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Buyer beware : consumer response to manipulations of online product reviews

Mengzhou ZHUANG

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BUYER BEWARE: CONSUMER RESPONSE TO MANIPULATIONS OF
ONLINE PRODUCT REVIEWS

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BUYER BEWARE: CONSUMER RESPONSE TO MANIPULATIONS OF
ONLINE PRODUCT REVIEWS

by
ZHUANG Mengzhou

A thesis
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ABSTRACT

Buyer Beware: Consumer Response to Manipulations of Online Product Reviews

by

ZHUANG Mengzhou

Master of Philosophy

Online product reviews have become an important and influential source of information for consumers. Firms often manipulate online product reviews to influence consumer perceptions about the product, making it a research topic of urgent need for theory development and empirical investigation. In this thesis, we examine how consumers perceive and respond to the three commonly used manipulation tactics. Firstly, an exploratory pre-study via in-depth interviews with online shoppers indicates that consumers commonly have the knowledge for online review manipulations as well as for detecting them. In the first study, a survey was used to investigate the three popular manipulation tactics in terms of ethicality and deceptiveness. They rated hiding/deleting unfavorable messages as the most deceptive and unethical, followed by anonymously adding positive messages, and then offering incentives for posting favorable messages. In study 2, in a simulated field experiment, we introduce persuasion knowledge to further examine the negative influence of review manipulations on consumers' attitudes. The results suggest that review manipulation increases suspicion of manipulations but can hardly reduce purchase intention of focal products. We also find that consumers' persuasion knowledge enhances suspicion of manipulation, but lessens the negative impact of suspicion on purchase intention. The third study uses secondary data of a branded e-retailer and its third party website to cross-validate the effect of manipulations on product sales. The results confirm our hypotheses that review manipulation are effective in promoting sales; however, this influence would decrease over time.

This research contributes to the online marketing literature by augmenting the Information Manipulation Theory and Persuasion Knowledge Model to examine the deceptive persuasion in the online context and its impact on consumer behavior. Furthermore, we also contribute to the literature of online WOM by empirically examining the influence of review manipulations on sales. Our findings provide valuable insights to practitioners and policy makers on the pitfalls of online manipulation activities and the need to ensure the healthy development of

e-commerce.

DECLARATION

       I declare that this is an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

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(ZHUANG MENGZHOU)

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Date

CERTIFICATE OF APPROVAL OF THESIS
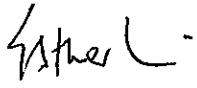
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Master of Philosophy

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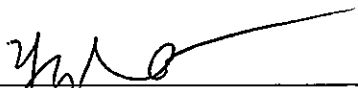My deepest gratitude and admiration go first and foremost to my chief supervisor Professor CUI Geng, Co-supervisor Professor LIU Liming and my dear Co-author Dr. PENG Ling, for their constant encouragement and guidance during period at Lingnan University. I really appreciate the opportunities they offered me to walk through the two years of fruitful life. Without their consistent and illuminating instructions, this thesis could not have reached its present form.

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Chapter 1 Introduction

1.1 Problem Definition

There is growing evidence that consumers are influenced by online product reviews when making a variety of purchase decisions (Chevalier and Mayzlin, 2006; Cui et al., 2012; Sen and Lerman, 2007; Senecal and Nantel, 2004). The recent rise in online word-of-mouth is dramatically changing the world of marketing. To reduce the information asymmetry between sellers and buyers, systems such as user rating, user recommendation and discussing groups are introduced to encourage experienced consumers to express their opinions. These tools help the inexperienced individuals to evaluate the focal products, eventually, ameliorate the information asymmetry in online shopping context.

