THE ROLE OF INTERNAL AND EXTERNAL REFERENCE PRICES IN THE LODGING INDUSTRY

A Dissertation in
Hotel, Restaurant and Institutional Management

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

August 2015
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ABSTRACT

A large body of pricing research has identified the effect of reference prices on price evaluations in the context of frequently purchased package goods (FPPG). However, a limited number of research has been examined the relative use of an internal reference price (IRP) versus an external reference price (ERP) in the context of lodging services where the dynamic pricing practice is prevalent. In an attempt to address such a gap, study 1 examined how pricing characteristics of the lodging services shift consumers’ sensitivity to two different reference prices (i.e., IRP and ERP) and therefore influence their price evaluations of the target service. Compared with the IRP, the results showed that consumers are more sensitive to and affected by the ERP. The results of study 1 also demonstrated that information accessibility and perceived diagnosticity are key mechanisms that lead the differential effect of IRP versus ERP on consumers’ price evaluations of the target service. In addition, study 2 examined the effect of an individual’s sense of power on the use of IRP and ERP in price evaluations. The results of study 2 showed that individuals with high sense of power are more influenced by IRP than ERP while individuals with low sense of power rely solely on ERP during the price evaluations process. In sum, the current research demonstrated that the relative use of IRP and ERP is contingent upon both product and consumer characteristics. Finally, theoretical and empirical contributions of the present study are discussed as well.
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ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to the many people who provided support and direction toward the completion of this dissertation. I could have not completed this dissertation without their contributions and encouragement. First of all, my deepest gratitude goes to my adviser and the committee chair, Dr. Anna S. Mattila whose insightful guidance was invaluable in conducting this dissertation. Dear Anna, I don’t know how to thank you enough. I will never forget the time I spent with you here at Penn State. You made me become a better person as well as a better researcher. It is truly fortunate for me to have you as my academic adviser. I am so proud to be your student. I will be missing you, JP, Tegan, Rilo, and lovely Tilly.

I would also like to thank the members of my dissertation committee. Dr. Cranage, thank you for your helpful guidance and thoughtful comments on my dissertation. Thank you for everything you did for me in the past four years. Dr. Lee, thank you for contributing sharp insights to develop my scholarly ideas. Your kind guidance and encouragement during my doctoral study are gratefully acknowledged. Dr. Bolton, thank you for providing many invaluable insights and suggestions that contributed to this dissertation. I really want to show my sincere respect to you.

Further, special thanks to Dr. Van Hoof, Dr. Verbeeten, and Dr. Tews for their endless support and help. In addition, I would like to thank all the incredible faculty, staff members, and friends at School of Hospitality Management. Without your support, I would never have done this journey.

I would like to express my heartfelt gratitude to my parents and brother for their support and encouragement throughout. I could not have completed my doctoral study
without their love. Last, but not the least, I thank my beloved wife, Seunghee Jin, for her love and patience. Meeting her was the luckiest thing that happened in my Penn State life. You are the only reason I am. You are all my reasons. Thank you.
CHAPTER 1. INTRODUCTION

The marketing literature researchers agree that consumers form price evaluations by comparing the current price of service or product to a reference price (Chen, 2009; Kalyanaram & Winer, 1995). In other words, it is believed that consumers use reference prices when judging the current price of a service or a product (Briesch et al., 1997). If the current price is higher compared to the reference price, consumers tend to consider the current price as unattractive and thus are less likely to purchase the service/product and vice versa (Monroe, 1990). A reference price can be conceptualized as the standard price against which individuals judge the current price (Monroe, 1973). For several decades, marketing researchers have investigated how consumers form and use their reference prices (e.g., Mazumdar & Papatla, 2000). In addition, the concept of reference price has been extended to other streams of pricing research, such as price promotions (Mazumdar, Raj, & Sinha, 2005).

Although past research has suggested that a reference price plays a critical role in price evaluations of the current price and purchase intentions, researchers widely differ in their conceptualization and operationalization of the reference price construct (Briesch, Krishnamurthi, Mazumdar, & Raj, 1997). In general, however, Kalyanaram and Winer (1995) proposed two different forms of reference price: an internal reference price (IRP) and an external reference price (ERP). An internal reference price refers to the price information stored in memory based on previous shopping experiences (Briesch et al., 1997). The alternative view, an external reference price, is based on external information, such as point-of-purchase displays or promotions (Mazumdar & Papatla, 2000). Previous research has investigated the relative use of IRP and ERP in various product categories.
For example, Briesch et al. (1997) found that consumers rely more on IRP than on ERP in case of four product categories (i.e., peanut butter, detergent, tissue, and coffee). Conversely, Hardie et al. (1993) showed that ERP is a better representation of reference price in the case of orange juice. These findings indicate that the relative use of IRP or ERP depends on product characteristics, such as purchase frequency, price level, and price stability (Mazumdar & Papatla, 2000). However, previous research has focused mainly on frequently purchased package goods (FPPG), and a limited number of studies have focused on the relative use of IRP or ERP in lodging services, such as hotels (Karande & Magnini, 2011; Mazumdar, Raj, & Sinha, 2005).

In an attempt to address this gap, the current research examines, which of the two reference prices (IRP vs. ERP) has a greater effect on customers’ price evaluations in the context of hotel room bookings. In study 1, the author examined how consumers incorporate two different reference prices into their price evaluations of a hotel room. Due to a dynamic pricing practice in the lodging industry, prices of lodging services fluctuate over time (i.e., price instability), making it difficult for consumers to recall what they have paid and encountered previously. In addition, lodging services have a longer time interval between purchases compared to frequently purchased package goods (FPPG). Mazumdar and Papatla (2000) argued that recalling previously encountered prices is relatively difficult and that past price information is less accessible in a consumer’s memory for service or product categories with longer inter-purchase times. Thus, the author expects that consumers would be more likely to use ERP than IRP in the context of hotel room booking. Extending the line of diagnosticity research (Feldman & Lynch, 1988; Lynch, Marmorstein, & Weigold, 1988), the author further proposed that
information accessibility and perceived diagnosticity of price information mediate the effects of reference prices (IRP vs. ERP) on price evaluations.

In study 1, the author argued that consumers rely more on ERP than on IRP due to the nature of dynamic pricing in the lodging industry. The next research question would be whether such phenomenon holds true for all consumers. Mazumdar and Papatla (2000) suggested that consumer characteristics affect the relative importance of IRP and ERP. For example, Chen (2009) showed that the effect of IRP on price evaluations is greater for individuals with an independent (vs. interdependent) self-construal, while ERP is more likely to influence individuals with an interdependent (vs. independent) self-construal. This indicates that the relative use of IRP or ERP might depend on personality traits and the psychological states of consumers (Jin, He, & Zhang, 2014; Lee, 2013). In study 2, therefore, the author investigated the effect of an individual level factor, namely the consumer’s sense of power, on customers’ evaluations of two types of reference prices. Past research has suggested that external cues and information (even if such information is salient) are less likely to affect an individual with a high sense of power who is more sensitive to his/her own subjective experience and knowledge (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Galinsky, Rucker, & Magee, 2015). Although recalling previously encountered prices is difficult due to the dynamic pricing practice, the state of powerfulness has been shown to increase one’s ability to recall and recognize desired information from one’s memory (Guinote, 2015). On the other hand, an individual with a low sense of power is likely to depend on others during the decision-making process (Rucker et al., 2011). Galinsky et al. (2008) showed that powerless individuals tend to express their thoughts, which are influenced by external information.
and cues. In sum, the author hypothesized that powerful consumers are more likely to use IRP than ERP while powerless consumers are more likely to use ERP than IRP.

In the area of consumer behavior, ample evidence shows that sense of power is a critical psychological state. Prior research has shown that the consumer’s sense of power has a profound effect on conspicuous consumption (Dubois, Rucker, & Galinsky, 2012), compensatory consumption (Rucker & Galinsky, 2008) and switching behaviors (Jiang, Zhan, & Rucker, 2014). In the context of pricing, however, a limited research has examined how an individual’s sense of power influences his/her responses to pricing (Rucker, Galinsky, & Dubois, 2012). Jin, He, and Zhang (2014) examined the effect of power states on consumers’ perceptions of price fairness. The current research (i.e., study 2) extended the existing literature by investigating influence of individuals’ sense of power on the use of reference prices.

From a managerial point of view, an investigation of how consumers incorporate the two types of reference prices into their price evaluations has some important implications for pricing strategies. For service segments using dynamic pricing, such as the lodging industry, it is possible that consumers rely more on ERP rather than IRP due to the inherent characteristics of the lodging industry (e.g., price instability and long inter-purchase times). In such case, lodging operators would need to set their prices to be highly competitive, as price comparisons are instantaneous in today’s digital world. Moreover, the current research (study 2) offers meaningful strategies that lodging practitioners can use to engage consumers with different power states. When the target customers have relatively low power, for example, a lodging firm can better elicit favorable price evaluations by highlighting the special treatment or promotion that it is
receiving in relation to other firms. By contrast, when marketing to high-power customers, a manager should stimulate demand by highlighting a price that compares favorably with the firm’s price history.

From a managerial perspective, however, one tricky question is how practitioners can identify their customers based on power states (Jin et al., 2014). Although past research (Magee & Galinsky, 2008) has indicated that the state of power and socio-economic status are highly correlated (i.e., powerful people usually have high socio-economic status while powerless people usually have low socio-economic status), it is also possible that the state of power can be unobtrusively activated by being exposed to words and advertisements associated with power (Rucker et al., 2011). Thus, practitioners can effectively alter customers’ relative sensitivity to different reference prices by offering environmental cues that can temporarily change one’s current state of power (Jin et al., 2014).

From both theoretical and managerial perspectives, it is important to examine how consumers incorporate reference prices (i.e., IRP and ERP) in the context of lodging service. Since reference price is the focus and theoretical basis of the current dissertation, it will first present a critical review of past literature on reference price. Building upon a critical analysis of the extant body of literature on reference price, this study review literature on power and price evaluation, proposes the major hypotheses of the current dissertation, and summarizes the findings from two main studies. Finally, potential findings and contributions of the current dissertation are summarized and discussed.
CHAPTER 2. LITERATURE REVIEW

2.1 Reference Price

2.1.1 Reference Price Conceptualizations

Reference price is one of the most widely examined concepts in behavioral price research, but conceptualization of the reference price construct has varied widely (Cheng & Monroe, 2013). Mazumdar et al. (2005) suggested that there are three different reference price conceptualizations in general: an expectation-based reference price, a normative reference price, and an aspiration-based reference price.

