



Modeling consumer distrust of online hotel reviews[☆]

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ABSTRACT

The online reviews literature has tended to focus on exploring perspectives such as the recipient's attitude, reviews' message-based factors, reviews' trustworthiness, and hotel sales. But research fails to address the underlying processes of consumer distrust of online hotel reviews. Based on a rich stream of literature, this study offers a hierarchical-influence model of consumer distrust of online hotel reviews after a hotel service failure. The research model considers how consumers are influenced by two particular attributes of reviewers, how reviewers make attributions following a service failure, and the relational outcomes of distrust. After applying the model to hospitality consumers in China, we find that the reviewer attributes of fake identity and ulterior motivation directly influence distrust, which further leads to consumers' psychological discomfort and engagement in negative electronic word-of-mouth. Surprisingly, psychological discomfort positively affects repeat purchase intentions. Service failure attribution positively moderates the relationship between reviewer attributes and distrust. We discuss the theoretical and managerial implications of our study and close by acknowledging the research limitations. Future research directions to tourism and hospitality scholars are also provided.

1. Introduction

Online hotel reviews have a high degree of anonymity and therefore are an easy way to disseminate deceptive information (Zhang et al., 2016). Hotel managers and hired individuals are involved in the socially undesirable practice of review manipulation (Filieri, 2016; Ma and Lee, 2014). For example, the general manager of communications in the Asia-Pacific region for the French hotel chain Accor Group was caught posting more than 100 positive reviews for its hotels around the world (The Queensland Times, 2013). And in the U.S., 19 companies were heavily fined by the New York Attorney General for flooding the internet with fake online reviews on websites such as Yelp, Google Local, and CitySearch (Press Release of Attorney General Office, 2013). In response to such unethical practices, there is a greater likelihood that hotel consumers will develop a higher level of distrust (Cantalops and Salvi, 2014). A research report based on a survey of 2900 consumers from by digital hotel marketing firm Fuel revealed that consumer distrust of online reviews on travel websites has risen 50% in the past year (Leggatt, 2016).

Given that hotel consumers are highly subject to online reviews deception, it is important that researchers further investigate the question of what causes distrust among online travelers, how to overcome this distrust, and how to market hotel services to suspicious and dissatisfied consumers. Moreover, hotel firms and online travel websites

have an interest in understanding what causes consumers to develop greater distrust when using online reviews in hotel bookings so that they can develop relevant strategies to reduce distrust and increase hotel purchase probabilities. In this regard, previous research does not systematically investigate the critical role of consumer distrust in the context of fake hotel reviews. With this in mind, the present study reviews literature on online hotel reviews, consumer distrust, and hospitality and offers a hierarchical-influence model of consumer distrust for online hotel reviews. We specifically examine: (1) consumer perceptions regarding the role of two reviewer attributes (i.e. fake identity and ulterior motivation) in forming distrust; (2) the effect of distrust on consumer psychological discomfort; (3) the associated negative outcomes in the form of negative electronic word-of-mouth and fewer repeat purchase intentions; and (4) in post-purchase scenarios, the moderating role of service failure attribution as a contextual factor between reviewer attributes and distrust.

The present study contributes to the literature in following ways. First, based on distrust literature, this study presents and validates a hierarchical-influence-model of consumer distrust and describes its antecedents and relational outcomes. Second, it extends the prior literature on consumer distrust and examines it in the context of fake hotel reviews with two particular reviewer attributes. Third, based on theoretical conceptualizations, we investigate the first-stage outcome of consumer distrust in the form of psychological discomfort that further

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leads to behavioral responses. Fourth, this study widens current knowledge by examining two opposite ends of consumer behavior (i.e. negative electronic word-of-mouth and repeat purchase intentions), as the self-brand connection elements have not previously been given fair consideration. Fifth, in response to research calls, the present study aims to validate the moderating role of service failure attributions as a contextual factor between reviewer attributes and distrust (Sen and Lerman, 2007; Weber and Sparks, 2010). Last, understanding consumer behavior in the fastest growing hotel industry market (i.e. China) is valuable to local as well as international tourism and hospitality businesses. Practically, the study's findings can assist online travel websites and hotel firms that encounter unethical practices of reviews manipulation to develop effective strategies to produce higher trust and regain dissatisfied customers.

2. Theoretical background

2.1. Theory foundation

The present study uses a notion of distrust derived from the seminal study of Kramer (1998). That study assumes that normal individuals hold paranoid social cognitions, referred to as exaggerated distrust, which creates anxiety and stress, and leads to severe behavioral responses. Empirical evidence suggest that after experiencing fraud, consumers tend to protect themselves by developing an overly distrustful view of online firms (Darke and Ritchie, 2007). Because marketing communications rely on norms of honesty and trustworthiness, breaking such values motivates consumers to develop higher distrust and personal construal of others (Posey et al., 2010). Other studies conclude that the induced distrust creates conditions of consumer ambivalence including insecurity and anxiety that converts consumers from being active to passive and negatively affects the consumer behavior (Elbeltagi and Agag, 2016; Moody, Galletta, and Lowry, 2014).

Kramer's (1998) distrust model basically has three key elements, namely history dependent processes, priori expectations, and posteriori attributions. The "history dependent (interaction-based) processes" assumes that an individual's trust increases or decreases as a function of the cumulative history of interaction between two actors (i.e., reviewer and recipient of online reviews). In interpersonal interactions between a reviewer and a recipient using online reviews, the recipient faces a subsequent deception, which creates distrust for online hotel reviews. In "priori expectations," an individual's judgement about untrustworthiness depends on priori expectations about the others' behavior and the extent to which subsequent experience affirms or discredits those expectations. In case of online hotel reviews, consumers have a priori expectations that review information is trustworthy and they will receive good hotel service by relying on a particular hotel review. Afterwards, if that particular review has been proved deceitful in that the identity and motives of review writer were not genuine, the recipient develops heightened distrust. 'Posteriori attributions' influence his or her inferences about the others' motives and intentions. When consumers rely on online reviews in purchasing a hotel service that subsequently proves a failure, they attribute this service failure to online hotel reviews, which can further build distrust. This argument lends support to employing service failure attribution as a moderating factor in our research model.

Kramer's psychological model of distrust was mainly used in examining distrust in interpersonal communications among employees within their social groups (Kramer, 2001). His main distrust model was developed on data collected from MBA students in a U.S. university. Despite its suitability, research has overlooked application of Kramer's concept of distrust as a measure of consumer distrust in online settings. Scholars in the online marketing field have suggested application. They argue that Kramer's social cognition groundings can be useful in providing a richer understanding of online shoppers' distrust in electronic word-of-mouth situations (Zhang et al., 2016). Therefore, based on

empirical findings of consumers' overly suspicious attitudes (Dark and Ritchie, 2007; Moody et al., 2014) and relevance of the basic elements of Kramer's distrust model to the present context, we argue that Kramer's (1998) distrust model supports our study.

2.2. Consumer distrust

Classical approaches defined distrust as "a lack of confidence in others, a concern that the other may act so as to harm one that he does not care about one's welfare or intends to act harmfully, or is hostile" (Govier, 1993). Simply put, distrust is a negative feeling about the conduct of another person. Distrust blocks business exchanges, especially in online businesses where transactions are not interpersonal. Due to its destructive impact on businesses, consumer distrust has received much attention from scholars in recent years. A review of the literature on consumer distrust in online settings indicates the role of several predictors in explaining distrust and outlines various behavioral outcomes of consumers. For instance, research studies on personalized services have found that the key predictors of trust are the consumers' unknown interpretations and expectation evaluation (Komiak and Benbasat, 2008) and agents' irrelevant and biased recommendations (Chau et al., 2013). In turn, distrust negatively influences consumers' interaction with personalization agents. Moody et al. (2014) attempts to conceptualize consumer psychographic traits, consumers' suspicions, situational abnormalities, and disposition to distrust. Riquelme and Roman (2014) consider cognitive traits such as internet-based information searches, perceived internet usefulness, and risk aversion as major factors of distrust. On the other hand, many attempts have been made to examine the influence of website-based factors (Ou and Sia, 2010) and website features on consumer distrust during users' evaluation of website experience (Seckler et al., 2015). Moreover, in business-to-business (B2B) information exchanges, McKnight et al. (2017) find that service outcome quality (i.e. the hygiene factor) strongly influences distrusting beliefs, which further enhances risk perceptions. A growing body of literature examines distrust in terms of its outcomes. Consumer distrust increases negative word-of-mouth and decreases customer satisfaction and loyalty in e-retailing and online shopping contexts (Roman, 2010; Riquelme et al., 2016). It triggers negative brand attitude and lowers the purchase intention in response to deceptive advertising (Xie et al., 2015). Moreover, Lee et al. (2015) conclude that customer distrust increases or decreases as a function of variation in the level of capability-based (i.e. customer involvement, web fraud) and relationship-affecting elements (content truthfulness, customer responsiveness) (See Table 1 for details).