However, evidence suggests that online WOM may be intentionally manipulated by interested groups such as retailers, manufacturers and competitors to influence consumers' evaluations (Dellarocas, 2006). For example, in February 2004, Amazon.com's Canadian website mistakenly revealed the identities of the book reviewers, and people found out that a great proportion of reviews and ratings were posted by the book's publishers, authors or its competitors (Harmon, 2004). Multinational companies such as Bayer, Levi's, Starwood Hotels, Mazda, KFC and Kraft have all employed buzz techniques for their products to influence consumers' purchase decisions (Mayzlin, 2006). If one carefully examines the review system of famous e-retailers such as Amazon.com, people may find cues of manipulation such as fraud reviews. An example is shown in Figure 1. It is obvious that consumer whose ID is "ATVPDKIKXDDER" continuously posted extremely positive reviews (5-star reviews) to a single product within a week.

<div align="center">(Insert Figure 1 here)</div>

Other than posting fraudulent reviews, monetary incentives and deleting negative WOM are also commonly adopted methods of review manipulation. For instance, the publisher *Elsevier* offered people $25 gift cards for positive reviews of textbooks (Northrup, 2009). In exchange of a monthly fee, Yelp allegedly offered to move a business's negative reviews to the bottom of its Yelp page, where users cannot easily access (Morrison, 2011). A few e-commerce and forum operators, such as Amazon and Yelp, have installed sophisticated algorithms to detect and filter out the fake reviews, while businesses are rallying against such practices, which may remove

some totally legitimate and authentic reviews (Morrison, 2011).

By definition, review manipulators could be vendors or other interested groups who intentionally manipulate the online reviews information in order to boost the sales of their products (Dellarocas, 2006; Hu et al., 2012). Broadly speaking, manipulations could be categorized into three types—(1) anonymously posting promotional messages (we refer as *adding*), (2) Hiding or deleting unfavorable messages (we refer to as *deleting*), and (3) offering incentives to consumers who post favorable reviews (we refer to as *incentives*) (Dellarocas, 2006; Mayzlin, 2006; Hu et al., 2011a). Even though other variations such as posting fake negative reviews to competitors' products may also be considered as review manipulation, the core idea is to increase the retailer's own relative average rating, i.e., decreasing competitors' average rating in order to make one's own products more competitive. As our focus is on the manipulations by retailers to influence consumers, we would exclude the manipulations of reviews among competitors in our study. By adopting these manipulator-consumer strategies, manipulators could either increase the average WOM rating or decrease the amount of negative information.

In a short term, firms may benefit from review manipulations: the increased ratings induce consumers to generate inaccurate products evaluations. Comparing with the short-term profits, the long-term consequences are damaging. From the perspective of firms, online review manipulations lower the credibility of retailers and start the "rat race" among competitors in the whole industry (Dellarocas, 2006). From the perspective of consumers, manipulated reviews lead them to make suboptimal choices, and further distrust online WOM (Mayzlin et al., 2013). Therefore, firms as well as society would be better off there is no manipulation at all, and how to eliminate the influence of the review manipulations is important for both consumers and policy makers.

In this thesis, focusing on these issues, we examine the effects of online review manipulation from the perspective from (1) the distinctions among different manipulation strategies, (2) consumers' response to review manipulations and (3) effectiveness of review manipulations. In addition, managerial implications would be raised both for managers and the market regulators.

1.2 Study Rationale

How consumers respond to online review manipulations is one of the most

interesting and important issues, especially when online review manipulations become popular in e-market. Manipulated reviews generally distort the information in user-generated contents (UGC), which induce consumers to make less beneficial choices. These distortions may increase sales and product evaluations that are profitable to the sellers, whereas the sellers may also suffer from consequences such as credit loss. Although evidences show that review manipulations become increasingly popular among retailers, related regulations or laws are remained to be established, making it a worthy research topic. Previous research focuses on only specific categories such as fake reviews (Kornish, 2009; Hu et al., 2011a, 2011b, 2012; Mayzlin et al., 2013) and paid reviews (Stephen et al., 2012). However, interesting questions could still be asked and remained to be explored: Are all kinds of manipulation equally effective in increasing sales? Would consumers dislike some tactics more than others? These questions should be of great importance for sellers to realize of the potential pitfalls of manipulations and for policy makers to minimize the damage of such deceptive activities.