The most widely adopted reference price is the expectation-based reference price, which explains that a consumer’s expected price is formed based on his/her prior experience and the current purchase environment (Biesch et al., 1997; Kalyanaram & Winer, 1995; Mazumdar et al., 2005). Helson’s adaptation-level theory (1964) originally led to this conceptualization. Adaptation-level theory assumes that stimuli are judged with respect to internal norms (i.e., adaptation levels) representing the combined effects of present and past stimulation (Helson, 1964; Kalyanaram & Winer, 1995). In this sense, all judgments are related to one’s existing adaptation level. In a pricing context, therefore, the past and present contexts of prices define an adaptation level or a reference price to which newly encountered prices are perceived and compared. Here is a simple example. Assume Tom’s reference price for 4-star hotels in New York City is around $250. Reading a travel magazine, Tom notices that next month, 4-star hotels in NYC are expected to be selling at around $280 due to a high demand during the vacation season. This new rate (i.e., $280) will shift Tom’s reference price upward, probably to $270. Previously, 4-star hotels charging $255 were likely to be perceived as acceptable
(compared to the previous reference price of $250). However, with the new price information, the rate of $255 would be perceived as cheap (compared to the newly formed reference price of $270). In sum, a key takeaway from the adaptation-level theory is that consumers judge prices comparatively or that consumers evaluate the acceptability of the newly encountered price by comparison with other prices (Cheng & Monroe, 2013).

A normative reference price is the price, which consumers consider “fair” or “just” (Bolton, Warlop, & Alba, 2003; Campbell, 1999; Mazumdar et al., 2005). A normative reference price conceptualization is inspired largely by the principle of dual entitlement (Kahneman, Knetsch, & Thaler, 1986), which suggests that “fairness perceptions are governed by the belief that firms are entitled to a reference profit and customers are entitled to a reference price” (Bolton, Warlop, & Alba, p. 474). In other words, customers perceive that they have an entitlement to the terms of a reference transaction, and sellers perceive they have an entitlement to the profit resulting from this reference transaction (Gielissen, Dutilh, & Graafland, 2008; Kahneman, Knetsch, & Thaler, 1986). Extending the principle of dual entitlement, Bolton et al. (2003) showed the effect of three reference points — past prices, competitors’ prices, and costs — on fairness judgments. In a series of ten experiments, they showed that customers are sensitive to these three reference points but tend to systematically underestimate the inflation effect. In addition, customers do not consider many costs and fail to take into account a full range of seller costs, such as advertising costs. In addition, past literature has shown that motives, firm reputation, familiarity with a certain pricing practice, and prior customer satisfaction influence the fairness perceptions of price increases.
An aspiration-based reference price indicates that consumers judge the price of a product or service based on what others in social group pay for the similar or same product (Mazumdar et al., 2005; Mezias, Chen, & Murphy, 2002). This conceptualization is based on both organizational and social psychology research (Mazumdar et al., 2005). In organizational research, Mezias et al. (2002) argued that “the level at which an organization aspires to perform depends on its prior aspiration, discrepancies between the aspired and actual performance, and how performance compares with that of others in the group” (Mazumdar et al., 2005, p.99). Mezias et al.`s view is consistent with the social comparison theory, which suggests that individuals determine their own social and personal worth by comparing themselves with others in their social group (Festinger, 1954). Applying these notions to the context of pricing, an aspiration-based reference price is a function of what others in social group pay for the same or similar product in addition to the past and contextual prices (Haws & Bearden, 2006; Mazumdar et al., 2005). For example, if an individual pays a higher price compared to others in his/her social group, the price of what others paid becomes the aspiration level, which in turn influences the reference price. This is particularly relevant in today’s digital world, as customers can easily obtain information about what others paid via online reviews and blogs (Cox, 2001; Haws & Bearden, 2006). In sum, when an individual attempts to evaluate the current price of a product or service, he/she is likely to consider the price paid by others in a social group and use their transaction prices as a reference price (Jin, He, & Zhang, 2013; Martins, 1995; Van den Bos et al., 1997).
In summary, previous research has substantially differed in its conceptualization of reference price and thus in its operationalization of the construct. However, a number of past studies have categorized reference price into two types: an internal reference price and an external reference price (Biesch et al., 1997; Kalyanaram & Winer, 1995; Krande & Magnini, 2011; Mazumdar & Papatla, 2000; Mazumdar et al., 2005). The following sections discuss internal and external reference prices and review theoretical work on such reference prices.

2.1.2 Internal Reference Price

The researchers agree that there are two types of reference prices (e.g., Briesch et al., 1997; Chen, 2009; Kalyanaram & Winer, 1995): an internal reference price (IRP) and an external reference price (ERP). Based on the type of reference price, Briesch et al. (1997) argued that individuals employ very different price judgment strategies. Internal reference price (IRP) represents an individual’s memory of past shopping experiences (Briesch et al., 1997). In other words, the major determinant of IRP is previously encountered prices retrievable from the purchase history (Monroe, 1973). When consumers use previously encountered prices as a reference price to evaluate the current price, the price judgment is assumed to be memory-based, since the information needs to be retrieved from memory (Briesch et al., 1997). Previous studies have used panel data to investigate the formation of IRP, because such data offer considerable amount of information on consumers’ purchase history (Briesch et al., 1997; Mazudar et al., 2005). The following is a commonly used reference price model that explains how consumers form their IRP (Briesch et al., 1997; Mazudar et al., 2005).
\[ \text{IRP}_{iHt} = \alpha \times \text{Price}_{iH(t-1)} + (1-\alpha) \times \text{IRP}_{iH(t-1)} \]

(where \( i = \) a specific brand, \( H = \) an individual consumer, and \( t = \) purchase occasion)

This IRP model suggests that consumers rely on previously encountered price for a specific brand (Briesch et al., 1997). The two terms “\( \alpha \times \text{Price}_{iH(t-1)} + (1-\alpha) \times \text{IRP}_{iH(t-1)} \)” capture the effect of previously encountered price, which has the strongest influence on price expectation (Mazumdar et al., 2005). In addition, parameter \( \alpha \), ranging from 0 to 1, represents the recency effect of past exposures to IRP (Mazudar et al., 2005). Based on Briesch et al.’s IRP model above, Mazudar et al. (2005) made two empirical generalizations in terms of IRP. First, the strongest determinant of IRP formation is the prior prices he or she observes. This indicates that when consumers form IRP, they are largely influenced by the prices they observed in prior shopping experiences. Second, recent shopping occasions have a greater effect compared to distant ones on updating IRP (e.g., Monroe 1973).

Although there are some variations in terms of the complexity of the IRP model, most prior research has suggested that one’s previously encountered prices are the strongest determinant of the IRP formation process (Kalyanaram & Winer, 1995). Accordingly, the current study operationalizes IRP as previously encountered prices.
2.1.3 External Reference Price

Let us assume a customer who has never visited New York City wants to book a room in a particular hotel. If the customer considers price as an important attribute, he/she might use some contextual cues as a reference price for his/her price judgment. For example, the customer may use the current price of other competing hotel as a reference price. In this case, the customer’s price judgment is assumed to be stimulus based, as he/she relies on information available in the external circumstance (Biehal & Chakravarti, 1983; Briesch et al., 1997; Lynch & Srull, 1982). External information in the purchase environment often refers to the external reference price (ERP), since it offers an external reference against which the currently offered price can be evaluated (Biswas & Blair, 1991; Grewal, Monroe, & Krishnan, 1998; Kopalle & Lindsey-Mullikin; 2003; Lichtenstein & Bearden, 1989; Lichtenstein, Burton, & Karson, 1991; Urbany, Bearden, & Weilbaker, 1988). The concept of ERP has been well established in pricing research, and researchers agree that ERP has a significant effect on consumers’ purchase decisions (Kumar, Karande, & Reinartz, 1998; Mayhew & Winer, 1992).

The operationalization of ERP varies across studies, although a consensus on the conceptualization of ERP has been achieved (e.g., Chen, 2009; Karande & Magnini, 2011). Conventionally, ERP has been operationalized as the prices of competing brands observed at the point of purchase (e.g., Briesch et al., 1997; Hardie, Johnson, & Fader, 1993; Rajendran & Gerald, 1994). Based on the study of Hardie et al. (1993), for example, Briesch et al. (1997) operationalized ERP as “reference brand’s current price”, which suggests that consumers remember previously chosen brand (i.e., a reference brand) to some extent but cannot remember what they paid or encountered in prior
shopping experiences. Therefore, they judge the current price of the target brand by using a previously chosen brand’s current price as an ERP (Briesch et al., 1997; Hardie et al., 1993). In addition, Chen (2009) operationalized ERP as the current prices of competing brands observed at the point of purchase. In the context of hotel and airline purchases, Karande and Magnini (2011) replicated the study of Briesch et al. (1997) and operationalized ERP as the prices of the competing services at the time of purchase. In sum, a number of prior studies have used competing brands’ current prices to operationalize ERP; thus, the current study adopted the same ERP operationalization.

Another stream of research has operationalized ERP as prices paid by other customers, inspired by the aspiration-based reference price conceptualization (Haws & Bearden, 2006; Jin, He, & Zhang, 2014; Wirtz & Kimes, 2007). In today’s digital world, as noted earlier, customers often have information regarding the prices paid by others due to the easy sharing of information on line (e.g., blogs and reviews; Cox, 2001; Haws & Bearden, 2006). Prior research suggests that consumers tend to pay more attention to others’ outcomes (i.e., what others paid) rather than to other cues or information when making price judgment (Haws & Bearden, 2006; Van den Bos, Lind, Vermunt, & Wilke, 1997). As a result, individuals tend to believe that they should pay the same price for the same service or product (Drake & Dahl, 2003; Haws & Bearden, 2006). If a customer pays a higher price compared to others, this will have a negative effect on his/her price perceptions.

The theoretical reason that others’ price paid can serve as a standard for price comparisons lies in the fact that two transactions share certain similarities (Jin et al., 2014; Xia, Monroe, & Cox, 2004). Bolton et al. (2003) suggested that, “the degree of
similarity between the transactions determines the likelihood of a price comparison, and such transactions are used as references only when they are perceived to be sufficiently similar” (Jin et al., 2014, p. 819). Haws and Bearden (2006) showed that comparisons with other customers have stronger effect on fairness perceptions compared to comparisons with other transaction characteristics (i.e., other sellers, time, and price setter). In addition to competing brands’ current prices, therefore, the current study operationalized ERP as price paid by others.

2.1.4 The Use of Internal and External Reference Prices

As discussed earlier, IRP is retrieved from one’s memory regarding previously encountered prices (Kalyanaram & Winer, 1995) while ERP is formed based on some contextual cues or information at the point of purchase (Chen, 1999). When an IRP is used as a reference price, the price judgment process is assumed to be memory based because the previously encountered price information needs to be retrieved from a consumer’s memory and compared with the current prices (Briesch et al., 1997). On the other hand, when an ERP is used as a reference price, the price judgment process is assumed to be stimulus based, as a consumer relies on the price information available in the external environment (Biehal & Chakravarti, 1983). Given that the use of internal and external reference prices entails two different types of price judgment processes, the ways in which consumers incorporate reference prices into price evaluations has been a topic of considerable interest (Kruger & Vargas, 2008). Consumer researchers have examined the extent to which consumers use the two different types of reference price (IRP vs. ERP). Lynch et al. (1998) argued the relative emphasis that consumers place on IRP
versus ERP might depend on (1) the accessibility of the information in consumers’ memory and (2) the relevance of the two sources of information. “Consumer characteristics” and “product characteristics” might influence the accessibility and relevance of price information (Mazumdar & Papatla, 2000; Mazumdar et al., 2005).