The previous e-commerce research largely compares and contrasts the constructs of trust and distrust, whereas the scientific basis of consumer distrust is less understood (Moody et al., 2014). Much work on the potential for consumer distrust has been carried out, yet there are still areas that need further research. In particular, consumer distrust has appeared as an emerging research area in online tourism and hospitality (Cantalops and Salvi, 2014). A number of researchers note a research gap and argue that mechanisms of consumer distrust in online reviews have not been considered in depth (Hu et al., 2011; Ma and Lee, 2014; Lee et al., 2015; Ou and Sia, 2010). Toward this end, little research has been devoted to examining the causes and effects of distrust. For example, a study conducted by Liu et al. (2017) finds that two online reviews factors, namely numerical ratings and opinionated reviews, influence distrust, which decreases users' perceived usefulness, ease of use, and adoption intentions of online reviews. The online reviews are often posted anonymously, which makes it difficult for consumers to discern the review source identity and intention in posting a review. To this point, this particular area of consumer distrust has been completely overlooked by online reviews literature that examines consumer evaluation of reviewer attributes and its effects on behavioral responses. In light of this viewpoint, scholars have suggested examining the impact of two reviewer attributes, namely, fake identity and ulterior

Table 1
Review of literature on distrust in online settings.

Study	Context	Factors/Predictors/Antecedents	Outcomes/Consequences	Findings
Chau et al. (2013)	Malfunctioning personalized services/online shopping	Irrelevant recommendations/biased recommendations	Interactions with personalization agent	Finds that irrelevant recommendations and biased recommendations of personalization agent create distrust among consumers. The engendered distrust has negative effect on interactions with personalization agent.
Moody et al. (2014)	Online shopping	Suspicion, situational abnormalities and disposition to distrust	Consumer ambivalence	Proposed a model and supported with evidence that suspicion, situational abnormalities, and disposition to distrust strongly impact distrust perceptions. The created distrust further leads to consumer ambivalence.
Ou and Sia (2010)	Online shopping	Website features (functional perceptions, motivational perceptions): technical functionality, situational normality, structural assurance, information quality, ease of use, usefulness, third-party recognition, consumer feedback mechanism, perceived enjoyment.	n/a	Website features, i.e. functional perceptions and motivational perceptions, reduce the level of Hong Kong consumers' distrust for websites for cameras, PDAs, and MP3 players.
Seckler et al. (2015)	Website experience	Website characteristics (i.e. graphical, structural design, content, and privacy issues)	n/a	Complex layout of website, pop-ups, content of website, missing honesty and benevolence, and privacy concerns are the major determinates of users' distrustful experiences.
McKnight et al. (2017)	Business-to-business (B2B) data exchanges	Service outcome quality	Perceived risk	Service outcome quality (i.e. hygiene factor) strongly influences distrusting beliefs. The distrusting beliefs have profound effect on perceived risk.
Komiak and Benbasat (2008)	Personalized services	Unknown interpretations, expectation evaluation	n/a	The distrust-building process includes main two elements i.e., unknown interpretations and expectation evaluation.
Riquelme et al. (2016)	Online shopping	n/a	Customer satisfaction with retailer, negative word of mouth	The perceived distrust negatively impacts customers' satisfaction with retailer and fosters negative word-of-mouth.
Xie et al. (2015)	Deceptive advertising	n/a	Negative brand attitude and low purchase intention	In response to deceptive advertising, consumers develop higher distrust perceptions. The consumers show negative attitude towards brand and exhibit low purchase intention.
Lee et al. (2015)	Online consumer behavior	Capability based elements (i.e. customer involvement, web fraud) Relationship-affecting elements (content truthfulness, customer responsiveness)	Online loyalty	Customer involvement, content truthfulness, customer responsiveness, and web frauds are the influencers of perceived distrust in online environment.
Roman (2010)	Online shopping	n/a	Customer satisfaction, customer loyalty intentions	The consumers' perceived distrust had a negative influence on customer satisfaction and loyalty intentions.
Riquelme and Roman (2014)	Online retailing	Consumer cognitive traits: internet based information search, perceived internet usefulness, risk aversion	n/a	Consumers psychographic traits such as internet-based information search, perceived internet usefulness, and risk aversion are prevalent in distrust perceptions during online shopping
Liu et al. (2017)	Online reviews	Numerical ratings, opinionated reviews	Perceived ease of use, perceived usefulness, adoption intention	Two online reviews based factors (i.e. numerical ratings, opinionated reviews) are the antecedents of perceived distrust. The perceived usefulness, ease of use an adoption intention decreases as a result of distrusting beliefs.

motivation, on the veracity and credibility of online hotel reviews (Cantalops and Salvi, 2014; Yoo and Gretzel, 2009). Therefore, following research calls by online reviews and hospitality scholars, this study examines the role of reviewer fake identity and ulterior motivations in explaining consumer distrust for online hotel reviews.

3. Hypotheses development and research model

3.1. Reviewer attributes and consumer distrust

Traditionally, preliminary work on online reviews focused primarily on investigating the impact of reviewer characteristics such as trustworthiness and expertise on the message recipient's attitude and behavior. However, in today's era of e-commerce, online reviews pose a challenge to consumers, who must sort out and mentally process a huge amount of content. Consumers therefore rely on heuristics such as reviewer attributes to assist them in making trustworthiness judgments about online reviews. The source (i.e. reviewer) can still be a vital factor to be considered when understanding people's judgments about messages, even if the identity of the source is anonymous. Various approaches in online reviews research have contended there are possible strong association between two reviewer attributes, namely, identity and motivation. For example, Filieri (2016) underlines that hospitality consumers are not only interested in profile information (i.e. the identity) of the reviewer, but are equally interested in scrutinizing the reviewer's hidden motivations. Likewise, Dou et al. (2012) maintain that a recipient uses the identity of a message source to evaluate the hidden intentions of message postings. Despite their importance as a clue for judging the credibility of online information, reviewer attributes have not been given considerable attention by other online reviews studies. Thus, examining consumers' evaluations of reviewer attributes can be an important step in further understanding the psychological processes of distrust development.

3.1.1. Reviewer fake identity and distrust

Online identity is defined as a social identity that an individual establishes in online communities and/or websites (Liu and Park, 2015). In online consumer forums, the identifiable sources increase the efficiency of consumers' information processing. According to classical information processing literature, message recipients adopt a heuristic approach in which they rely more on immediately accessible information that is not a content-related (i.e. source identity), because they require a little effort in assessing the message validity (Chaiken, 1980). The precise information of a message provider brings salient contributions to the message's persuasiveness and the recipient's attitude and behavior (Dou et al., 2012; Liu and Park, 2015). In their study of online reviews, Forman et al. (2008) highlight that a recipient uses the personal information of a reviewer as a device to reach credibility judgments. Overall, reviewer identity plays an influential role in the process of consumers' uncertainty, enhancing information processing and credibility judgements of online reviews.

The members of online communities are usually concerned with people's identity in these forums. In consumer review websites, the source is often anonymous and travel consumers have to look for different clues to judge source credibility (Xie et al., 2011). This incognito nature of online reviews constitutes a hurdle for consumers in determining the actual identity of a review writer. Studies affirm that fake online reviews are being sent from genuine internet users using identity deception techniques, and such practices leads to consumers' negative judgement (Forman et al., 2008). In addition, Reimer and Benkenstein (2016) conclude that consumer perceptions regarding biased and cynical source of online travel reviews decrease reviewer trustworthiness. In the same vein, in his seminal article on reviews trustworthiness, Filieri (2016) reports that fake profile information of a reviewer increases the likelihood that hotel consumers perceive the review source as distrustful. Likewise, Kusumondjaja et al. (2012) conduct

experiments with 639 travel consumers and find that when reviewer identity is not disclosed, the review valence (i.e. positive, negative) does not have any impact on review trustworthiness. More evidence has demonstrated that perceived accuracy of reviewer information reduces the probability of consumer distrust toward that information source (Cheung et al., 2009). Likewise, experimental findings reveal that manipulation of reviewer identity undermines consumer trust and leads to a decrease in purchase intentions (Ma and Lee, 2014).