One of the key issues should be consumers' attitudes toward different manipulation tactics. The three popular manipulation tactics relate to different aspects of online reviews. To the specific, the strategy of "anonymously adding positive reviews" mainly deals with fake positive reviews to increase the rating and the volume of reviews, while the "hide/delete negative reviews" strategy eliminates the reviews that are unfavorable to the manipulators and therefore increase the average rating but decrease the volume of reviews; the third method "offering incentives to the reviews who post positive reviews" increases the rating by intentionally inducing consumers to post "better" reviews than they should have posted. Previous literature suggests that, according to their emphasis on different information, consumers may disparately evaluate the three types of manipulations and the differentiations are crucial to the successful implementation of review manipulations (e.g. Johnson et al., 1993; Robinson, 1996; Robinson and Morrison, 2000; Johnson et al., 2001). In our study, we would like to clarify the diversifications of consumers' attitudes toward different manipulation tactics.

Figuring out consumers' knowledge and reactions should be another intriguing topic. Previous literature shows that consumers, especially experienced ones, have the capability to tell deceptions from facts (e.g. Biros et al., 2002). However, different

from the traditional context, online review manipulations are 1) non-interpersonal: the message senders are not one specific person but several individuals including retailers and other consumers and 2) low media-richness: the messages could only be transmitted through low-richness media such as texts and figures which contains only verbal information. Due to the characters of online communication, clarifying how consumers behave when encountering review manipulation in such a context should be interesting and important.

The third important issue is to empirically examine the effectiveness of review manipulations as a marketing strategy. Prior literature has empirically investigated the situations where manipulations are most likely to occur (Hu et al., 2012; Mayzlin et al., 2013). In the perspective of manipulators and policy makers, the impacts of review manipulations on products sales should also be of great value to them. Although evidences show that review manipulations are popular among e-tailers, no such empirical evidences show that review manipulations are well-performed as a marketing strategy. Therefore, we would also like to empirically investigate the relationship between manipulation intensity and sales of products.

To sum up, even though prior research mainly cover the issues such as why retailers manipulate product reviews and who are most likely to be the manipulators, limited research directly examine the topic from the perspectives we mentioned above. To more specifically analyze the topic of review manipulations, we would further investigate it from several unexplored aspects in order to provide insightful implications for both practitioners and academic researchers.

1.3 Research Objectives

In this research, we mainly want to answer the following questions: (1) Are all types of manipulations indifferently considered? (2) How consumers react to these behaviors? (3) How does review manipulation perform as a marketing strategy? By answering the three questions, we would significantly contribute to the literature in areas such as Information Manipulation Theory, Persuasion Knowledge Model and online review manipulations. These contributions are expected to provide valuable insight to practitioners and policy makers on the pitfalls of manipulations and to ensure the healthy development of e-commerce.

Firstly, we extend a framework of Information Manipulation Theory (IMT), which distinguishes deceptive messages, to the context of review manipulation.

Information Manipulation Theory offers a multidimensional approach to understand deceptive message. While most of the IMT research mainly focuses on the traditional interpersonal deceptions, no research examined its validity in the online situation. With IMT, we would be able to differentiate the three popular tactics in terms of deceptiveness and ethicality.

Secondly, we also introduce Persuasion Knowledge Model (PKM) into manipulation responses. Persuasion Knowledge Model refers to consumers' intuitive theories or beliefs about how marketers try to influence them, and under certain conditions, they use these beliefs to counter persuasion attempts (Friestad and Wright, 1994). Here we not only considered that persuasion knowledge could explain how manipulated reviews arouse negative emotions, but also documented how they appropriately cope with suspicious reviews and adjust their attitudes.