Rajendran and Tellis (1994) showed that the relative use of IRP versus ERP is contingent upon consumer characteristics, such as the degree of brand preference, the number of brands sampled, and frequency of purchase. In their study, the authors found that compared to IRP, ERP has a stronger effect on consumers with lower brand preferences, consumers sampling a wider range of brands, and consumers with lower frequency of purchase (Rajendran & Tellis, 1994). In another article, Karande and Magnini (2011) suggested that customers loyal to a brand tend to rely more on IRP while non-brand loyal customers tend to use ERP. They further demonstrated the moderating effect of purchase frequency on the relationship between the use of two reference prices (IRP vs. ERP) and purchase intentions. Specifically, they showed that frequent buyers tend to use IRP while less frequent buyers tend to rely on ERP. These results are consistent with the findings of Rajendran and Tellis (1994).

Further, a recent work in the reference price research has examined the moderating effect of involvement (Chandrashekar, 2012). The author found that highly involved customers tend to use IRP more, whereas less involved customers evaluate prices using ERP. In the context of price promotions, Mazumdar and Papatla (2000) argued that consumers sensitive to store promotions rely more heavily on ERP than on IRP because they are likely to pay attention to in-store price information and form the reference price at the time of purchase.
Another stream of the literature has focused on the influence of product characteristics (Mazumdar & Papatla, 2000). Prior research has shown that individuals tend to rely more on IRP than on ERP when forming a reference price for products, such as peanut butter, detergent, tissue, and coffee (Briesch et al., 1997). In case of orange juice, by contrast, Hardie et al. (1997) found that ERP is a better representation of the reference price. Moreover, Mazumdar and Papatla (2000) showed that consumers are more likely to use IRP for the detergent, ketchup, and yogurt categories while they are more likely to use ERP for the tissue category. These findings indicate that the relative use of IRP or ERP depends on product characteristics, such as purchase frequency, the level of price, and price stability (Mazumdar & Papatla, 2000). However, previous research has largely focused on frequently purchased packaged goods (FPPG), and there is scant research on the relative use of IRP or ERP in lodging services (Karande & Magnini, 2011; Mazumdar, Raj, & Sinha, 2005).

Knowing that an IRP is assumed a memory-based price judgment while an ERP is believed to be a stimulus-based price judgment, the literature on information processing provides insights into the conditions under which a price judgment is likely to be stimulus based or memory based (Briesch et al., 1997; Hastie & Park, 1986; Lynch & Srull, 1982). For example, Feldman and Lynch (1988) argued that the likelihood that a price judgment is memory based is contingent upon the accessibility of relevant information in memory. In addition, Briesch et al. (1997) suggested that consumers tend to rely on memory-based price judgments when they are able to recall previously encountered prices from memory. Without this condition, consumers are likely to make stimulus-based price judgments and rely on price information available externally (Briesch et al., 1997; Lynch et al., 1988).
Two factors, price instability and the inter-purchase time, have been shown to influence the relative use of a memory-based (IRP) or a stimulus-based (ERP) price judgment (Briesch et al., 1997; Dickson & Sawyer, 1986). Considering the nature of the lodging services, the current research expected the effect of ERP (vs. IRP) on price evaluations to be larger in the context of lodging services.

First, the use of IRP (i.e., memory-based price judgments) depends on consumers’ ability to recall previously encountered prices, requiring cognitive effort to keep track of previously encountered prices (Mazumdar & Papatla, 2000). When the price of a product is stable, the effort required to recall past prices is arguably low. However, when prices fluctuate over time due to dynamic pricing or frequent promotional activity, the required effort is high, making it difficult for consumers to recall accurately what they paid and encountered on previous purchase occasions. Dynamic pricing is a common practice in the lodging industry, as hotels often adjust prices and products according to a wide variety of price-fence rules (Mattila & Choi, 2014). These might indicate that individuals are more likely to use ERP compared to IRP in the lodging service context because past prices information may no longer be very useful in evaluating the current price (Briesch et al., 1997).

Second, the interpurchase time may also affect the accessibility of service/product price information in memory (Dickson & Sawyer, 1986; Mazumdar & Papatla, 2000; Mazumdar, Raj, & Sinha, 2005). Compared to the frequently purchased packaged goods (FPPG), lodging services tend to have a longer time interval between purchases (i.e., infrequent purchases). Price information from past purchase occasions thus becomes less salient in the context of lodging services (vs. FPPG) (Mazumdar, Raj, & Sinha, 2005). In
other words, past price information may be less accessible in memory and thus used in price judgments less frequently. Therefore, the author argued that consumers are more likely to use ERP compared to IRP in lodging services.

In sum, the author hypothesizes that consumers’ price evaluations will be more favorable when the current price is lower compared to ERP than when the current price is higher compared to ERP. This is understandable, since consumers tend to prefer an advantageous situation (i.e., the current price is lower than the reference price) to a disadvantageous situation (i.e., the current price is higher compared to the reference price; Jin et al., 2014; Xia & Monroe, 2010). In contrast, the author expected IRP to have little effect on consumers’ price evaluations due to price instability and long interpurchase time of dynamic pricing nature. In the context of dynamic pricing, for example, Haws and Bearden (2006) showed that the effect of IRP dissipates as the interpurchase time becomes longer. Thus, the author proposed no difference in price evaluations, regardless of whether the current price is higher or lower compared to IRP. These discussions give rise to the following hypotheses:

_Hypothesis 1: The effect of external reference price (vs. internal reference price) on consumers’ price evaluations is greater in the hotel service category. Specifically, price evaluation will be significantly higher when the current price is lower compared to ERP (i.e., a competing brand’s price) than when the current price is higher compared to ERP. No significant differences in price evaluation are expected for IRP (i.e., previously encountered price)._
In Hypothesis 1, the author operationalized ERP as a competing brand’s price and IRP as a previously encountered price. As noted earlier, ERP can also be operationalized as prices paid by others (Jin, He, & Zhang, 2014; Wirtz & Kimes, 2007). To make the argument (i.e., the effect of ERP (vs. IRP) on price evaluations is greater in the hotel service category) more generalizable, the author operationalized ERP as prices paid by other customers. Accordingly, Hypothesis 2 proposed that:

**Hypothesis 2:** The effect of external reference price (vs. internal reference price) on consumers’ price evaluations is greater in the hotel service category. Specifically, price evaluation will be significantly higher when the current price is lower compared to ERP (i.e., the price paid by other customer) than when the current price is higher compared to ERP. No significant differences in price evaluation are expected for IRP (i.e., previously encountered price).

### 2.1.5 The Psychological Mechanism as Accessibility and Diagnosticity

In this section, the author further suggested that information accessibility and perceived diagnosticity are the psychological mechanisms that explain why individuals rely relatively more on ERP than on IRP in the context of lodging services. Feldman and Lynch’s (1988) accessibility-diagnosticity model suggests that the likelihood of an individual to use certain information cues for his/her judgment relies on the perceived relevance of such information cues (Feldman & Lynch, 1988; Lynch, Marmorstein, & Weigold, 1988). In other words, “the more useful the person perceives the information cue to be in accomplishing a judgment goal, the more diagnostic the respective cue is for
the specific judgment task” (Alavi, Bornemann, & Wieseke, 2015, p.63). The accessibility-diagnosticity model has been widely adopted in various domains of consumer research (e.g., Herr, Karades, & Kim, 1991; Suk, Yoon, Lichtenstein, & Song, 2010), including the domain of reference price (Alavi et al., 2015; Mazumdar et al., 2005).

The concept of diagnosticity has been shown to be a function of the accessibility of information in that highly accessible information increases the information’s diagnosticity and, therefore, its influence on the evaluation of a target object (Lynch et al., 1988; Mazumdar et al., 2005). In other words, when forming judgments, individuals pay more attention to easily accessible cues and give them more weight because they offer reliable information and result in accurate impression (Alavi et al., 2015). A number of prior studies have suggested that accessibility is a prerequisite for diagnosticity (e.g., Zhao & Pechmann, 2007).

Extending this line of research, the current study proposed that information accessibility and perceived diagnosticity of price information sequentially mediate the effects of reference prices (IRP vs. ERP) on price evaluations (i.e., the serial multiple mediator model; Hayes, 2013). Specifically, the author proposed that the low accessibility associated with IRP should lead to lower levels of perceived diagnosticity; therefore, the influence of the IRP on consumers’ price evaluations of a target price should be weaker because IRP associated with low accessibility provides ambiguous information. As Biehal and Chakravarti (1983) suggested, the relative use of the reference price in making a purchase decision depends on the accessibility of a reference price. Due to the characteristics of lodging industry (i.e., price instability and long
interpurchase time), consumers might have difficulty in accessing what they have paid on previous purchase occasions. Thus, the degree of accessibility associated with IRP limits its perceived diagnosticity for price-related inferences (Alavi et al., 2015; Feldman & Lynch, 1988).

In the case of ERP, on the other hand, the author expected that the high accessibility associated with ERP should lead to higher levels of perceived diagnosticity; thus, it should have greater effect of the ERP on consumers’ price evaluations of a target price. Given two potential price cues, IRP and ERP, any factor that decreases the accessibility of IRP will increase the use of ERP (Lynch et al., 1988). In addition, product categories characterized by less stable prices and longer interpurchase time are associated with greater use of external information (i.e., ERP) because such information is formed at the point of purchase (Mazumdar & Papatla, 2000). Thus, owing to high accessibility of ERP, ERP will increase its diagnosticity and, therefore, its influence on the evaluations of a target price. In sum, the current study hypothesized that:

*Hypothesis 3: The differential effect of IRP versus ERP on price evaluations is sequentially mediated by (1) the degree of information accessibility of reference prices and (2) the degree of perceived diagnosticity of reference prices.*
2.2 Power

In this section, the author argues that consumer characteristics will influence the relative use of two different reference prices. Specifically, the author introduces an individual level factor, namely the individual’s sense of power that serves as a potential moderator in reference price–price evaluation relationships.