Therefore, in case of online hotel reviews, the rationale is as follows: the more often the identity of reviewer is fake or manipulated, the more often consumers develop higher distrust for online hotel reviews. Thus, we formulate the following hypothesis:

H1. The fake identity of reviewer is positively associated with consumer distrust for online hotel reviews.

3.1.2. Reviewer ulterior motivation and distrust

In online reviews context, the ulterior motivation often refers to the extent to which the reviewer has a personal interest in or stands to benefit from misleading or persuading people to buy a particular product or service. The darker side of online consumer platforms is exhibited in the fact that the persuasive intent of the reviewer is often disguised or concealed. Previous findings report that online travelers tend not to always use profile information of reviewers, but they equally consider their hidden motivations in evaluating reviewer trustworthiness (Dou et al., 2012; Filieri, 2016). In a study conducted among restaurant managers, Jeong and Jang (2011) find that they have selfish motivations for posting positive online reviews on travel websites to attract customers. Addressing the particular dilemma of reviews manipulation, Hu et al. (2011) draw attention to the fact that online reviews contain product-related sentimental and self-brand connection elements where reviewers hold motivations of personal self-enhancement that do not represent their actual motivations.

The literature on information processing indicates that reviewer-intended motives have a profound influence on the recipient's attitude and behavior (Forman et al., 2008). In their analysis, Martin and Lueg (2013) find that bogus postings raise serious ethical issues where the recipient perceives that the reviewer recommending a hotel service for his or her personal gains, which heightens the recipient's distrust of the motives of the reviewer. The experimental findings show that consumers' ambivalence regarding reviewer self-interest or biased-motivations increases the likelihood of their suspiciousness and distrusting beliefs (Reimer and Benkenstein, 2016). Moreover, it has been shown that internet users are more likely to trust online reviews if they perceive the intention of reviewer is genuine (Qiu et al., 2012). The marketing literature further validates that consumers' negative perceptions of the message sender's ulterior motives negatively affect review trustworthiness (Verlegh et al., 2013). Finally, in their seminal work, Dou et al. (2012) show that the consumers' level of skepticism is increased when they hold perceptions that reviewer internal motives are not honest and genuine. The rationale is as follows: the more the consumers perceive the motivations of reviewer are ulterior and concealed, the more they develop higher distrust for online hotel reviews. Thus, we formulate the following hypothesis:

H2. The ulterior motivations of a reviewer are positively associated with consumer distrust for online hotel reviews.

3.2. Distrust and psychological discomfort

A considerable amount of past studies have shown that distrust directly and/or indirectly influences consumer behavior (Chau et al., 2013; Riquelme et al., 2016; Xie et al., 2015). Another strand of empirical studies shows that consumer distrust does not always lead to behavioral intentions. The perceived untrustworthiness caused by reviewer attributes are correlated with the recipient's product judgements

representing his or her attitude (Weber and Sparks, 2010; Zhang et al., 2016). Several researchers have expressed their opinion that consumers tend not to develop intentional behavior for a particular object at the attitudinal stage. For instance, Moody et al. (2014) point out that distrusting beliefs generate a high level of ambivalence and uncertainty representing psychological distress states of the human mind, which further determines consumers' behavioral intentions. Classical research defined the psychological stress as an attitude, not a behavior (Kramer, 1998). More recent evidence suggests that distrust negatively impacts the interactions between customers and agents in personalized services, wherein the customers develop internal feelings but do not exhibit negative behavioral responses (Chau et al., 2013). In a major advance, McKnight et al. (2017) establish perceived risk as the first-stage outcome of distrust and behavioral actions as consumer final responses. Therefore, it is logical to assert that there are mid-stage outcomes (i.e. psychological discomfort) of consumer distrust before reaching final consumer responses.

The preliminary works in the field identified that individual's distrust is comprised of skeptical and sarcasm factors, and under such conditions individuals experience a state of unease and frustration (Kramer, 1998, Govier, 1993). In e-commerce settings, more recent empirical evidence describes that provoked distrust enhances consumer uncertainty and vigilance (Elbeltagi and Agag, 2016). When consumers are suspicious, they first become submissive and reluctant to buy even knowing that the online transaction is free of risk, which clearly represents consumers' extra vigilance (Lee et al., 2015). Marketing research concludes that distrust entails more risk to consumers, which increases the complexity of a situation, and these conditions trigger mental discomfort among consumers (Marsh and Dibben, 2005). In view of the abovementioned arguments, we infer that the activated distrust determines a feeling of higher insecurity and anxiety among consumers, which causes them to be more passive and highly stressed. Therefore, the rationale is as follows: the more the consumers develop distrust for online hotel reviews, the more they experience a feeling of psychological discomfort. Thus, we formulate the following hypothesis:

H3. Consumer distrust is positively related to psychological discomfort.

3.3. Psychological discomfort and consumer responses

Word-of-mouth and repeat purchase intentions are two widely examined consumer behavioral factors. In this study, negative electronic word-of-mouth refers to consumer response to dissatisfaction in the form of negative opinions over online consumer forums (Alexandrov et al., 2013). On the other hand, repeat purchase intention is defined as the degree to which online travelers are willing to purchase the service from the same service provider (Khalifa and Liu, 2007). Marketing research theorizes psychological discomfort as a negative, internally attributed state arising from a mismatch of product expectation and its subsequent performance (O'Neill and Palmer, 2004). Psychological discomfort caused by untrustworthiness of reviewer attributes is positively correlated with consumer judgments (Zhang et al., 2016). In online settings, recent studies have found that consumers' psychological complexities such as discomfort decrease their behavioral intention and loyalty (Elbeltagi and Agag, 2016; Lee et al., 2015). A series of initial investigations find that consumers who spread negative word-of-mouth are driven by feelings of vengeance and anxiety reduction (Sundaram et al., 1998).

It can be inferred that consumer negative behavioral outcomes can be the result of their counter-attitudinal behaviors after being exposed to discomfort. Traditional approaches identify that dissatisfied consumers are more likely to be vocal about their bad experiences than satisfied customers about their good experiences (Anderson, 1998). Therefore, there is a greater likelihood that dissatisfied hotel consumers will demonstrate intense negative behaviors when their expectations do not match with their experiences. Cheng et al. (2016) reveal that low

consumer satisfaction leads to brand-switching behavior. In their cutting edge study, Larson and Denton (2014) find that after experiencing a higher distrust caused by the falsified online reviews, an active mindset could enhance consumer negative emotions such as anger and frustration, as well as the likelihood of showing negative responses in the form of negative word-of-mouth and less purchase intention. In the Chinese context, Li et al. (2016) point out that concern for face-saving increases customer intentions to spread negative word-of-mouth after having bad experiences. To overcome frustration and discomfort, hospitality literature findings further indicate that consumers are likely to show severe responses in the form of exit behaviors referred to as purchase terminations (Nikbin et al., 2015).

To avenge bad experiences caused by fabricated online reviews, consumers tend to take rigorous actions in the form of negative word-of-mouth and less repeat purchase intention. A number of marketing scholars have found strong associations between consumers' psychological discomfort and their negative emotional responses in the form of negative word-of-mouth, brand switching, and less repeat purchase intention (Jean Harrison-Walker, 2012; Wetzer et al., 2007; Wilkins et al., 2016). The experimental findings report that consumer emotion regulations and feelings of injustice have positive effects on negative word-of-mouth communications on social networking sites (Balaji et al., 2016). Driven by all of these arguments, the present study deduces that higher levels of psychological discomfort will lead to higher engagement to negative electronic word-of-mouth on online travel websites and low repeat purchase intentions. Therefore, we formulate the following hypothesis;

H4. Consumers' psychological discomfort is positively associated with their engagement in negative electronic word-of-mouth.

H5. Consumers' psychological discomfort is negatively associated with their repeat purchase intention.

3.4. Service failure attributions

According to attribution perspectives, service failure attribution is the degree to which a person has beliefs that a particular service failure is due to something under the control of the immediate service provider (internal) rather than being beyond his or her control (external) (Mattila and Patterson, 2004). Theoretically, Kramer's model also assumes that individuals' a posteriori attributions influence their judgments regarding the credibility of a source (Kramer, 1998). Therefore, we propose that service failure attributions, conceptualized as hotel consumers causal inferences towards reviewer attributes as being the cause of service failure, influence consumer attitudes in the context of online hotel reviews. We argue that service failure attributions form a heuristic cue enabling the recipient of online reviews to evaluate the perceived trustworthiness and credibility of the reviewer. Although it has been well established that reviewer attributes have profound direct effects on consumer distrust (H1 and H2), further insights about these relationships require the consideration of consumer attribution processes (Browning et al., 2013).