Finally, given the empirical data, we also explore the performances of review manipulations on product sales. We seek out supporting evidence for the facts that increased ratings would promote sales of products and the correlations over time. Managerial implications are raised to help managers and policy makers to further understand review manipulations. Through understanding consumers' views and responses toward review manipulations, we point out several useful implications for the practitioners and regulators as to minimize the consequences of such behaviors.

1.4 Thesis Organization

In the thesis we attempt to explore online attitudes and influences of product review manipulations. The thesis is organized as follows: in chapter 1 we introduce the background knowledge, research rationale and the objectives of our research. In chapter 2, we review prior literature in online WOM, review manipulations, unethical marketing behaviors and online deception detection. An exploratory study of consumers' attitudes and views toward manipulations are included in chapter 3. In chapter 4, theoretical framework would be presented and testable hypotheses are raised. In chapters 5, 6 and 7, the designs and results of three empirical studies are presented to test our hypotheses. Finally, general discussion, managerial implications, limitations and future research directions are included in chapter 8.

Chapter 2 Literature Review

2.1 The Influence of Online Reviews

From the traditional brick-and-mortar environment to the updated multi-channel environment, Word-of-Mouth is long perceived as an important indicator of product sales and brand reputation. Information of online reviews contains several dimensions as rating (Chevalier and Mayzlin, 2006), volume of reviews (Duan et al., 2008) and variance (Godes and Mayzlin, 2004). Academic researchers have examined online WOM from the perspectives of online product reviews on product sales and marketing strategies (e.g., Chen and Xie, 2005; Chen et al., 2011; Chevalier and Mayzlin, 2006; Godes and Mayzlin 2004; Forman et al., 2008; Ghose and Iperiotis, 2010; Cui et al., 2012), the usefulness of online reviews for decision making (e.g. Sen and Lerman, 2007; Smith et al., 2005; Zhu and Zhang, 2010), the value of online consumer reviews in sales forecasting (e.g. Dellarocas et al., 2007; Dhar and Chang, 2009), and consumers' motivations for reviews posting (Hennig-Thurau et al., 2004; Moldovan et al., 2006; Chen et al., 2011). The literature has suggested that 1) consumers increasingly depend on online product reviews to make purchase decisions, thus the quality and trustfulness of reviews available to read is important, and 2) the dimensions of online WOM information are correlates with product sales and suggest a great indicating or predicting power on new product sales.

However, researchers also found contradictory results for WOM rating. Neelamegham and Chintagunta (1999) examined the relationship between WOM and box revenue but no significant correlation was found. Liu (2006) suggested that   if the volume and rating are all considered, the amount of WOM accounts for mosexplanatory power of both aggregate and weekly box revenue, while rating is not a significant factor. Duan et al. (2008) also found that, after solving the endogeneity of WOM rating, the volume had better explanatory power than the rating. All these references show that explanatory power of WOM rating on sales is limited if other factors are considered.

People believe that the efficacy of rating could nonetheless be limited. First, WOM rating could only represent consumers' preferences, therefore average rating could only be a predictor but not a significantly influencer to the revenue (Eliashberg and Shugan, 1997). Second, reviews are posted with the personal biases and,

therefore, the attitudes of the majority cannot be accurately represented. In traditional WOM, extremely satisfied and dissatisfied customers are more likely to initiate WOM transfers (Anderson, 1998). Similar results are also found that "the pool of review" is mostly dominated by polarized reviewers, while neutralized consumers tend not to make contributions (Moe and Trusov, 2011), and that average ratings fluctuate as most of late posters are consumers with negative biases (Li and Hitt, 2008). Third, the efficacy of rating varies across different conditions. Previous studies suggested that WOM rating is more influential for the sales of less popular products (Zhu and Zhang, 2010) and for the late revenues (Reinstein and Snyder, 2005; Zhang and Dellarocas, 2006). Fourth, review manipulations may also influence the validity of review ratings. Interested groups intentionally manipulate the reviews in case that the negative reviews would hurt the sales of focal products, and therefore decrease the effectiveness of WOM rating (Dellarocas, 2006). As a result, these biases increase consumers' uncertainty about the product reviews (Zhao et al., 2013). To avoid the risk, consumers heavily discount their reliance on the online WOM before making decisions.