2.2.1 Definition of Power

The concept of power, e.g., mother allowing children to play a video game, a professor giving advice to students, a boss calling a weekly meeting, or a consul rejecting an immigrant’s visa, is a ubiquitous phenomenon of social life (Guinote, 2015). Social psychologists have long argued that power is a fundamental component of social systems and hierarchy (Rucker, Galinsky, & Dubois, 2012). In social psychology, systematic analysis of power has begun at the end of the Second World War, and it has been gaining a steady interest until now (Galinsky, Rucker, & Magee, 2015). The concept of power is often defined as asymmetric control over valued resources in social relations (Galinsky, Gruenfeld, & Magee, 2003; Keltner, Gruenfeld, & Anderson, 2003; Thibaut & Kelley, 1959; Weber, 1947). In other words, power is a person’s ability to influence others’ states by providing or withholding resources or administering punishment (Anderson & Berdahl, 2002; Anderson et al., 2012; Keltner et al., 2003).

French and Raven (1959) first introduced the concept of power in social psychology by developing social power theory. In social power theory, French and Raven defined power as the potential to wield influence on other people. One of the most remarkable contributions in social power theory is that the authors specified six major
resources of power: (1) reward power, referring to the ability to provide or withhold rewards from others; (2) coercive power, referring to the ability to get others to do something against one’s will; (3) legitimate power, referring to the ability to prescribe to other person certain responsibility; (4) referent power, referring to the ability to influence the affection and respect of other person; (5) expert power, referring to the possession of some special knowledge or expertise that is valuable to others; and (6) informational power, referring to the possession of specific information that is useful to others but they should collaborate with a power holder to acquire it (Rucker et al., 2012; Simpson, Farrell, Orina, & Rothman, 2015; Zhang, 2013). While social power theory provides six specific resources of power, the bases portrayed can be considered as “subcomponents fueling the general possession of power, as previously defined (i.e., asymmetric control over valued resources in social relations)” (Rucker et al., 2012, p. 354).

2.2.2 Powerfulness and Consequences

Previous research in social psychology and consumer behavior has shown that power has significant effects on cognition (Smith & Trope, 2006), self-perception (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009), social-perception (Galinsky, Magee, Inesi, & Gruenfeld, 2006), performance (Lammers, Dubois, Rucker, & Galinsky, 2013), motivation (Guinote, 2007), human action (Galinsky, Gruenfeld, & Magee, 2003), posture (Carney, Cuddy, & Yap, 2010), and even physiological states (Carney et al., 2013). In this section, the author attempts to explain the influence of the state of high power on self-perception, social-perception, and cognition processes, which in turn influence individuals’ relative use of reference prices.
As noted previously, power can be conceptualized as the capacity to influence others’ states (Anderson & Berdahl, 2002; Anderson et al., 2012; Keltner et al., 2003). This implies that an individual with high state of power is also less dependent on other people for resources (Hollander, 1958; Mourali & Yang, 2013) and more motivated to act independently to achieve his/her goal (Emmerson, 1962; Keltner et al., 2003).

Therefore, when making decisions and judgments, powerful individuals feel less need to be involved with other people and put greater emphasis on their initial judgment (See, Morrison, Rothman, & Soll, 2011). Along these lines, Brinol et al. (2007) showed that individuals with high state of power depend more on their internal thoughts than on external information when forming attitude toward social issues and products. In addition, Tost, Gino, and Larrick (2012) found that powerful individuals often ignore and reject the advice of both nonexperts and experts, and Weick and Guinote (2008) showed that powerful individuals are more likely to adopt their own experiences when forming and changing judgment.

Galinsky, Magee, Gruenfeld, Whitson, and Liljenquist (2008) conducted another study on the effects of power on self- and social perception. They showed that individuals with a high sense of power are influenced less by external cues, situational cues, and information and more sensitive to their own experiences. For example, in study 3, participants primed with a high power mindset were asked to complete a relatively boring task and were then provided other participants’ favorable task ratings. The results showed that the state of powerfulness shielded participants from the influence of other participants’ opinions and lead them to express their true attitudes (i.e., rate the task unfavorably). These findings indicate that individuals with a high sense of power are less
constrained and affected by even salient information in the environment; hence, their predictions and intrapsychic processes seem to matter more in their decision-making (Galinsky et al., 2008).

Another stream of research has examined the influence of the perceived powerfullness on individuals’ cognitive processes (Guinote, 2015). Specifically, the perceived powerfullness makes individuals more capable when it comes to memory (Guinote, 2015). For example, Overbeck and Park (2001) demonstrated that the high power state strengthens memory recall and recognition by reducing interference from unwanted memories. They further showed that such effect is more pronounced when information is associated with one’s goal. Moreover, Skagerberg and Wright (2008) found that individuals with a high power state are less susceptible to memory conformity: “the memory of a person affects another person and becomes incorporated in that person’s reported memory” (Guinote, 2015, p. 557). In other words, they found that participants primed with a high power state are less affected by their partners’ memory. Taken together, prior research has shown that the perceived powerfullness influences an individual’s ability to recall and recognize desired information, decreases memory interference and, thus, elevates goal accessibility.

Applying the notion of power to the context of reference price, the current study suggests that individuals with a high sense of power are more likely to use IRP compared to ERP. From power and self- and social-perception view, powerful individuals are less influenced by external and situational information (even if such information is salient), and they are more sensitive to their own experiences (Galinsky et al., 2008). This indicates that powerful individuals are more susceptible to IRP than to ERP. However,
one might still argue that it is difficult to recall in the cost of a previous purchase (IRP) due to the practice of dynamic pricing. From power and cognition process view; however, the state of powerfulness induces a heightened ability to recall and recognize desired information (Guinote, 2015). This indicates that the state of powerfulness enhances memory recall in terms of past price information. Accordingly, I hypothesize that:

Hypothesis 4: The effect of IRP (vs. ERP) on consumers’ price evaluations is greater for individuals with a high sense of power. Specifically, for individuals with a high sense of power, price evaluation will be significantly higher when the current price is lower compared to IRP than when the current price is higher compared to IRP. No such differences in price evaluation are expected for ERP.

2.2.3 Powerlessness and Consequences

From a social-perception view, prior literature has suggested that power influences the extent to which one perceives the self or others as focal (Brinol et al., 2007). Compared to the state of powerfulness, powerlessness has been shown to lead to an increased attention to the perspectives of others in society (Keltner & Robinson, 1997). For example, Galinsky et al. (2006) found that low-power individuals focus more on others and pay little attention to the self-perspective. Moreover, low power individuals have been shown to express thoughts influenced by external information and cues (Galinsky et al., 2008). In addition, a recent study has suggested that the notion of agency and communion are two important properties of power (Rucker et al., 2012).
Communion, which is associated with powerless individuals, highlights the participation in social groups and the tendency to consider others in decision-making. For example, powerless individuals tend to spend more money on items bought for others as opposed to themselves (Rucker et al., 2011).

In addition, prior literature has demonstrated that compared to their more powerful counterparts, powerless individuals have less confidence in the accuracy of their own judgments (Brinol et al., 2007). Accordingly, the author expects that individuals with a low sense of power will be more reluctant to use internal reference price partly because they are not confident in their ability to recall what they have previously paid and partly because they are more influenced by external cues and information. In other words, the author suggests that individuals with a low sense of power are more likely to use ERP compared to IRP. These discussions give rise to the following hypothesis:

Hypothesis 5: The effect of ERP (vs. IRP) on consumers’ price evaluations is greater for individuals with a low sense of power. Specifically, for individuals with a low sense of power, price evaluation will be significantly higher when the current price is lower compared to ERP than when the current price is higher compared to ERP. No such differences in price evaluation are expected for IRP.
Overview

The current dissertation examines 1) the ways in which consumers incorporate the two types of reference prices (i.e., IRP vs. ERP) into their price evaluations in the context of hotel room bookings (study 1), 2) the serial mediating effect of information accessibility and perceived diagnosticity of price information (study 1), and 3) the effect of the consumer’s power state on price evaluations (study 2). In the following sections, the author describes the experimental design of the studies, manipulation of the independent variables, as well as measures of the dependent variables and the covariates.

3.1 Study 1

3.1.1 Sample and Design

To test H1, H2, and H3, Study 1 employed a $3 \times 2$ between-subjects experimental design. Participants were randomly assigned to one of the six conditions. A total of 220 adult consumers were recruited from an Amazon Mechanical Mturk, and 192 who passed the attention checks were retained for the analyses. In terms of their demographics, 59.4% of participants were men; 40.6% were aged between 20 and 29 years, 33.3% were between 30 and 39, 14.1% were between 40 and 49, and 11.5% were older than 50 years. Table 3.1 summarizes the demographic characteristics of the respondents.
Table 3.1 Demographic Characteristics of Participants – Study 1

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>114</td>
<td>59.4</td>
</tr>
<tr>
<td>Female</td>
<td>78</td>
<td>40.6</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 20</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>20-29</td>
<td>78</td>
<td>40.6</td>
</tr>
<tr>
<td>30-39</td>
<td>64</td>
<td>33.3</td>
</tr>
<tr>
<td>40-49</td>
<td>27</td>
<td>14.1</td>
</tr>
<tr>
<td>Over 50</td>
<td>22</td>
<td>11.5</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or less</td>
<td>34</td>
<td>17.7</td>
</tr>
<tr>
<td>Some College</td>
<td>43</td>
<td>22.4</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>92</td>
<td>47.9</td>
</tr>
<tr>
<td>Graduate School</td>
<td>23</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White or Caucasian</td>
<td>145</td>
<td>75.5</td>
</tr>
<tr>
<td>African American</td>
<td>8</td>
<td>4.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15</td>
<td>7.8</td>
</tr>
<tr>
<td>Asian</td>
<td>21</td>
<td>10.9</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>192</td>
<td>100</td>
</tr>
</tbody>
</table>
3.1.2 Stimuli and Procedures

Since hotel rooms were the focal product category in this study, the participants were first asked to read a scenario that describes a hypothetical hotel-booking situation in New York City. A picture of a hotel room with the room description was provided to participants (see Appendix A for details).

3.1.2.1 Reference Price Manipulation

The experiment requires manipulations of IRP (i.e., previously encountered prices) and two ERPs (i.e., competing brands’ prices and the prices paid by other customers). Consistent with past research (Kalwani & Yim, 1992; Niedrich et al., 2001; Thomas & Menon, 2007; Wedell et al., 1990), IRP was manipulated by exposing participants to previously encountered prices of the target hotel’s room rates over time. Specifically, participants were exposed to a series of three prices presented sequentially on a computer screen. Each screen was intended to represent one past purchase occasion (Niedrich et al., 2001). The author believes that such manipulation reflects the nature of dynamic pricing (i.e., price instability) in the hotel industry. In addition, a ten-minute filler task was given to reflect the nature of lodging services purchase occasion (i.e., a longer time interval). Finally, the current rate of $250 for the target hotel room was provided in accordance with actual market prices in NYC (Choi & Mattila, 2014).