The attribution paradigms assert that consumers make inferences as to the causes of service problems along three dimensions, specifically, the locus of causality, stability, and controllability (Weiner, 2000). The locus of causality refers to whether the consumer believes the cause of the problem lies within the person (self-internal-attributions), or with some outside agent such as a manufacturer or retailer (external attributions) (Del Río-Lanza et al., 2009). Seminal works in consumer attributions literature find that the greater the degree of external attribution the more the consumer complaints and exhibits dissatisfaction (Folkes, 1984). On the other hand, the lower the degree of external attribution, the more likely the consumer will do nothing when dissatisfied after facing service failures (Folkes, 1988). Simply put in our context, consumers attribute service failure to fake hotel reviews, which

can be controlled by both hotel firms and review websites. Consumers make inferences that reviewer fake identity and ulterior motivation caused the service failure. Based on this notion, the present study infers that consumer attributions about reviewer reporting bias regulate the relationship between reviewer attributes and distrust. Based on theoretical assumptions (Folkes, 1984, 1988), the logic is that greater degree of causality attributions strengthen the relationship between two reviewer attributes (fake identity and ulterior motivation) and reviews untrustworthiness.

Stability refers to whether consumers view the cause of a bad service experience as temporary or permanent. Consumers are less forgiving, experience greater dissatisfaction, and develop violent behaviors when they ascribe the service failures to stable causes (Nikbin et al., 2015; Vaerenbergh et al., 2014). In stable or permanent causes, the degree of consumers' stability attributions is relatively high (Folkes, 1984, 1988). Given the anonymous nature of online hotel reviews, there is a greater likelihood that consumers perceive the causes of service failure experiences as more stable and an ongoing process, leading to higher stability attributions. A higher degree of stability attributions trigger consumer negative credibility judgements for reviewer fake identity and ulterior motivation because consumers believe these causes are more stable and ongoing. Therefore, it is reasonable to state that a higher level of stability attribution can further strengthen the relationship between causal factors (i.e. reviewer fake identity and ulterior motivation) and consumer judgments (i.e. distrust).

Controllability refers to the extent to which consumers believe that provision of quality of service is under the control of a manufacturer, retailer or other actor (Folkes, 1988). It reflects the power available to parties such as a manufacturer or retailer in the situation to alter the result. Hospitality findings confirm that control attributions play an important role in consumer post-failure judgements: when firms control service failure, consumers hold a higher degree of controllability attributions, feel angry, and desire to hurt the firm's reputation (Vaerenbergh et al., 2014). High controllability attributions determine consumer attitude as less tolerant (Maxham and Netemeyer, 2002), and low control attribution leads to more forgiving attitude. For example, flight delays due to lethargic boarding procedures are controllable and thus create more dissatisfaction among passengers. Put in the current context, consumers believe that hotel firms and review websites can control fake hotel reviews, which cause service failure. In this sense, higher controllability attributions by consumers for reviewer attributes can further strengthen the link between reviewer fake identity, ulterior motivations, and consumer distrust.

In post-purchase service failure contexts, a growing body of research studies argue that attribution processes play a significant role not only in consumers' evaluation of online reviews (Browning et al., 2013), but also in their subsequent attitudes and behaviors in the form of low repeat purchases and high intentions to spread negative word-of-mouth (Nikbin et al., 2015; Sen and Lerman, 2007; Vaerenbergh et al., 2014). When consumers' expectation for hotel services are ignored, or challenged due to service failure, it creates a higher degree of attributions, which will result in negative emotions such as annoyance, anger, and outright hostility characterized as distrust (Sparks and Browning, 2011). Marketing research concludes that consumer reactions have been found to depend on their degree of causal inferences after facing service failures (Mattila and Patterson, 2004). Moreover, post-purchase service failure attributions have been found to influence the mechanisms of consumer judgments (Weber and Sparks, 2010). Further research studies maintain that consumer distrust for online reviews is conditionally dependent on consumer causal attribution for reviewer personal identification and intended motives (Sen and Lerman, 2007). Based on all aforementioned theoretical and empirical arguments, we proposed the following hypotheses:

H6. Service failure attribution positively moderates the effect of reviewer fake identity on distrust so that the relationship is stronger

when service failure attribution is high rather than low.

H7. Service failure attribution positively moderates the effect of reviewer ulterior motivation on distrust so that the relationship is stronger when service failure attribution is high rather than low.

4. Methodology

4.1. Research settings

We selected Chinese hotel consumers as the study settings for several reasons. The hotel industry in China has seen a meteoric growth, resulting in revenues of \$58 billion, with annual growth of 7.8% (2011–2016). Moreover, the hotel industry in China includes 17,870 businesses providing 2,476,000 jobs. By the year 2022, hospitality will become a \$100 billion industry, with 6.3 million rooms overall and eight rooms per 1000 capita (China National Tourism Administration, 2016). A sustainable tourism development policy by the local and national government aimed at encouraging domestic expenditure to sustain economic growth, a growing middle class, and differential generational and urban-rural attitudes will further promote the development of the Chinese hotel industry in the future. On the one hand, China has a huge population base and consumers are changing their consumption patterns by increasing their expenditures on tourism. On the other hand, the Chinese government has introduced a string of policies concerning tourism and the hotel industry and provides support for capital, technology, and human resources. These facts encourage researchers to choose for China for hospitality industry studies.

Although China's hotel industry has been a popular subject of former studies, the deeper consumer insights have been gained by analyzing various other statistics (e.g. valence of reviews). Further, these other studies have been performed without using primary data. Because experimental methods dominate consumer psychology, consumer psychologists in hospitality research have suggested that researchers should test hypotheses with other methods using primary data (Lynch et al., 2012). Therefore, taking into account the research objectives of the present study, a rigorous analysis using primary data would be a much better approach.

4.2. Survey and sampling procedures

4.2.1. Instrument and measures

The initial instrument was developed in English. We used a back-to-back translation method by first converting the instrument into the Chinese language and then back-translated to English to ensure linguistic equivalence between two versions. The language and sentence structure of the measurement scales were slightly modified according to Chinese context. The multi-item measures for constructs was adapted from existing literature. All the constructs were measured using a 5-point Likert scale anchored on 1 (= completely disagree) to 5 (= completely agree) scale. The psychological discomfort used a scale ranging from 1 (= does not apply at all) to 5 (= applies very much to me). Both constructs of fake identity and ulterior motivation were measured using the electronic word-of-mouth skepticism scale of Zhang et al. (2016) with three items each. Distrust was measured with four items from the Roman (2007) study. To measure psychological discomfort, we adopted the four-item scale of affective response (negative) of Spangenberg et al. (2003) in their study. The three-item scale of Mattila and Patterson (2004) was used to measure service failure attributions. The construct of negative electronic word-of-mouth was measured by the three-item scale of Alexandrov et al. (2013). Finally, the three-item scale was adapted from Khalifa and Liu (2007) to measure consumers' repeat purchase intention.

4.2.2. Survey procedures

Data were collected on a convenience basis method and participants

were approached at 3-star and 4-star hotels located in the Central Business District (CBD) of Beijing. Three doctoral candidates were trained for conducting the survey. The questionnaire applied the critical incident technique. This technique was used as the basis of the survey, which is essentially the same as used by [Seckler et al. \(2015\)](#). The questionnaire begins with an open-ended question, where participants were asked to read the following statement before filling out the questionnaire: “Take you as the receiver of online hotel reviews information. Please think of an occasion when you feel extremely distrustful by using online hotel reviews. Think of a distrust situation and feelings which make sense to you. Try to demonstrate your distrustful experience in details as correctly as you remember.” The purpose of this question was to receive descriptions of distrustful consumer experiences. The data collection took place between February–June 2017. Completing a questionnaire took approximately 15–20 min. Out of a total of 700 distributed questionnaires, 495 were returned, which represents a response rate of 71%. The incomplete questionnaires were discarded, resulting in a total 417 usable responses.

The convenience sampling technique is criticized for not being appropriately qualified to generalize the findings of studies. Prior online studies successfully employed this method as an approach to collect data ([Roman, 2007](#)). However, convenience samples are considered valid under two conditions: first, if the study is exploratory in nature; second, if the items of instrument are relevant to participants who answer those questions ([Elbeltagi and Agag, 2016](#)). To this point, our study is based on factors that have not been examined previously in determining consumer distrust for online hotel reviews, and the constructs of the instrument are more relevant to study participants because the selected sample represents real hospitality customers. Therefore our study satisfies both of conditions to validate the use of convenience sampling.

