes et al., 2017; Kan et al., 2014). In these mediation models, we specified the pricing strategy as the independent variable, perceived fairness as mediator, and alert timing as the moderator. The dependent variables were AA, BA, and VI. The bootstrapping results revealed a significant mediation process of perceived fairness for the postsale condition (indirect effect = 0.5983, 95% CI = 0.0270 to 1.2449) on AA (index of moderated mediation = 1.074, 95% CI = 0.2918 to 1.9994). Such an effect is insignificant for the presale condition (indirect effect = -0.4758, 95% CI = -1.0411 to 0.0347). Similarly, perceived fairness mediated the effect of pricing strategy on BA (index of moderated mediation = 1.0571, 95% CI = 0.3025 to 1.8837) for the postsale condition (indirect effect = 0.5888, 95% CI = 0.0237 to 1.1915). Such an effect is insignificant for the presale condition (indirect effect = -0.4683, 95% CI = -0.9867 to 0.0355). Similar results were observed for VI. Perceived fairness mediated the effect of pricing strategy on VI for the postsale condition (indirect effect = 0.6855, 95% CI = 0.0201 to 1.3642) (index of moderated mediation = 1.2305, 95% CI = 0.3353 to 2.1783). Such an effect is insignificant for the presale condition (indirect effect = -0.5451, 95% CI = -1.1480 to 0.0387). Thus, H3 was supported.

## **Discussion**

Hotels employ various pricing strategies to meet market demand and consumer expectations. The current research proposes a novel pricing strategy (i.e. ABP) and provides empirical evidence about the effects of ABP and TRP on consumer reactions. In particular, we found that when consumers receive a presale price increase alert, their attitude and visit intention are similar for ABP and TRP. However, when consumers receive a postsale price increase information, ABP leads to more favorable brand attitude and visit intention than TRP. The results of this study confirm that perceived price fairness plays an important role in attitude and visit intention.

### ***Theoretical Contribution***

Consumers may be poor assessors in the prospective and retrospective effect of the price changes (Bolton et al., 2003). This study focuses on the customer perceptions on ABP, a rarely examined pricing strategy in the hotel industry. The current research contributes to the literature in a number of ways. First, in line with the research on fairness heuristic theory (Choi & Mattila, 2006; Haws & Bearden, 2006; Miao & Mattila, 2007; Van den Bos et al., 1997), this research presents the effectiveness of the new pricing strategy ABP and shows its advantages over the TRP. It demonstrates that ABP offers high flexibility and alternative options to customers, while customers are able to understand where the price difference of different products come from. Therefore, ABP can generate more positive effects on price change alert attitude, brand attitude, and visit intention of customers than TRP does.

Second, this research probes the timing effect of the price alert on consumer reactions. It extends the theories on pricing from the perspectives of the price paid and price to pay based on

the neoclassical economic theory (Haws & Bearden, 2006; Jacobson & Obermiller, 1990) and the prospect theory (Bolton et al., 2003; Kahneman & Tversky, 1979; Krishnamurthi et al., 1992). By comparing the effect of ABP and TRP for presale and postsale, the results demonstrate that customers who receive the ABP price alert after sales generate more positive reactions toward alert attitude, brand attitude and visit intention. However, customers who receive the presale ABP price alert do not react differently from customers who receive presale TRP price alert. This result fills in the gap in the price change timing-related field, as it has been ignored in hospitality research but should be a vital area.

Third, this research shows the underlying mechanism of perceived price fairness. According to the results, consumer-perceived price fairness mediates the effect of pricing strategies on price alert attitude, brand attitude, and visit intention for postsale condition only. The mediation effect does not apply to presale condition on these variables. Consistent with previous research on the effect of fairness on consumer reactions (El Haddad et al., 2015; Maxwell, 2002), the findings on the mediation effect support the substantial body of literature on price fairness perceptions and provide future ABP strategy studies with a solid theoretical foundation.