To manipulate ERP as competing brands’ prices, the current rate of the target hotel ($250) and the rates of competing hotel brands were simultaneously provided to participants (e.g., Chen, 2009; Howard & Kerin, 2006). In addition, ERP as the price paid by other customers was manipulated by simultaneously exposing participants to both the
current rate of the target hotel ($250) and the rates paid by other customers (e.g., Jin et al., 2014).

3.1.2.2 Price Level Manipulation

To manipulate reference price, two reference price levels, one that was 20% higher and another one that was 20% lower compared to the current rate of the target hotel ($250), were included. This 20% standard has been recommended by prior literature (Blattberg et al., 1995; Bolton, Keh, & Alba, 2010; Haws & Bearden, 2006). Specifically, a 20% higher condition of IRP was manipulated as 6% decrement and increment from $300, yielding 3 different values $282, $300, and $318. Likewise, a 20% lower condition of IRP comprised 3 prices, $188, $200, and $212 (average of $200). The 6% difference in IRP is consistent with past research (Kalwani & Yim, 1992; Niedrich, Sharma, & Wedell, 2001). To minimize order effects (e.g., recency and primacy effects), the order of the three prices (e.g., $188, $200, and $212) was randomized (Suk, Lee, & Lichtenstein, 2012).

3.1.3 Measures

Dependent variables included price judgment and price fairness perceptions. Specifically, participants were asked to rate the current price of the target hotel on two 7-point scales anchored by “expensive-cheap” and “very high-very low” ($r = .96, p < .01; Ofir, Raghubir, Brosh, Monroe, & Heiman, 2009). Price fairness perceptions were measured with three-items rated on a 7-point scale anchored by “unfair-fair”, “not at all
just-just”, and “unreasonable-reasonable” (Cronbach’s alpha = .98; Bolton, Keh, & Alba, 2010).

To test H3 (i.e., the serial mediating role of information accessibility and perceived diagnosticity), information accessibility was measured using Dick, Chakravarti, and Biehal’s (1990) single-item scale. In addition, perceived diagnosticity of the reference price was measured using Kempf and Smith’s (1998) two-item scale (e.g., “Overall, how helpful would you rate the price information in judging the current rate of the target hotel ($250)?”; \( r = .97, p < .01 \)). This measure is widely adopted in marketing research (Jiang & Benbasat, 2004; Kempf, 1999). Considering its potential to influence price evaluations (Biswa & Sherrell, 1993), the current study included product/service knowledge (i.e., familiarity with a hotel price scheme in NYC) as a covariate. In addition, the current study measured respondents’ familiarity with dynamic pricing practices via a single item scale modified from Wirtz and Kimes (2007). This item was also used as a covariate in the data analyses.

3.1.4 Results

3.1.4.1 Realism Check

The realism of the scenario descriptions was assessed using a two-item scale (e.g., “The situation described in the scenario was realistic”; \( r = .57, p < .01 \)). The mean rating was 5.56 (SD = .91), suggesting that the scenarios were perceived as believable. In addition, no differences in realism emerged across six conditions.
3.1.4.2 Dependent Variables

A series of ANCOVAs were conducted to test H1 and H2. Two covariates (i.e., hotel price knowledge in New York City and familiarity with dynamic pricing) were included. Knowledge of hotel price in New York City was significant for price fairness perception ($F = 3.89, p < .05$). However, familiarity with dynamic pricing was not significant for price fairness perception and price judgment. Thus, this covariate was excluded from further analyses. Descriptive statistics of the experimental cells are displayed in Table 3-2.

**Table 3.2 Descriptive Means – Study 1**

<table>
<thead>
<tr>
<th>Reference Price</th>
<th>Reference Price Level</th>
<th>N</th>
<th>Price Judgment</th>
<th>Price Fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRP</td>
<td>High</td>
<td>30</td>
<td>2.78 (.26)</td>
<td>3.36 (.31)</td>
</tr>
<tr>
<td>IRP</td>
<td>Low</td>
<td>32</td>
<td>3.42 (.25)</td>
<td>4.18 (.30)</td>
</tr>
<tr>
<td>ERP (Competitors)</td>
<td>High</td>
<td>27</td>
<td>1.93 (.27)</td>
<td>1.98 (.32)</td>
</tr>
<tr>
<td>ERP (Competitors)</td>
<td>Low</td>
<td>34</td>
<td>4.27 (.24)</td>
<td>5.59 (.29)</td>
</tr>
<tr>
<td>ERP (Others)</td>
<td>High</td>
<td>40</td>
<td>2.21 (.23)</td>
<td>2.45 (.27)</td>
</tr>
<tr>
<td>ERP (Others)</td>
<td>Low</td>
<td>29</td>
<td>4.16 (.26)</td>
<td>5.32 (.31)</td>
</tr>
</tbody>
</table>

Note: Standard errors are shown in parenthesis
3.1.4.3 Price Judgment

The results of 3 (reference price: previously encountered prices vs. competing brands’ prices vs. prices paid by other customers) × 2 (levels of reference price: high vs. low) ANCOVA controlling for hotel price knowledge in New York City showed that the interaction effect of reference price and price level on price judgment was significant (F = 6.01, \( p < .01 \); see Table 3-3). The interaction effect is visualized in Figure 3-1.

A simple effects test further revealed that those in ERP as a competing brands’ prices condition, price judgment was significantly higher in the lower price level condition than in the higher price level condition (\( M_{\text{Low}} = 4.27 \) vs. \( M_{\text{High}} = 1.93 \); F = 40.74, \( p < .01 \)). In addition, the results showed that for those in ERP as a price paid by other customers condition, price judgment was significantly higher in the lower price level condition than in the higher price level condition (\( M_{\text{Low}} = 4.16 \) vs. \( M_{\text{High}} = 2.20 \); F = 31.76, \( p < .01 \)). However, no significant differences in price judgment were detected among participants in IRP condition (\( M_{\text{Low}} = 3.42 \) vs. \( M_{\text{High}} = 2.78 \); F = 3.13, \( p > .05 \)). Taken together, these results support H1 and H2 (see Figure 3-1).
Table 3.3 ANCOVA Results for Price Judgment

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III SS</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covariates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Knowledge in NYC</td>
<td>3.77</td>
<td>1</td>
<td>3.77</td>
<td>1.87</td>
</tr>
<tr>
<td><strong>Test Effects</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Reference Price</td>
<td>.29</td>
<td>2</td>
<td>.15</td>
<td>.07</td>
</tr>
<tr>
<td>Price Level</td>
<td>126.71</td>
<td>1</td>
<td>126.71</td>
<td>62.91**</td>
</tr>
<tr>
<td>Reference Price * Price Level</td>
<td>24.19</td>
<td>2</td>
<td>12.10</td>
<td>6.01**</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>372.64</td>
<td>185</td>
<td>2.01</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2395.73</td>
<td>192</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrected Total</strong></td>
<td>528.01</td>
<td>191</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. R² = .29 (Adjusted R² = .27); ** = p < .01
3.1.4.4 Price Fairness

In terms of price fairness perceptions as a dependent variable, the ANCOVA analysis controlling for hotel price knowledge in New York City revealed a significant interaction effect between reference price and price level ($F = 11.28, p < .01$). An ANCOVA table is shown in Table 3-4, and the interaction effect is visualized in Figure 3-2.

To probe the nature of the interaction effect, a simple effect analysis was further conducted. The results revealed that those in ERP as a competing brands’ prices condition price fairness perceptions were significantly higher in the lower price level condition than in the higher price level condition ($M_{Low} = 5.59$ vs. $M_{High} = 1.99$; $F = 68.73, p < .01$). Furthermore, the results showed that those in ERP as a prices paid by
other customers condition, price fairness perceptions were significantly higher in the lower price level condition than in the higher price level condition ($M_{\text{Low}} = 5.32$ vs. $M_{\text{High}} = 2.45$; $F = 49.01$, $p < .01$). However, no significant differences in price fairness perceptions were detected among participants in IRP condition ($M_{\text{Low}} = 4.18$ vs. $M_{\text{High}} = 3.36$; $F = 3.59$, $p > .05$). Taken together, these results also support H1 and H2 (see Figure 3-2).

Table 3.4 ANCOVA Results for Price Fairness

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III SS</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covariates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Knowledge in NYC</td>
<td>11.00</td>
<td>1</td>
<td>11.00</td>
<td>3.89*</td>
</tr>
<tr>
<td><strong>Test Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference Price</td>
<td>.48</td>
<td>2</td>
<td>.24</td>
<td>.09</td>
</tr>
<tr>
<td>Price Level</td>
<td>276.49</td>
<td>1</td>
<td>276.49</td>
<td>97.77**</td>
</tr>
<tr>
<td>Reference Price * Price Level</td>
<td>63.81</td>
<td>2</td>
<td>31.91</td>
<td>11.28**</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>523.18</td>
<td>185</td>
<td>2.83</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3653.76</td>
<td>192</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrected Total</strong></td>
<td>875.70</td>
<td>191</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $R^2 = .40$ (Adjusted $R^2 = .38$); * = $p < .05$, ** = $p < .01$
Figure 3.2 Interaction Effect of Reference Price and Price Level on Price Fairness
3.1.4.5 Multiple Mediation

To test H3, the current study conducted a serial multiple mediator model with reference prices coded as (0) for IRP and (1) for ERPs (Hayes, 2013, Model 6). The model examined whether (1) information accessibility and (2) perceived diagnosticity serially mediate the effect of reference prices on dependent variables (i.e., price judgment and price fairness perceptions). With the serial multiple mediation PROCESS macro (Hayes, 2013), the current study specifically tested H3 using constrained non-linear regression algorithms, which estimate coefficients from 10,000 bootstrap samples (i.e., bias-corrected bootstrapping). This bias-corrected bootstrapping technique is usually statistically more robust compared to formal tests of mediation (e.g., Sobel test) because formal tests violate normality of sampling distribution while a bias-corrected bootstrapping does not (Hayes, 2013; Preacher, Rucker, & Hayes, 2007; Zhao, Lynch, & Chen, 2010).

3.1.4.6 Price Judgment

The current study conducted the first set of the serial multiple mediation analysis to test for a serial mediating effect of (1) information accessibility and (2) perceived diagnosticity on the relationship between reference prices and price judgment. A 10,000 bias-corrected bootstrap approach generated an estimate of .051 with a 95% CI ranging from .0004 to .1326 for the serial mediators’ indirect effect, suggesting a significant serial mediation effect at the $p < .05$ level. Specifically, relative to those assigned to IRP condition, participants in ERP conditions showed a higher level of information accessibility ($a_1 = .683$, $p < .05$), which was in turn associated with a higher level of perceived diagnosticity ($a_3 = .532$, $p < .01$), and this higher perception of diagnosticity
translated into a greater price judgment (b2 = .140, p < .05). Again, a bias-corrected bootstrap CI for this total indirect effect (a1*a3*b2 = .051) based on 10,000 samples did not include zero (.0004 to .1326), indicating a statistically significant serial mediation effect. Thus, these results support H3 (see Figure 3-3).