4.2.3. Profile of respondents

The majority of respondents are between 35 and 40 years old (45.6%, $M = 2.62$, $SD = 1.16$) and 52% are male. Over half of respondents (57.6%) hold a bachelor's degree. Self-reported household income is: 32.4% ($N = 135$) in RMB 15,001–20,000 (USD 2203–2937) category, followed by 25.7% ($N = 107$) in RMB 20,001–25,000 (USD 2937–3672) category. Respondents were also categorized on the basis of their online hotel bookings and online hotel reviews experience. Regarding online hotel bookings, 42% ($N = 175$) demonstrate themselves as fully experienced and 216 respondents replied that they are moderately experienced. Concerning hotel reviews, 198 respondents are fully experienced and 44.84% are moderately experienced. Most of the respondents use travel websites ($n = 259$), 49% use search engines, and 38% uses customer rating agencies as their sources to access hotel reviews information (see [Table 2](#)). The demographic factors were taken as control variables in data analysis and results reveal insignificant impacts of all control variables with perceived distrust: age ($\beta = -0.052$, $p = 0.087$), gender ($\beta = 0.750$, $p = 0.290$), education ($\beta = 0.119$, $p = 0.10$), income ($\beta = -0.015$, $p = 0.623$), experience of hotel bookings ($\beta = -0.006$, $p = 0.911$), and experience of using hotel reviews ($\beta = 0.026$, $p = 0.559$). Therefore, we did not consider the effects of demographic variables in the final model.

5. Analysis and results

5.1. Measurement model

The statistical analysis was carried out by using SPSS Amos Graphics version 18.0. This study follows [Anderson and Gerbing's \(1988\)](#) two-step statistical analysis approach in Structural Equation Modeling (SEM). By using this technique, we first analyze reliability and validity by the measurement model and then do path analysis by the structural model. The basic purpose of this two-step approach is to establish reliability and validity of measures before testing for their structural

Table 2
Profile of respondents ($n = 417$).

Variable	Frequency	Percentage
Gender		
Male	216	51.8
Female	201	48.2
Age (years)		
20–25	51	12.2
25–30	36	8.6
30–35	91	21.8
35–40	190	45.6
Above 40	49	11.8
Income (RMB, USD/Month)		
10,000–15,000 (USD 1469–2203)	53	12.7
15,001–20,000 (USD 2203–2937)	135	32.4
20,001–25,000(USD 2937–3672)	107	25.7
25,001–30,000(USD 3672–4406)	81	19.4
> 30,000 (US\$ 4,406and above)	41	9.8
Education level		
Some high school	23	5.5
Higher secondary school	76	18.2
Bachelor's degree	240	57.6
Master's degree	78	18.7
Doctorate	0	0
Online hotel bookings experience		
Fully experienced	175	42.0
Experienced	216	51.8
Low-experienced	26	6.2
Hotel reviews experience		
Fully experienced	198	47.48
Experienced	187	44.84
Non-experienced	32	7.68
Sources of hotel reviews information		
Travel websites	259	62
Search engines	205	49
Customer rating agencies	158	38
Social media	113	27
Hotel websites	67	16

relationships. Confirmatory factor analysis (CFA) was performed to assess the validity of latent constructs. The measurement model analysis yielded good model fitness scores, which demonstrated that data are a good fit with the model ($\chi^2(188) = 202.848$, $\chi^2/df = 1.076$, SRMR = 0.039, GFI = 0.958, AGFI = 0.943, NFI = 0.958, RFI = 0.948, CFI = 0.997; TLI = 0.996; RMSEA = 0.014) ([Hu and Bentler, 1999](#)). The reliability and convergent and discriminant validity of the constructs were tested to confirm the adequacy of the measurement model. Reliability was checked using composite reliability (CR) scores. [Table 2](#) shows that all CR scores range from 0.75 to 0.88 and thus exceed the threshold level of 0.70 ([Hair et al., 2011](#)). Convergent validity was examined by two standards recommended by [Fornell and Larcker \(1981\)](#): (1) all factor loadings should be significant and greater than 0.70; (2) average variance extracted (AVE) by each construct should exceed the variance due to measurement error for the construct (i.e. AVE value should exceed 0.50). Factor loadings for all items are significant and above 0.70, and values of AVE also exceed 0.50 ([Fornell and Larcker, 1981](#); [Hair et al., 2011](#)). Only one item (Item 3 of distrust) holds a factor loading below the cut-off of 0.70; thus we delete it from subsequent analysis. The AVE values range from 0.50 to 0.82, which surpass the threshold of 0.50, thus satisfying both conditions for convergent validity. The discriminant validity was checked by two tests. First, the correlations among constructs should be below the cut-off of 0.85 ([Kline, 2005](#)). Second, the square root of AVE should exceed the correlations of a construct with other latent constructs in the model ([Fornell and Larcker, 1981](#)). The measurement model results fulfill both of the criteria (see [Table 3 and Table 4](#)).

Table 3
Statistics of confirmatory factor analysis (n = 417).

Construct	Indicator	Statement	SFL	CR	AVE	α
Fake identity	ITEM 1	People writing online hotel reviews are not necessarily the real customers	0.727***	0.84	0.67	0.847
	ITEM 2	People write online hotel reviews pretending they are someone else	0.873***			
	ITEM 3	Different online hotel reviews are often posted by the same person under different names	0.854***			
Ulterior motivation	ITEM 1	Online reviewers care more about getting you to buy things	0.850***	0.79	0.68	0.861
	ITEM 2	Most online hotel reviews are intended to mislead	0.837***			
	ITEM 3	People writing online hotel reviews are always up to something.	0.778***			
Service failure attribution	ITEM 1	The hotel service is a failure because of fake hotel reviews	0.809***	0.76	0.55	0.816
	ITEM 2	I get the impression that I get bad hotel service because of the fake hotel reviews	0.770***			
	ITEM 3	Did you think the fake online hotel reviews had control over the service failure?	0.739***			
Distrust	ITEM 1	Online hotel reviews exaggerate the benefits and characteristics of hotel services	0.701***	0.79	0.50	0.74
	ITEM 2	Online hotel reviews use misleading tactics to convince consumers to book hotel rooms	0.686***			
	ITEM 4	Online hotel reviews on travel websites attempt to persuade you to buy hotel services that you do not need	0.715***			
	ITEM 3	Online hotel reviews on travel websites attempt to persuade you to buy hotel services that you do not need	0.715***			
Psychological discomfort	ITEM 1	After getting deceived in hotel bookings by trusting online reviews, it makes me disappointed.	0.723***	0.83	0.57	0.832
	ITEM 2	After getting deceived in post-purchase hotel services by trusting online reviews, it makes me annoyed.	0.791***			
	ITEM 3	After getting deceived in post-purchase hotel services by trusting online reviews, it makes me guilty.	0.813***			
	ITEM 4	After getting deceived in post-purchase hotel services by trusting online reviews, it makes me self-critical.	0.701***			
Negative electronic word-of-mouth	ITEM 1	I would be likely to complain about hotel service and fake hotel reviews to other people	0.905***	0.88	0.82	0.93
	ITEM 2	I intend to say negative things about hotel service and fake hotel reviews to people I know	0.910***			
	ITEM 3	I would be likely to bad-mouth hotel service and fake hotel reviews to other people	0.902***			
Repeat purchase intention	ITEM 1	I anticipate repurchasing hotel services from the same travel website by following online reviews in the near future	0.807***	0.75	0.65	0.87
	ITEM 2	It is likely that I will repurchase hotel service by following online reviews in the near future	0.830***			
	ITEM 3	I expect to repurchase hotel service by following online reviews in the near future	0.776***			

Note: SFL = Standardized factor loadings, CR = Composite reliability, AVE = Average variance extracted, α = Cronbach's alpha.
*** $p < 0.001$.

5.1.1. Common method variance estimations

Because of cross-sectional data and the single source of data collection, we checked for common method variance (CMV) estimations using Harman's single-factor test (Podsakoff et al., 2003). We checked for the amount of spurious covariance shared among variables because of a common method used in data collection. An exploratory factor analysis of all constructs' items revealed that the first two factors cumulatively account for 54.194% of the variance in constructs, with the first factor accounting for 36.428% and the second factor explaining 17.765% of the total variance. The single factor did not account for the majority of the variance, which indicates that the common method bias does not affect our data.