2.2 Online Review Manipulation

Online review manipulations are commonly used as marketing strategies in e-market, but direct evidence of manipulation cannot be easily obtained. Manipulators can hardly be identified and are afraid of confessing their unethical behaviors. Due to these difficulties, the early researchers mostly focus on analytical models and fraud review detection. The topic of online review is first explored by two analytical research which takes an initial step in finding the impact of online manipulation of product reviews on consumers and the firm using analytical models (Mayzlin, 2006; Dellarocas, 2006). Mayzlin (2006) built a game theory model in which two competing firms send anonymous messages praising their own product. She found an equilibrium that online WOM remains persuasive despite the promotional chat activity by competing firms, and inferior products are more likely to enjoy promotional chats. Dellarocas (2006) also analytically showed that fraudulent reviews are especially popular in certain conditions, and that manipulation could be beneficial by differentiating superior products with the inferior ones (inferior products are more manipulated). But in long run, manipulation would be detrimental to firms and the whole society. These two analytical works suggested that, even

review manipulation could be beneficial in specific contexts, its long-term consequences to the health development of e-market are serious and harmful.

Although direct evidence of manipulation is not accessible to most of academic researchers, the category of posting fake reviews are empirically studied by sentiment analysis, review distribution and proxies (Hu et al., 2011a, 2011b, 2012; Kornish, 2009; Mayzlin et al., 2013). Kornish (2009) developed three fake review distribution models and analyzed 5 sets of field data. The results document that fake review manipulation is not commonly dominant but still prevalent in some data sources. Hu et al. (2011a) analyzed the tendency of rating and attributed the decrease in rating overtime to review manipulations in early stage instead of bias in late reviews. They also found that the amount of manipulation correlates with the quality of the product and consumers could only partially correct the influence of rating manipulation. In another paper, Hu et al. (2011b) adopted the ratio of rating variance as proxy of manipulation. The analysis indicates that, in book market of Amazon.com, books of non-bestsellers with less helpful reviews, of higher retailing price and of high popularity are more likely to engage in fake reviews. In 2012, Hu et al. again used sentiment analysis to detect manipulation in review content, and the results indicated that consumers are only able to detect numerical manipulation (rating and volume) but not literal manipulations. Mayzlin et al. (2013) conducted an empirical research with difference-in-difference approach, in which they collected review data from 2 hotel-booking websites. They concluded that independent hotels are more likely to engage in fake positive review, while hotels with high-manipulation-incentive neighbors are more likely to suffer intentional negative reviews. The five empirical studies all focused on the manipulation strategy of adding fake reviews (positive, negative or both) and claimed that 1) fake reviews are prevent in different platforms, and 2) consumers can only partially detect theses deceptive reviews.

The influence of offering incentives to positive review posters is also investigated. Stephen and his colleagues (2012) found that disclosure of review payments induce doubts in product quality and decreases consumers' expectations about product quality. This paper attempts to distinguish itself from previous studies on seller manipulations by theoretically and empirically investigating the impact of different manipulation strategies might have on the consumers.

In sum, most of the research on review manipulations limited their definitions of

manipulation to manipulations such as posting fake reviews or offering incentives, and previous studies mostly focused on manipulation detection, characters of manipulators and persuasion of reviews.