Figure 3.3 Serial Multiple Mediator Model for the Price Judgment

Note. * = p < .05, ** = p < .01
3.1.4.7 Price Fairness

Next, the current study ran the same serial multiple mediation analysis but replaced the price judgment with the price fairness perceptions. A 10,000 bias-corrected bootstrap approach generated an estimate of .085 with a 95% CI ranging from .0057 to .2131 for the serial mediators’ indirect effect, suggesting a significant serial mediation effect at the $p < .05$ level (reference prices $\rightarrow$ information accessibility $\rightarrow$ perceived diagnosticity $\rightarrow$ price fairness perceptions). Again, further analysis of individual paths in the model demonstrated that relative to those in IRP condition, participants in ERP conditions showed a higher level of information accessibility ($a_1 = .683$, $p < .05$), which was in turn associated with a higher level of perceived diagnosticity ($a_3 = .532$, $p < .01$), and this higher perception of diagnosticity translated into price perceptions that were more fair ($b_2 = .235$, $p < .01$). Again, a bias-corrected bootstrap CI for this total indirect effect ($a_1*a_3*b_2 = .085$) based on 10,000 samples did not include zero (.0057 to .2131), indicating a statistically significant serial mediation effect. Thus, H3 was again supported (see Figure 3-4).
3.1.5 Discussion

Consumer researchers have expressed a tremendous interest in learning how consumers incorporate the two different types of reference price (IRP vs. ERP) during the price evaluation stage. However, previous research has paid scant attention to the relative use of IRP versus ERP in the context of lodging services (Mazumdar, Raj, & Sinha, 2005). When evaluating hotel prices, do consumers rely more on previously encountered prices or competitor’s prices or prices that other individuals paid? To answer this question, study 1 examined which of the two reference prices has a greater influence on consumers’ price judgments and price fairness perceptions in the hotel room-booking situation. The results indicated that compared to IRP, ERP has a greater effect on both price judgments and price fairness perceptions in the hotel service category. In addition, study 1 revealed that information accessibility and perceived diagnosticity of price information serially mediate the effects of reference prices (IRP vs. ERP) on price evaluations. Compared to IRP, ERP is formed at the point of purchase and, thus, it is
easily accessible (Mazumdar & Papatla, 2000). The high accessibility associated with ERP then leads to higher levels of perceived diagnosticity and, thus, the ERP has a greater effect on consumers’ price evaluations of a target price. Next, the author investigated the effect of an individual level factor, namely the consumer’s sense of power, on customers’ price evaluations using two types of reference prices.

3.2 Study 2

3.2.1 Sample and Design

The purpose of study 2 was to examine the effect of an individual’s power state on consumers’ relative use of IRP and ERP during price evolutions (H4 and H5). Study 2 employed a 2 (power: high vs. low) × 2 (reference price: previously encountered prices paid vs. a competing brands’ prices) × 2 (level of reference price: high vs. low) between-subjects experimental design. A total of 252 adult consumers were recruited from an Amazon Mechanical Mturk. In terms of demographics, 46.4% of participants were men; 41.3% were 20 to 29 years old, 35.3% were 30 to 39 years old, 7.9% were 40 to 49 years old, and 13.5% were older than 50 years. Table 3.5 summarizes the demographic characteristics of the respondents.
Table 3.5 Demographic Characteristics of Participants – Study 2

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>117</td>
<td>46.4</td>
</tr>
<tr>
<td>Female</td>
<td>135</td>
<td>53.6</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 20</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>20-29</td>
<td>104</td>
<td>41.3</td>
</tr>
<tr>
<td>30-39</td>
<td>89</td>
<td>35.3</td>
</tr>
<tr>
<td>40-49</td>
<td>20</td>
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<tr>
<td>Over 50</td>
<td>34</td>
<td>13.5</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or less</td>
<td>35</td>
<td>13.8</td>
</tr>
<tr>
<td>Some College</td>
<td>74</td>
<td>29.4</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>104</td>
<td>41.3</td>
</tr>
<tr>
<td>Graduate School</td>
<td>39</td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
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<td></td>
</tr>
<tr>
<td>White or Caucasian</td>
<td>200</td>
<td>79.4</td>
</tr>
<tr>
<td>African American</td>
<td>14</td>
<td>5.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>14</td>
<td>5.6</td>
</tr>
<tr>
<td>Asian</td>
<td>17</td>
<td>6.7</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>252</td>
<td>100</td>
</tr>
</tbody>
</table>
3.2.2 Stimuli and Procedures

3.2.2.1 Power Manipulation

Participants were first asked to complete an episodic recall task designed to manipulate their sense of power. Adopted from Galinsky et al. (2003), the current study manipulated power by asking participants to recall a situation in which they either possessed power over someone else (high-power condition), or in which someone else possessed power over them (low-power condition). Previous research in consumer behavior has shown that such recall tasks alter one’s sense of power (Galinsky et al., 2014).

High-power condition: Please recall a particular incident in which you had power over another individual or individuals. By power, we mean a situation in which you controlled the ability of another person or persons to get something they wanted, or a situation in which you were in a position to evaluate those individuals. Please describe this situation in which you had power—what happened, how you felt, etc.

Low-power condition: Please recall a particular incident in which someone else had power over you. By power, we mean a situation in which someone had control over your ability to get something you wanted, or he/she was in a position to evaluate you. Please describe this situation in which you did not have power—what happened, how you felt, etc.
Further, sense of power was reinforced by a priming manipulation adapted from Smith and Trope (2006), where participants were asked to use given words to make a sentence.

In the powerful conditions, the given words connoted power (i.e., authority, controls, commands, dominates, etc.). Meanwhile, in the powerless conditions, the assigned words suggested powerlessness (i.e., submit, complied, obey, yield, etc.; see Appendix B for details). After power manipulation tasks, participants were asked to read a hotel-booking scenario used in study 1. Specifically, the current study asked participants to read a scenario that describes a hypothetical hotel-booking situation in New York City. A picture of a hotel room with the room description was provided to participants.

### 3.2.2.2 Reference Price Manipulation

Consistent with study 1, an IRP manipulation was carried out by exposing participants to previously encountered prices of the target hotel’s room rates over time. Specifically, participants were exposed to a series of three prices presented sequentially on a computer screen. Each screen was intended to represent one past purchase occasion (Niedrich et al., 2001). After exposure to all previous prices, participants were asked to work on a ten-minute filler task. Finally, the current rate of $250 for the target hotel room was provided in accordance with actual market prices (Choi & Mattila, 2014). To manipulate ERP as competing brands’ prices, the current rate of the target hotel ($250) and the rates of competing hotel brands were given to participants simultaneously (e.g., Chen, 2009; Howard & Kerin, 2006).
3.2.2.3 Price Level Manipulation

Consistent with study 1, two reference price levels were manipulated: a 20% higher and a 20% lower than the current rate of the target hotel ($250). Specifically, a 20% higher IRP condition was manipulated as a decrement and an increment of 6% from $300, yielding three prices of $282, $300, and $318 (average of $300). A 20% lower IRP condition comprised $188, $200, and $212 (average of $200). The order of the three prices (e.g., $188, $200, and $212) was randomized in order to avoid order effects (e.g., recency and primacy effects). In a 20% higher ERP condition, in addition, the reference price level was manipulated as $282, $300, and $318 (average of $300), while the reference price level was manipulated as $188, $200, and $212 (average of $200) in a 20% lower condition.

3.2.3 Measures

Dependent variables included price judgment and price fairness perceptions, similar to those used in study 1. Specifically, participants were asked to rate the current price of the target hotel on two 7-point scales anchored by “expensive-cheap” and “very high-very low” \( r = .96, p < .01; \) Ofir, Raghubir, Brosh, Monroe, & Heiman, 2009). Adopted from Bolton, Keh, and Alba (2010), price fairness perceptions were assessed by three items measured on a 7-point scale anchored by “unfair-fair”, “not at all just-just”, and “unreasonable-reasonable” (Cronbach’s alpha = .97). Considering the potential of product/service knowledge to influence price judgment and price fairness perceptions (Biswas & Sherrell, 1993), the current study included product/service knowledge (i.e., familiarity with hotel prices in NYC) as a covariate.
In addition, past research has suggested that the relative use of IRP or ERP depends on the independent versus interdependent self-construal (Chen, 2009). Specifically, Chen showed that the effect of IRP on price evaluations is greater for individuals with an independent self-construal while the effect of ERP is greater for individuals with an interdependent self-construal. Furthermore, Rucker et al. (2012) argued that an individual’s sense of power is associated with one’s self-construal perception. Therefore, in order to examine the unique effect of power on the relationship between the use of reference prices and price evaluations, the current study measured and used one’s self-construal perception as a covariate. Adopted from Singelis (1994), participants were asked to rate 24 items of a scale, with twelve statements measuring independent self-construal (Cronbach’s alpha = .79) and twelve statements measuring interdependent self-construal (Cronbach’s alpha = .76). Subsequently, a single self-construal score was calculated by subtracting the average interdependent self-construal from the average independent self-construal (Suh, Diener, & Updegraff, 2008).

3.2.4 Results

3.2.4.1 Manipulation Check

To check that the power manipulations were successful, two independent judges who were blind to the hypotheses coded the recalled episodes. Following Galinsky et al. (2003), Jin et al. (2014), Rucker and Galinsky (2008), the two independent judges rated the extent to which the participants seemed to have power in the high- and the low-power incidents on a 7-point scale (no power at all — a lot of power). The judges rated participants in the high-power condition as having more power compared to those in the
As compared to their counterparts in the powerless conditions, participants in the powerful conditions were rated as more powerful in their recalled episodes ($M_{\text{powerful}}=5.68$; $M_{\text{powerless}}=2.71$; $t=-33.05$, $p<.01$). The inter-rater reliability was high ($r=.71$, $p<.01$). Overall, these results indicate that the power manipulations were successful.

### 3.2.4.2 Realism Check

As with study 1, the realism of the scenario descriptions was checked using a two-item scale (e.g., “The situation described in the scenario was realistic”; $r=.53$, $p<.01$). The mean rating was 5.45 (SD = .91), suggesting that the scenarios were perceived as believable. Furthermore, no differences in realism emerged across the eight conditions.