5.2. Structural model

5.2.1. Assessment of research model fitness

For the assessment of our proposed model fitness, we followed Hooper et al. (2008) classification of the goodness of fit indexes: (1)

Absolute Fit Measures; (2) Incremental Fit Measures; and (3) Parsimonious Adjusted Measures. To measure the goodness of fit indexes, the measures suggested by Schreiber (2008) were used. First, to confirm the Absolute Fit Measures, this study used four indexes: (1) Chi-square/degree of freedom (χ^2/df), wherein the value of χ^2/df should be below the cut-off of 3.0; (2) RMSEA, wherein the RMSEA value of below 0.08 shows a good fit (Hu and Bentler, 1999); (3) GFI, wherein a value of 0.90 or above indicates a good fit (Hu and Bentler, 1999); and (4) AGFI, wherein a value of above 0.80 indicates an acceptable fit to model (MacCallum and Hong, 1997). The results output generated through Amos are as follows; $\chi^2/df = 2.483$, RMSEA = 0.059, GFI = 0.915, and AGFI = 0.891, thus indicating good fitness to the model. Second, indexes for the Incremental Fit Measures include the Normed Fit Index (NFI), the Incremental Fit Index (IFI), the Comparative Fit Index (CFI), and the Relative Fit Index (RFI). The values for all these fit indexes should be greater than the threshold of 0.90 (Hu and Bentler, 1999). The results output generated through Amos is as: NFI = 0.915, IFI = 0.947, CFI = 0.947, and RFI = 0.901. Additionally, the

Table 4
Descriptive statistics and evidence of discriminant validity.

Construct	Mean	SD	VIF	1	2	3	4	5	6	7
1	3.39	0.99	1.361	0.82						
2	2.96	1.14	1.404	0.471**	0.83					
3	3.43	0.95	1.124	0.274**	0.245**	0.74				
4	3.15	0.72	1.877	0.221**	0.336**	0.198**	0.71			
5	3.31	0.88	1.726	0.247**	0.227**	0.173**	0.637**	0.76		
6	3.43	1.20	1.268	0.078	0.100*	0.131**	0.292**	0.223**	0.80	
7	2.78	1.27	1.102	0.301**	0.441**	0.155**	0.219*	0.134**	0.097*	0.91

Note: 1 = Fake identity, 2 = Ulterior motivation, 3 = Service failure attribution, 4 = Distrust, 5 = Psychological discomfort, 6 = Repeat purchase intention, 7 = Negative electronic word-of-mouth.

The bold numbers in diagonal row are square roots of AVE.

** $p < 0.01$.

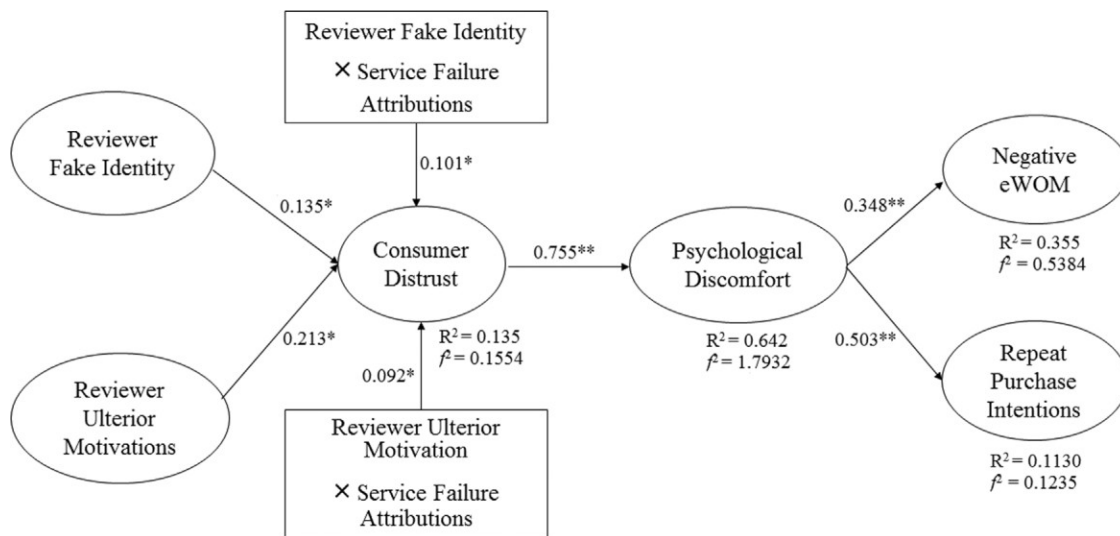


Fig. 1. Confirmation of our research model.

Notes: n = 417, *, **, *** Significant at 5%, 1%, 0.1% respectively.

Parsimonious Adjusted Measures include the Parsimony Comparative Fit Index (PCFI), the Parsimonious Normed Fit Index (PNFI) and the Parsimonious Goodness of Fit Index (PGFI). The values of PCFI, PNFI, and PGFI should exceed 0.50 for a good fit to model (Hu and Bentler, 1999). The Amos output results are as follows: PCFI = 0.814, PNFI = 0.786, and PGFI = 0.708. Overall, the aforementioned results indicate that the structure of the proposed model efficiently characterizes the relationships between constructs (Hair et al., 2011).

5.2.2. Hypotheses results

SEM was employed to test hypothesized relationships. All path coefficients are shown in Fig. 1. We checked for potential multicollinearity issues in the data set through SPSS. All the obtained variance inflation factor (VIF) values range from 1.102 to 1.877, which is below the recommended threshold of 3.0, thereby indicating that multicollinearity will not be an issue in our model (see Table 4). The results of hypotheses testing indicate that reviewer fake identity had a positive effect on distrust ($\beta = 0.135$, $t = 1.730$, $p < 0.01$), so H1 was supported. H2 was also supported because reviewer ulterior motivation also shows significant positive effect on distrust ($\beta = 0.213$, $t = 4.532$, $p < 0.01$). The distrust shows a strong positive impact on psychological discomfort ($\beta = 0.755$, $t = 10.820$, $p < 0.01$), thus we accept H3. H4 was also accepted because psychological discomfort positively affects negative electronic word-of-mouth ($\beta = 0.348$, $t = 3.439$, $p < 0.01$). The most prominent result to emerge from the data is that psychological discomfort exerts a positive effect on consumers' repeat purchase intentions ($\beta = 0.503$, $t = 4.994$, $p < 0.01$). Therefore, H5 was rejected because of contrary findings to the developed hypothesis (see Table 5 for details).

Furthermore, Fig. 1 also shows the predicting power (R^2) for each dependent variable. Conventionally, the value of R^2 indicates the percentage of total variance in the dependent variable explained by the independent variables. The results show a 13.5% of total variance in distrust, 64.2% in psychological discomfort, 35.5% in negative electronic word-of-mouth, and 11.30% in repeat purchase intention. However, the values of R^2 were above the recommended cut-off criterion of 10% proposed by Falk and Miller (1992). Furthermore, we also checked for Cohen's (1988) effect size (f^2) to examine the substantive effect of our research model. It is defined as "the degree to which the phenomenon is present in population." Cohen's (1988) suggested f^2 values of 0.02, 0.15, and 0.35 are small, medium, and large, respectively. Thus our model suggests that distrust ($f^2 = 0.1554$) and repeat purchase intention ($f^2 = 0.1235$) had medium effect sizes,

whereas psychological discomfort ($f^2 = 1.7932$) and negative electronic word-of-mouth ($f^2 = 0.5384$) had a large effect size.

5.2.3. Moderation and simple main effects

The moderation of the metric variable is checked through interaction effects using SPSS. In this process, we checked for main direct effects of independent variables and the moderating variable on the dependent variable. We did it separately for reviewer fake identity and ulterior motivation because service failure attribution moderates both of their relationships with distrust. First, the direct effect of fake identity on distrust is statistically significant ($F = 12.797$, $p < 0.001$), and the interaction effect between reviewer fake identity and service failure attribution (fake identity \times service failure attribution) on distrust is also statistically significant ($\beta = 0.101$, $t = 2.007$, $p < 0.05$). Likewise, we also found a significant main effect of ulterior motivation on distrust ($F = 28.666$, $p < 0.001$) in that there is a significant interaction effect between reviewer ulterior motivations and service failure attribution (ulterior motivation \times service failure attribution) on distrust ($\beta = 0.092$, $t = 1.994$, $p < 0.05$). Because significant interaction effects were obtained, we further checked for simple effects to explore the nature of interactions. For this, we followed Aiken and West's (1991) suggestions. The data for moderator variable were divided into low and high groups using dummy variables. We checked for the effect of reviewer fake identity and ulterior motivations on distrust at both low and high levels of service failure attributions. As expected, reviewer fake identity had a positive effect on consumer distrust when consumers had high levels of service failure attributions ($\beta = 0.201$, $t = 3.935$, $p < 0.001$). Surprisingly, reviewer fake identity was negatively related to consumer distrust when consumers had low levels of service failure attributions ($\beta = -0.187$, $t = -3.395$, $p < 0.001$). Likewise, reviewer ulterior motivation had a positive relationship with consumer distrust when service failure attributions are high ($\beta = 0.213$, $t = 4.158$, $p < 0.001$), whereas there was a negative relationship between reviewer ulterior motivation and consumer distrust when service failure attribution is low ($\beta = -0.165$, $t = -3.427$, $p < 0.001$). Additionally, we examined for differences between the two levels (low and high). The difference of the slopes was also significant in both cases of reviewer fake identity ($t = 4.798$; $p < 0.01$), and ulterior motivation ($t = 4.111$; $p < 0.01$). Thus, H6 and H7 were supported.