This research sheds new light on the impact of pricing information communication on consumer perceptions. The findings of this research provide insight into when and what to communicate to consumers about price changes. The previous research on price transparency only focused on the presentation of room rates of each night or average night (Noon & Mattila, 2009; Rohlfs & Kimes, 2007; Tanford et al., 2011). This research indicates that providing ABP information is a new option to signal price transparency and elicit fairness perception.

### ***Practical Implications***

ABP in the hospitality industry has only surfaced sporadically. Hospitality companies, such as InterContinental Hotels Group, Marriott and Hilton, have started to adopt ABP and experimented on it to maximize their revenues (Lau, 2019; O'Neill, 2019). In the airline industry, ABP has successfully helped companies gain profits. For example, customers who are originally only charged for tickets now have the choice to pay an additional amount if they opt to avail additional services, such as travel insurance, baggage fees, seats, and meals, which are listed alongside basic needs (Lau, 2019). Similarly, hospitality companies can provide additional options for customers, such as bed types, views, in-room amenities, meal options, and pet policies. These options may not only lower the cost for hotels but also enhance guest satisfaction.

This research provides the implications for tourism organizations, such as online travel agencies, on when and what to communicate to customers. As for presale alerts, TRP and ABP increases lead to similar alert attitude, brand attitude, and visit intention, in which companies can offer either TRP or ABP price information. However, for postsale alerts, we suggest that companies should offer ABP instead of TRP price increase information to achieve more favorable alert attitude, brand attitude, and visit intention. Furthermore, this research indicates a comprehensive collaboration among departments to implement ABP strategies. For instance, companies should update their official website to allow customers to choose their desired room features. Revenue managers need to consider developing relevant rate codes based on different combinations. Meanwhile, reservation centers need to notify guests proactively about the rate changes after purchase, especially increase conditions. ABP can help hotels to receive direct bookings, as the ability to customize rooms, services, and amenities can be considered an

advantage for hoteliers to shift the distribution landscape from online travel agencies back to direct channels.

### **Limitation and Future Research**

We identified a few limitations and pertinent opportunities, which could be addressed in future research. First, the current research adopted an experimental design to maximize the internal validity of the study. Although such a design meets the research objectives by minimizing biases, we acknowledge that the selection of variables was limited by the scenario-based manipulations and the period of one year for selecting participants could cause an internal price effect due to elapsed time. Future research can consider using field experiments or mixed methods in order to increase external validity of the research. Other downstream behavioral consequences could be examined, such as switching behavior, loyalty, or actual booking, which can be measured after being exposed to the ABP versus TRP prices. Moreover, we included two attributes, namely, bed types and room view, to maintain the simplicity of ABP. Future experiments may include other hotel attributes, such as room amenities and services, mini bars, or fitness or recreational packages. Second, future studies can investigate other perspectives of price changes, such as the consumers' perceived locus, controllability, and stability of the price change (Vaidyanathan & Aggarwal, 2003). As a limitation for the fairness heuristic theory, other external pricing information such as competing hotel brand's price or price paid by other customers (Choi & Mattila, 2018), advertised price (Kan et al., 2014), and internal reference price (Mazumdar et al., 2005) can be included in the future research. Third, although normally distributed, the average age of the samples is slightly higher, indicating a number of the participants are baby boomers who are less price sensitive

(Patterson et al., 2017). Thus, caution is needed when applying the results to different consumer age groups. Other characteristics of consumers, such as price consciousness and price sensitivity, and cultural differences can also be considered (Bolton et al., 2010; Chen et al., 2017; Heo & Lee, 2011; Kukar-Kinney et al., 2007). Future studies may consider the factor of culture into the research design. For instance, future research can investigate research questions such as how customers from eastern versus western culture react to the price change, or how customers from individualistic versus collectivistic culture evaluate ABP and TRP (Bolton et al., 2010; Shavitt & Barnes, 2020).

## **Appendix**

[Insert Figure 3 and Figure 4 here]

## **Reference**

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