### 3.2.4.3 Dependent Variables

To test H4 and H5, a series of ANCOVAs were conducted with the knowledge of NYC hotel price and self-construal as the covariates. The cell means, standard errors, and cell sizes are displayed in Table 3-6. An ANCOVA performed on price judgment supported the predicted three-way interaction among power, reference price, and price level ($F=19.36$, $p<.01$; see Table 3-7). In addition, the three-way interaction of power, reference price, and price level on price fairness perceptions was significant ($F=24.29$, $p<.01$; see Table 3-8). To understand the nature of the three-way interaction, the current study conducted follow-up tests for each power condition (Bolton, Keh, & Alba, 2010).
<table>
<thead>
<tr>
<th>Power</th>
<th>Reference Price</th>
<th>Reference Price Level</th>
<th>N</th>
<th>Price Judgment</th>
<th>Price Fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>IRP</td>
<td>High</td>
<td>30</td>
<td>1.73 (.26)</td>
<td>2.24 (.27)</td>
</tr>
<tr>
<td>High</td>
<td>IRP</td>
<td>Low</td>
<td>24</td>
<td>4.43 (.29)</td>
<td>5.79 (.31)</td>
</tr>
<tr>
<td>High</td>
<td>ERP</td>
<td>High</td>
<td>33</td>
<td>1.87 (.25)</td>
<td>3.06 (.27)</td>
</tr>
<tr>
<td>High</td>
<td>ERP</td>
<td>Low</td>
<td>31</td>
<td>3.44 (.25)</td>
<td>5.08 (.27)</td>
</tr>
<tr>
<td>Low</td>
<td>IRP</td>
<td>High</td>
<td>31</td>
<td>2.51 (.26)</td>
<td>3.56 (.29)</td>
</tr>
<tr>
<td>Low</td>
<td>IRP</td>
<td>Low</td>
<td>28</td>
<td>2.98 (.27)</td>
<td>4.22 (.30)</td>
</tr>
<tr>
<td>Low</td>
<td>ERP</td>
<td>High</td>
<td>40</td>
<td>1.78 (.23)</td>
<td>2.72 (.26)</td>
</tr>
<tr>
<td>Low</td>
<td>ERP</td>
<td>Low</td>
<td>35</td>
<td>4.26 (.25)</td>
<td>5.75 (.27)</td>
</tr>
</tbody>
</table>

Note: Standard errors are shown in parenthesis
Table 3.7 ANCOVA Results for Price Judgment

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III SS</th>
<th>df</th>
<th>Mean Square</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covariates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Knowledge in NYC</td>
<td>19.46</td>
<td>1</td>
<td>19.46</td>
<td>9.67***</td>
</tr>
<tr>
<td>Self-construal</td>
<td>3.97</td>
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<td>3.97</td>
<td>1.97</td>
</tr>
<tr>
<td><strong>Test Effects</strong></td>
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<td>Power</td>
<td>.10</td>
<td>1</td>
<td>.10</td>
<td>.05</td>
</tr>
<tr>
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<td>.33</td>
<td>.16</td>
</tr>
<tr>
<td>Price Level</td>
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<td>204.58</td>
<td>101.69***</td>
</tr>
<tr>
<td>Reference Price * Price Level</td>
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<td>2.90</td>
<td>1.44</td>
</tr>
<tr>
<td>Reference Price * Power</td>
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<td>7.53</td>
<td>3.75*</td>
</tr>
<tr>
<td>Price Level * Power</td>
<td>6.53</td>
<td>1</td>
<td>6.53</td>
<td>3.25*</td>
</tr>
<tr>
<td>Reference Price * Price Level</td>
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<td>1</td>
<td>38.95</td>
<td>19.36***</td>
</tr>
<tr>
<td>* Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>486.85</td>
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<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td>252</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrected Total</strong></td>
<td>770.02</td>
<td>251</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \( R^2 = .37 \) (Adjusted \( R^2 = .34 \)); *** = \( p < .01 \), ** = \( p < .05 \), * = \( p < .10 \)
Table 3.8 ANCOVA Results for Price Fairness

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III SS</th>
<th>df</th>
<th>Mean Square</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covariates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Knowledge in NYC</td>
<td>16.06</td>
<td>1</td>
<td>16.06</td>
<td>6.70**</td>
<td></td>
</tr>
<tr>
<td>Self-construal</td>
<td>1.87</td>
<td>1</td>
<td>1.87</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td><strong>Test Effects</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>.06</td>
<td>1</td>
<td>.06</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Reference Price</td>
<td>2.33</td>
<td>1</td>
<td>2.33</td>
<td>.97</td>
<td></td>
</tr>
<tr>
<td>Price Level</td>
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<td>328.76</td>
<td>137.14***</td>
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</tr>
<tr>
<td>Reference Price * Price Level</td>
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<td>2.73</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>Reference Price * Power</td>
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<td>1</td>
<td>1.32</td>
<td>.55</td>
<td></td>
</tr>
<tr>
<td>Price Level * Power</td>
<td>13.50</td>
<td>1</td>
<td>13.50</td>
<td>5.63**</td>
<td></td>
</tr>
<tr>
<td>Reference Price * Price Level</td>
<td>58.23</td>
<td>1</td>
<td>58.23</td>
<td>24.29***</td>
<td></td>
</tr>
<tr>
<td>* Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>580.14</td>
<td>242</td>
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<tr>
<td><strong>Total</strong></td>
<td>5001.09</td>
<td>252</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrected Total</strong></td>
<td>1006.34</td>
<td>251</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $R^2 = .42$ (Adjusted $R^2 = .40$); *** = $p < .01$, ** = $p < .05$, * = $p < .10$
### 3.2.4.4 Price Judgment

For participants with a high-power state, the results revealed a significant interaction effect of reference price and price level on price judgment ($F = 4.81, p < .05$). A simple effect test further showed that IRP (i.e., previously encountered prices) significantly influenced price judgments ($M_{\text{Low}} = 4.43$ vs. $M_{\text{High}} = 1.73$; $F = 49.65, p < .01$). In addition, the results revealed that ERP (i.e., competing brands’ prices) also influenced the price judgment ($M_{\text{Low}} = 3.44$ vs. $M_{\text{High}} = 1.87$; $F = 19.99, p < .01$; see Figure 3-6). These results indicated a greater difference between the higher and lower price conditions in price judgment when the reference price was IRP ($F = 49.65, p < .01$) rather than ERP ($F = 19.99, p < .01$). Although both IRP and ERP influenced individuals with a high sense of power, they were more affected by IRP than ERP. Taken together, these results partially support H4.

For participants with a low-power state, interaction effect of reference price and price level on price judgment was significant ($F = 15.80, p < .01$). A simple effects test further showed that for those in ERP condition, price judgment was significantly higher in the lower price level condition compared the higher price level condition ($M_{\text{Low}} = 4.26$ vs. $M_{\text{High}} = 1.78$; $F = 40.74, p < .01$). However, no significant differences in price judgment were detected among participants in the IRP condition ($M_{\text{Low}} = 2.98$ vs. $M_{\text{High}} = 2.51$; $F = 1.58, p > .05$). These results indicated that only ERP influenced individuals with a low sense of power. Taken together, H5 was supported (see Figure 3-5).
Figure 3.5 Interaction Effect of Reference Price and Price Level on Price Judgment in the Low-power Condition

Figure 3.6 Interaction Effect of Reference Price and Price Level on Price Judgment in the High-power Condition
3.2.4.5 Price Fairness

The author performed similar analyses on price fairness perceptions as a dependent variable. For participants with a high-power state, the ANCOVA results showed a significant two-way interaction between reference price and price level on price fairness ($F = 7.62, p < .01$). A simple effect test further revealed that the price fairness perceptions were significantly influenced by IRP ($M_{\text{Low}} = 5.79$ vs. $M_{\text{High}} = 2.24$; $F = 74.81, p < .01$) as well as ERP ($M_{\text{Low}} = 5.08$ vs. $M_{\text{High}} = 3.06$; $F = 29.02, p < .01$; see Figure 3-8). Again, these results indicate a greater price fairness difference between the higher and lower price conditions when the reference price was IRP ($F = 74.81, p < .01$) rather than ERP ($F = 29.02, p < .01$). In other words, IRP rather than ERP influences individuals with a high sense of power. Taken together, these results partially support H4.

For participants with a low-power state, interaction effect of reference price and price level on price fairness perceptions was significant ($F = 17.85, p < .01$). A simple effects test further showed that for those in the ERP condition, price fairness perceptions were significantly higher in the lower price level condition than in the higher price level condition ($M_{\text{Low}} = 5.75$ vs. $M_{\text{High}} = 2.72$; $F = 65.68, p < .01$). However, no significant differences in price fairness perceptions were observed among participants in the IRP condition ($M_{\text{Low}} = 4.22$ vs. $M_{\text{High}} = 3.56$; $F = 2.48, p > .05$). These results indicated that ERP influences only individuals with a low sense of power. Again, H5 was supported (see Figure 3-7).
Figure 3.7 Interaction Effect of Reference Price and Price Level on Price Fairness in the *Low-power* Condition

![Low-power Condition diagram]

Figure 3.8 Interaction Effect of Reference Price and Price Level on Price Fairness in the *High-power* Condition

![High-power Condition diagram]
3.2.5 Discussion

Past research on reference price have suggested that personality traits and consumers’ psychological states affect consumers’ relative use of IRP versus ERP (Chen, 2009; Lee, 2013). For example, Chen (2009) showed the effect of self-construal (independent versus interdependent) on individuals’ use of ERP and IRP during price evaluations. Extending this line of research, in study 2, the author examined the effect of an individual’s power state on customers’ price evaluations (i.e., price judgment and price fairness perceptions) across the two types of reference prices.

The study results showed that individuals with a low sense of power rely solely on ERP when evaluating the current rate of the target hotel. Paying a higher (lower) price compared to competing brands’ prices induces unfavorable (favorable) price evaluations. However, IRP had no effect on price evaluations regardless of the price level. These results are similar to those of Galinsky et al. (2008), which indicated that powerless individuals tend to be influenced by external information when making decisions.

On the contrary, IRP rather than ERP appears to more influence individuals with a high sense of power. The current study showed a greater difference between the higher and the lower price conditions in price judgment and price fairness when the reference price is IRP rather than ERP. These findings are consistent with prior studies that examined the effects of feeling powerful on self- and social-perceptions (Galinsky et al., 2008). Powerful consumers tend to be less affected by external cues and more sensitive to their own experiences. In addition, these findings support the notion that the state of powerfulness induces a heightened ability to recognize and recall desired information (Guinote, 2015).
CHAPTER 4. GENERAL DISCUSSION

With the increased prevalence of Internet marketing, the dynamic pricing practice has become more popular (Haws & Bearden, 2006; Jin, He, & Zhang, 2014), especially in the lodging industry (Choi & Mattila, 2014; Wirtz & Kimes, 2007). Although a large body of behavioral price research has examined the effect of reference prices on consumers’ price evaluations in the context of frequently purchased package goods (Chen, 2009; Mazumdar & Papatla, 2000; Mazumdar, Raj, & Sinha, 2005), a limited number of studies have been conducted on the relative use of IRP versus ERP in lodging services where the dynamic pricing practice is prevalent. In an attempt to address this gap, study 1 investigated how pricing characteristics of the lodging services (i.e., price instability and long interpurchase times) shift consumers’ sensitivity to two different reference prices and thus affect their price evaluations of the target service. Compared with the IRP, the results of study 1 revealed that consumers are more sensitive to and influenced by the ERPs (i.e., competing brands’ prices and prices paid by other customers). Study 1 also demonstrated that information accessibility and perceived diagnosticity are two key mechanisms through which the two types of reference prices influence consumers’ price judgments and price fairness perceptions. Specifically, the findings showed a serial mediating effect of (1) information accessibility and (2) perceived diagnosticity on the relationship between reference prices and price evaluations.