Table 5
Results of hypotheses.

Path	Standardized estimate	t-Statistic	p-value	Relationship
Reviewer fake identity → Consumer distrust	0.135 [*]	1.730	< 0.01	Supported
Reviewer ulterior motivation → Consumer distrust	0.213 ^{**}	4.532	< 0.01	Supported
Consumer distrust → Psychological discomfort	0.755 ^{**}	10.820	< 0.01	Supported
Psychological discomfort → Negative electronic word-of-mouth	0.348 ^{**}	3.439	< 0.01	Supported
Psychological discomfort → Repeat purchase intention	0.503 ^{**}	4.994	< 0.01	Not supported
	Structural model		Cut-off value	
Model fit statistics	Chi-square = 365.098 d.f. = 147 p-value = 0.0000			
Absolute fit measures	Normed chi square = 2.483 RMSEA = 0.059 GFI = 0.915 AGFI = 0.891		1.0–3.0 < 0.08: good fit > 0.90 > 0.80	
Incremental fit measures	NFI = 0.915 IFI = 0.947 CFI = 0.947 RFI = 0.901		> 0.90 > 0.90 > 0.90 > 0.90	
Parsimonious adjusted measures	PCFI = 0.814 PNFI = 0.786 PGFI = 0.708		> 0.50 > 0.50 > 0.50	

** p < 0.01.

* p < 0.05.

6. Discussion

6.1. Major findings

Most scholars in this area agree that consumer distrust stands as one of the inhibiting factors in the success of a business. Consumer distrust has drawn intense interest from scholars and business practitioners in a wide range of online businesses since start of this century (Riquelme et al., 2016). In post-purchase service failure scenarios, factors related to online reviews and consumer attributions serve as important determinants in building distrust among consumers. Psychological discomfort, as a result of distrust, adds important perspective to overall consumer behavior toward companies, and is thus viewed as a critical factor in consumer psychological processes and further outcome behaviors.

The present study of distrust for online hotel reviews adds particular value to the Chinese as well as the international hotel industry, given that the hotel industry has observed rapid growth in China and outbound tourism has increased dramatically over the last decade. Further, the findings of this study also add great value for online travel websites as a large number of travelers use review information in their hotel bookings. We conducted this research specifically to improve understanding as to how reviewer attributes (i.e. fake identity and ulterior motivation) influence consumer distrust and how distrust further leads to negative consumer responses, which can be destructive to hotel firms and online businesses. Drawing on a rich stream of online reviews and hospitality and distrust literature, the present study develops a hierarchical-influence model of consumer distrust and achieved several major findings, as follows.

First, as anticipated, both reviewer attributes—fake identity and ulterior motivation—significantly determine consumer distrust towards online hotel reviews, but ulterior motivation plays a larger role in forming distrust than fake identity. These results are consistent with previous studies of online reviews by Reimer and Benkenstein (2016) and Qiu et al. (2012). Based on the assumption that review message recipients use social information about the source of the review as a heuristic cue to judge the credibility of message (Chaiken, 1980), the results of the current study show that online reviews with fake account information on travel websites are considered as incredible by hotel consumers. That is, hotel consumers respond more positively to reviews

with genuine, personal reviewer information and give more weight to reviews with identifiable online sources. Moreover, our results are in complete agreement with the assumptions of Filieri (2016) and Hu et al. (2011), wherein the both reviewer factors are held equally important for online consumers. To some extent, our results suggest that hotel consumers have greater concerns about concealed and hidden motives of the reviewer behind review postings, and commonly scrutinize the intended motives. Overall, our results for the roles of reviewer attributes take in influencing message recipients' attitudes and behavior are in close agreement with information processing and marketing literature (Forman et al., 2008; Verlegh et al., 2013).

Our second major finding is that consumer-provoked distrust plays a significant role in creating psychological discomfort among consumers. Based on previous psychological and information processing conceptualizations that assume that distrust does not directly determine the behavioral responses of individuals, our results confirm that distrust, at the first stage, has a strong positive effect ($\beta = 0.755$) on consumer psychological discomfort. Our results suggest that distrust created by reviewer attributes is positively related to stress, anxiety, and distress conditions and thus corroborates the previous empirical findings (Chau et al., 2013; Riquelme et al., 2016; Xie et al., 2015). The plausible explanation is that highly stimulated distrust directly impairs consumers' well-being and intensifies the anxiety and stress level.

Third, psychological discomfort has a significant impact on consumer engagement with negative electronic word-of-mouth. These findings suggest that when consumers experience unfairness in their business exchanges with online travel websites and purchase of a hotel service, they attempt to minimize their losses through negative actions such as spreading negative electronic word-of-mouth reviews. In addition, noticeably, psychological discomfort shows a direct positive effect on repeat purchase intention. This finding coincides with the argument of Whan Park et al. (2010), which states that under certain circumstances, the general relationship between consumer dissatisfaction and switching intentions may not hold true. The primary cause of this unexpected results is that consumers focus more on demonstrating high self-brand connections and behavioral loyalty towards their favorite brands i.e. a particular hotel. This implies that customers are not completely dissatisfied and still have a psychological room to re-purchase a service from particular hotel firms by using online hotel reviews from travel websites.

Another major finding of the study is related to the moderating role of service failure attributions in post-purchase scenarios. Previous studies have concluded that the consumer service failure attributions process can predominantly be applicable to online reviews factors and consumer behavior (Browning et al., 2013; Nikbin et al., 2015). Our results suggest that service failure attribution was observed as a dominant factor in the development of consumer distrust processes. Noticeably, our research reveals an interesting finding that suggests that fake identity and ulterior motivations have stronger interaction effects when service failure attributions are high as compared to when they are low.

6.2. Theoretical contributions

This study makes some noteworthy contributions to online hotel reviews and distrust literature, particularly in hospitality settings. First, this study used the distrust paradigm from Kramer (1998) to support our research model in online reviews settings. Theoretical studies on distrust suggest that individuals develop an exaggerated distrust in informational environments (Kramer, 1998). In the same line, empirical investigations into online settings find that consumers develop an overly suspicious attitude after experiencing deceptions (Dark and Ritchie, 2007). However, the research fails to adopt these inflated distrust models as basis in electronic environments, particularly in hotel reviews. By developing a hierarchical-influence model of consumer distrust, our research has enhanced our understanding of consumer distrust. Second, prior research investigated distrust in various other online settings. Theoretical understandings of the effect of review source identity and motivation on information credibility and consumer trust is promising, but the theory is empirically less developed. Some empirical studies in advertising and human-computer interactions have investigated the effect of source identity and motivations (Forman et al., 2008; Xie et al., 2011). However, we cannot generalize those findings to explain the role of source identity and motivation in the present context. Contrary to prior research on message-based factors, this study contributes to the literature by taking a unique research initiative and examining consumer distrust from the perspective of two reviewer attributes (i.e. fake identity and ulterior motivation). Third, prior empirical studies predominantly considered distrust as a holistic component of consumer behavioral intentions. That is, they examined the direct impact of distrust on consumer final behavioral outcomes such as satisfaction, loyalty, word-of-mouth, and switching intentions (Riquelme et al., 2016; Xie et al., 2015). The theoretical conceptualizations suggest that individuals' distrust does not always leads to intentions, the distrust first creates a dissonance-like state among individuals. Similarly, little empirical evidence draws attention to the fact that consumer distrust does not always lead to behavioral intention (Zhang et al., 2016). Therefore, the present study addresses this line of research, extends the prevailing relationships of distrust, and examines the direct relationship of consumer distrust to psychological discomfort and indirect relationships with consumer engagement to negative electronic word-of-mouth and repeat purchase intentions. The addition of psychological discomfort as a consumer psychological state factor between distrust and the consumer final response meaningfully contributes to the literature by looking into the consumer mindset in a logical and step-by-step process.