The objective of study 2 was to examine the effect of one’s power state on the use of IRP and ERP in price evaluations. The results support the hypotheses such that
individuals in high-power state are more influenced by IRP than ERP while individuals in low-power state rely solely on ERP during the price evaluations process. Overall, the findings of studies 1 and 2 showed that the relative use of IRP and ERP is contingent upon both product and consumer characteristics.

4.1 Theoretical Implications

This dissertation contributes to the extant body of literature in several ways. First, it provides important implications for research on reference price. Mazumdar and Papatla (2000) argued that the weight given to IRP and ERP might be contingent upon product characteristics. However, prior literature has focused mainly on frequently purchased package goods, and consumer researchers have paid scant attention to the relative use of the two reference prices in the context of services. In fact, Mazumdar et al. (2005) highlighted the need to explore the use of reference prices for services. The findings from Study 1 add to the reference price research by providing an initial inquiry into the effect of reference price on consumers’ price evaluations in the context of lodging services. Specifically, the results showed that the effect of ERP (compared to that of IRP) on both price judgments and price fairness perceptions is greater. In addition, this dissertation extends the literature on consumer information processing in that study 1 examines the conditions under which a judgment is likely to be stimulus-based or memory-based (e.g., Lynch & Srull, 1982). Assuming that an IRP is a memory-based price judgment while an ERP is more stimulus-based (Briesch et al., 1997), the current dissertation shows that a stimulus-based price judgment is predominant in the context of lodging services due to
the inherent characteristics of the lodging industry (e.g., price instability and long
interpurchase times).

Second, the current dissertation advances our theoretical understanding of the
reference price effect on price evaluations. Specifically, study 1 shows that information
accessibility and perceived diagnosticity are the key mechanisms that explain why
individuals rely relatively more on ERP than on IRP in the context of lodging services.
Drawing on Feldman and Lynch’s (1998) accessibility-diagnosticity model, study 1
derives information accessibility and perceived diagnosticity of reference price
information, which sequentially account for the differential effects of ERP versus IRP on
consumers’ price evaluations. In other words, the high accessibility associated with ERP
leads to higher levels of perceived diagnosticity; thus, ERP has a greater effect on
consumers’ price evaluations of a target price. On the other hand, low accessibility
affiliated with IRP induces lower levels of perceived diagnosticity, making consumers
rely less on IRP during the price evaluations process.

Finally, the findings of study 2 enrich our knowledge of the relative use of the two
types of reference prices based on consumer characteristics. Prior literature has shown
that the effect of each type of reference price differs across individuals (e.g., Chen, 2009;
Mazumdar & Papatla, 2000). In addition to individual factors, such as the strength of
brand loyalty (Karande & Magnini, 2011) and self-construal (Chen, 2009), the current
dissertation introduced another individual level factor, namely the consumer’s sense of
power to influence consumers’ price evaluations across the two types of reference prices.
Prior literature has shown that an individual’s power state plays a critical role in
consumer behavior. Specifically, one’s power state has been shown to influence
conspicuous consumption (Dubois, Rucker, & Galinsky, 2012), compensatory consumption (Rucker & Galinsky, 2008), and switching behaviors (Jiang, Zhan, & Rucker, 2014). However, the effect of one’s sense of power on price evaluations has not been studied in the context of reference prices. Based on power and on self and social perceptions, study 2 found that IRP has a greater effect on individuals with high power state while ERP has a greater effect on those with low power state. In sum, study 2 of the current dissertation extends the consumer behavior literature by examining power’s influence on the use of reference prices.

4.2 Managerial Implications

The current dissertation has several important implications for lodging practitioners regarding their pricing strategies. For service segments using dynamic pricing, such as the lodging industry, the current dissertation shows that consumers rely more on ERP than on IRP due to the inherent characteristics of the lodging industry (e.g., price instability and long interpurchase times). Nowadays, with customer blogs and various social networks, many customers are likely to know what others pay relative to a comparative reference (Xia & Monroe, 2010). Thus, lodging operators need to set their prices to be highly competitive, as price comparisons are instantaneous in today’s digital world. However, it is not always possible to set the rate lower compared to competitors’ rates. In addition, it is unrealistic for the customer to always receive a better rate than do other customers. If that is the case, it might be a better strategy to provide customers with a reasonable rationale for the preferential treatment (e.g., stating that only customers with a loyalty program are eligible to receive a lower price). Such rationale might reduce any
potential negative effects of being paid more compared to other customers (Xia & Monroe, 2010). In addition, if it is necessary to charge a higher rate for a hotel room, in comparison to other competing hotels, it might be ingenious to mention additional benefits (compared to other hotels) attached to the offer, making the service stand out. Prior research has argued that coupling price variations with customized services mitigates the compatibility between transactions (i.e., decrease transaction similarity), which in turn reduces unfavorable price evaluations rising from price differences.

Moreover, the current dissertation provides meaningful strategies that lodging practitioners can utilize to engage consumers with different power states. When considering the target customers who have relatively low power, a lodging firm can better elicit favorable price evaluations, for example, by highlighting the special treatment or promotion that they are receiving in relation to other firms. For example, the claim “sold by other hotels at $250, our rate is $220” might be a clever strategy when dealing with low power customers. By contrast, when marketing to high-power customers, a manager should stimulate demand by highlighting a price that compares favorably with the firm’s price history.

From a managerial perspective, however, one tricky question is how practitioners can identify their customers based on the states of power (Jin et al., 2014). Although past research (Magee & Galinsky, 2008) has indicated that the state of power and socio-economic status are highly correlated (i.e., powerful people usually have high socio-economic status while powerless people usually have low socio-economic status), it is also possible that the state of power can be unobtrusively activated by being exposed to words and advertisements associated with power (Rucker et al., 2011). Thus,
practitioners can effectively alter customers’ relative sensitivity to different reference prices by offering environmental cues that can temporarily change one’s current state of power (Jin et al., 2014).

4.3 Limitations and Future Research Directions

As with any other research, this dissertation has several limitations that must be addressed. First, the current dissertation examined the effect of reference price solely in the context of lodging services. The effect of reference price is likely to differ for other service categories. Compared to hotels, for example, restaurants tend to have more stable prices and shorter interpurchase times. This might indicate that the effect of IRP becomes stronger in the context of restaurants. Customers who are extremely loyal to some restaurants might not so much care about the competing brands’ prices (i.e., ERP) and rely solely on what they have paid and encountered on previous occasions (i.e., IRP). Furthermore, Mazumdar and Papatla (2000) argued that more expensive product/service categories draw more attention to prices. Thus, previously encountered and paid prices in those categories should be easier to recall compared to less expensive categories (Mazumdar & Papatla, 2000). We might therefore expect that the effect of IRP becomes stronger in the context of airlines services in that airlines services tend to be more expensive compared to lodging services. In sum, further examination is warranted to ensure the generalizability of the findings to other service contexts.

Second, study 2 employed one’s power state as a moderator of the relationship between the use of two reference prices and price evaluations. However, the current dissertation did not directly examine the psychological mechanism that motivates
powerful individuals to focus on IRP. Prior research has shown that individuals with high-power state tend to rely on internal thoughts because they have higher confidence in their own thoughts. In addition, Choi and Mattila (2014) found that a greater sense of power likely induces self-confidence in the individual’s own ability to estimate the difficult numerical calculations. This might indicate that confidence to recall past prices is the psychological mechanism that explains powerful individuals’ reliance on IRP rather than ERP.

Lastly, from a methodological perspective, this dissertation did not explicitly ask participants to recall previous encountered and paid prices (i.e., IRP) during the price evaluations stage. Therefore, we do not know whether the state of powerfulness really enhances memory recall in terms of past prices information. In this dissertation, furthermore, IRP was manipulated by exposing participants to three series of prices. However, Ofir et al. (2008) showed that retrieving more price information (vs. less price information) mitigates the effect of IRP on price evaluations due to the difficulty associated with recalling more price information. Thus, the effect of reference prices among powerful individuals would change if they were exposed to more than three series of price information (e.g., seven series of price information – a relatively more difficult recall task).
REFERENCES


APPENDIX A. A Picture of a Hotel Room with the Room Description - Study 1

Hotel ABC

• Clock radio
• Desk
• In-room safe
• Rollaway beds available
• Complimentary toiletries
• Electronic/magnetic keys
• Iron/ironing board
• Cribs/infant beds available
• Electronic check-out
• Room service
APPENDIX B. Power Manipulations - Study 2

High power:

Please use the following words to make a grammatically correct sentence.

1. authority, controls, letter
2. captain, depart, command
3. executive, influenced, plan
4. dominates, position, privileged

Low power:

Please use the following words to make a grammatically correct sentence.

1. servant, submit, letter
2. complied, janitor, depart
3. obey, passive, plan
4. subordinate, yield, position
APPENDIX C. Measures

How fair do you think the current rate of Hotel ABC ($250) is?

<table>
<thead>
<tr>
<th>Unfair</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Fair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all just</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Just</td>
</tr>
<tr>
<td>Unreasonable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Reasonable</td>
</tr>
</tbody>
</table>

Please evaluate the current rate of Hotel ABC ($250).

<table>
<thead>
<tr>
<th>Expensive</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Cheap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Very low</td>
</tr>
</tbody>
</table>

Overall, how helpful / useful would you rate the price information you had provided (i.e., three different rates) in judging the current rate of Hotel ABC ($250)?

<table>
<thead>
<tr>
<th>Not at all helpful</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Very helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all useful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Very useful</td>
</tr>
</tbody>
</table>

Overall, how accurate you could recall the price information you had provided (i.e., three different rates) when judging the current rate of Hotel ABC ($250)?

<table>
<thead>
<tr>
<th>Very little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Very much</th>
</tr>
</thead>
</table>
Please indicate the extent to which you agree with the following statements.

<table>
<thead>
<tr>
<th>I am familiar with hotel rates in New York City.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

Please indicate the extent to which you agree with the following statements.

<table>
<thead>
<tr>
<th>I am familiar with dynamic pricing (revenue management) in the hotel industry.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>
VITA

CHOONGBEOM CHOI

EDUCATION

2015    The Pennsylvania State University, School of Hospitality Management  
         Ph.D. in Hospitality Management

2010    University of Massachusetts at Amherst, Isenberg School of Management   
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Best Paper Award, The 18th Annual Graduate Student Research Conference in Hospitality & Tourism, Seattle, WA, 2013

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