Fourth, the consumer behavior literature suggests that consumers evaluate services by keeping in mind their sentimental and self-brand connection elements (Whan Park et al., 2010). The brand association elements have not been given fair scholarly attention. Therefore, this study is a first step toward enhancing our understanding by examining consumer responses at two opposite ends, i.e. engagement in negative electronic word-of-mouth and repeat purchase intentions. Fifth, few scholars have examined the role of service failure attributions in consumers' evaluation of online reviews (Sen and Lerman, 2007; Weber and Sparks, 2010). Beyond service recovery and customer satisfaction

scenarios, the present study extends the scholarship, takes a novel approach, and employs the role of hotel service failure attribution in the online reviews context. Based on attribution paradigms, we build a relationships for moderating role of service failure attributions and draw hypotheses. We examine the facilitating role of service failure attributions in strengthening the distrust generation processes, which has been overlooked in the past. Overall, this study extends the role of service failure attribution in terms of its role (i.e. moderating variable) and context (i.e. online reviews). Sixth and last, in terms of the location of the study, China has the fastest growing hotel industry market in the world. Due to different cultural values and market conditions between China and Western countries, this paper provides useful empirical evidence on Chinese consumer behavior. The hotel industry in China has entered an unprecedented period of rapid development. The rapid expansion of international hotel chains in China including Hilton, Holiday Inn, and Marriott makes competition fiercer than ever. Therefore, greater insights into Chinese consumers' behavior should be of value to Chinese hotel brands as well as to international hotel franchisors who seek business expansion. In this regard, findings from the largest market in the world can be generalized to a wider group of populations.

6.3. Practical implications

6.3.1. Travel websites

This study has several important implications for online travel websites and hotel firms for their development of successful marketing strategies. Findings suggest that travel review sites should demand biodata and disclose complete registration details of information providers as steps toward more transparent reviewer's identity, which would likely positively influence perceived trustworthiness. To overcome identity manipulation, registration data should be properly interpreted by specialists known as "Data Scientists." To protect reputation, websites should warn customers of potentially fake reviews. For example, TripAdvisor warned customers with the statement; "TripAdvisor has reasonable cause to believe that either this property or individuals associated with the property may have attempted to manipulate our popularity index by interfering with the unbiased nature of our reviews. Please take this into consideration when researching your travel plans." (ABC News, 2016). Our findings emphasize the importance of such endeavors. To handle concealed motives, travel websites should develop an elite award rating system by giving higher ratings to reviews with higher quantity and helpfulness of a review. Online travelers could then trust authorized elite award reviewers when making decisions. To detect suspicious reviews, travel websites should scrutinize a user's purchase and review submission history. Often, fake reviews are unbalanced. Therefore, data mining techniques could be useful in drawing out users' hidden motivations. A team of TripAdvisor professionals detected fake reviews by using specialized software and algorithms for filtering suspicious postings. Moreover, travel websites such as TripAdvisor, Ctrip, Bookings.com, and Qunar.com could adopt Wikipedia's editorial system, where editors monitor the quality of content before posting it for user reading. To overcome consumer distrust, travel-related websites must offer personalized offers and tailored recommendations. To personalize an offer, travel websites should adopt online strategies similar to those used by Google and Amazon, and implement technologies to gather important customer data. These steps can reduce information overload that occurs when customers receive a huge number of offers as well as increase offer relevancy. Resultantly, consumers may have a good experience, resulting in a higher conversion rate.

6.3.2. Hotel firms

Hotel managers should constantly monitor online reviews and immediately report suspicious or manipulated information to travel websites and requests its removal. For example, a recently reopened

hotel ‘The Savoy’ had reviews dating back to 2003 and bears no relevance to the current hotel offers. Upon complaint, TripAdvisor promised the hotel it would change its listings. Moreover, travelers have developed sharper skills in identifying deceitful reviews and are aware that reviews can be manipulated. For example, a customer of Booking.com complained about a hotel manager misusing her personal information (PIN number and booking reference) and posting a favorable review with her name ([The Telegraph](http://TheTelegraph.com), 2016). Therefore, hotel managers should be advised not to post favorable reviews; this risky strategy can pay off in the short-term with a few immediate purchases (i.e. low involvement), however in the long run, it can be a perilous step and result in losing high-involvement customers and experienced users of online reviews when customer trust in hotel firms is compromised. To avoid harmful effects of fake reviews and win consumer trust, hotel firms should have a solid reputation management strategy. Hotels should have a robust social media presence and capitalize on personal relations. Managers can remind satisfied customers to post a favorable review on popular travel reviews websites. A balanced and accurate reply to reviews could work in building reputation. Managing guests’ online reviews and investing in a solid digital advertising strategy could capture potential travelers. When there are service failures, firms’ prompt actions, apologies, and willingness to compensate in the future in the form of travel discounts and premium packages could neutralize negative customer experiences. Reduction of self-serving bias will decrease negative reactions such as anger and negative word-of-mouth. A proactive brand recovery strategy, including improvement in services and increasing guest satisfaction and good experiences, will result in more positive postings. In addition, due to their critical role in customers’ evaluations of hotel service, hotel firms should improve core services by identifying, designing, and maintaining quality in core service elements. Offering superior service can lessen the impact of negative reviews on brand and reputation of firms. Notably, Four Points by Sheraton fired a service employee after a bad review posted by a dissatisfied guest about that particular employee. Therefore, firms should recruit and train staff with a strong customer focus that encourages them to provide high-quality service. This way, companies will face fewer online attacks in the form of negative electronic word-of-mouth and enjoy higher future service transactions. To cope with negative reviews, hotel firms should demand consumer feedback data from travel websites that allow them to identify key areas that need corrective actions. A personalized client-centric communication system and guest relations program should be adopted for efficient customer contacts. Timely remedial actions should be taken to regain customer satisfaction, increase the probabilities of repeat purchases, and convert unhappy customer experiences into favorable word-of-mouth accounts in online consumer forums. Further, hotels need to consider strong damage control strategies in response to consumer negative electronic word-of-mouth.

7. Limitations and future research

Next, we will consider several limitations in the study and offer future research directions. First, the present study measures consumer distrust from the perspective of two reviewer attributes, and we are able to find significant effects of these factors on consumer distrust. However, including only reviewer-based factors restricts the generalizability to broader online reviews settings. Future work could focus on exploring the influence of message-based factors (e.g. online reviews diversity) and website-based factors to obtain greater variance in distrust. Further, we encourage future researchers to account for other factors i.e. physical proximity, psychological distance, and recipient attributes in assessing consumer distrust. Second, this study is limited to one type of distrust so we recommend modeling other types of distrust (i.e. competence distrust, integrity distrust, and benevolence distrust) in future work. Third, the present study relies on cross-sectional data, and in order to validate causal mechanisms here, future research needs to

include longitudinal data. Fourth, this research setting includes one Tier-1 city of China (Beijing). Given the potential differences in culture and market conditions, customers in developed market are likely to respond differently. Whether results are generalizable to other countries deserves further investigation to establish whether our research model differs across borders (i.e. high- vs low-cultural context). Finally, this research studies only the hotel service industry. Further research in other service industries such as restaurant, airlines, and healthcare is necessary to establish the robustness of our research model.

8. Conclusions

Our work has led us to conclude that online hotel reviews are an important source of information that influences consumer behavior and decisions. Particularly in the realm of online hotel reviews, the present study contributes further theoretical and practical knowledge to the literature by addressing how various factors contribute to consumer distrust and considering several outcomes of consumer negative responses.

The results of this study stress the importance of two online reviewer attributes, reviewer fake identity and ulterior motivation, in increasing distrust. We find a strong moderating effect of service failure attribution between reviewer attributes and consumer distrust. In other words, this study explains that influence of reviewer attributes on distrust depends on consumer attribution for post-purchase hotel service failure. These relationships show that consumers rely on reviewer attributes as heuristic cues to facilitate information processing and to decide whether to trust or distrust a particular hotel review. In addition, consumers use their attributions for service failure as a decisive factor in determining distrust attitudes. We provide further evidence that stimulated distrust predominantly creates negative consumer outcomes by increasing consumer engagement in negative electronic word-of-mouth and lowering repeat purchase intentions. Overall, our proposed hierarchical-influence model provides a detailed examination and useful insights on consumer perceived deception behavior in situations of online biases and web frauds, which have not been investigated in past.

In today’s era of big data, our results have valuable implications for both hotel firms and online travel websites. By carefully following the suggestions of this study, industry practitioners can make better use of consumer information and reviews content and thereby offer value-added services to both existing and potential customers. Consequently, customer trust, satisfaction, and loyalty will increase, and the business will stand out from competitors.

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