2.3 Deceptive Practices in Marketing

Deception is an intentional or deliberate act that is accomplished by manipulating information in some way (Masip et al., 2004). Deceptive practices in marketing revealed in prior research mainly focused on the area of personal selling and advertising. Unethical personal sales tactics are defined as short-run salespersons' conducts that enable them to gain at the expense of the customer (Román and Ruiz, 2005). Examples of such activities include lying or exaggerating about the benefits of a product, availability, and the competition; selling products that people do not need; giving answers when the answer is not really known; and implementing manipulative influence tactics or high-pressure selling techniques (Lagace et al., 1991; Robertson and Anderson, 1993). As defined by the Federal Trade Commission (FTC) in the US, advertisements are deceptive if they are 1) factually incorrect; 2) subject to multiple interpretations, one of which is false; 3) guilty of omitting relevant information; 4) true, but the proof is false; 5) "literally" true but creates a false impression (Cohen, 1974). Both deceptive personal selling and deceptive advertising are illegal or morally unacceptable to the larger community (Jones, 1991). Previous studies have shown that they would decrease customer long-term satisfaction and brand loyalty (Darke et al., 2007; Román and Ruiz, 2005; Burke et al., 1988).

With the advent of e-commerce, the potential of new Internet technologies to mislead or deceive consumers has increased considerably. Xiao and Benbasat (2011) defined product-related e-commerce deceptive information practices as "the deliberate manipulation of product-related information perpetrated by online merchants to mislead consumers in order to induce desired attitudinal and behavioral changes in consumers" and "the changes are detrimental to consumers and beneficial to the merchants". The anonymity of the Internet has made it a fertile ground for deception. The digital environment lowers the effort for online companies to create and change information content as well as to manipulate the presentation and production of such information content in order to achieve deception. A few scholars demonstrate that individuals can manipulate the content of information simultaneously along several different dimensions such as completeness, clarity, and

veridicality, which correspond to the three deception types namely concealment, equivocation, and falsification, respectively (McCornack, 1992; Buller and Burgoon, 1996). By altering the availability and quality of information, online companies can manipulate the online product reviews at an e-commerce website so as to enhance consumers' evaluation of those particular products. These activities involve unethical marketing behaviors or even online deceptions that induce buyers to make suboptimal purchase decisions and long-termly, they may lead to negative consequences such as losses in reputation and consumer trustfulness.

2.4 Deception Detection

If review manipulations are unethical and harmful, then whether consumers are able to avoid being deceived should be of great importance for the manipulators and policy makers. Signal Detection Theory suggested that individuals would notice the deceptions through signals (i.e. cues of deceptions) (Davies and Parasuraman, 1982). To be specific, information that is tempered by manipulation of its content, presentation, and/or generation might provide a signal that could be received by the information receivers and activate their suspicion (Biros et al., 2002). The theory also specifies four possible outcomes that could be extended to deception detection: Hit (consumers detect deception when it does exist), Miss (consumers fail to detect deception when it does exist), False Alarm (consumers report deception when it does not exist) and Correct Rejection (consumers do not report deception when it does not exist). The two-dimension framework provides a theoretical background for the research in detection outcomes.

In terms of detection, the theory of deception detection provides a more specific theoretical framework for further research in deception detection (Johnson et al., 1993; Johnson et al., 2001). It suggests that, to be successful detectors, individuals must 1) possess necessary domain knowledge and skills in recognizing deception cues, 2) be sensitive to the possibility of deception (so as to generate deception hypothesis), and 3) have effective means to evaluate the generated hypothesis. The theory also concludes 4 cognitive procedures in fraud detection: Activation, inconsistency of the expectation and true value would lead individuals to label the cues as deception; Hypothesis generation, detectors generate hypotheses to explain the inconsistency; Hypothesis evaluation, assess the hypotheses on the basis of their materiality; Global assessment, combines all accepted hypotheses and produces a

final outcome. Previous study shows that competence at evaluating hypotheses is a critical differentiator between successful and unsuccessful detector, and the better performed detectors rely more on "assurance cues" rather than "trust" cues (Grazioli, 2004).

What method could increase detecting accuracy is also one of the key issues. Biros et al. (2002) studied the effectiveness of traditional detection training and in-time warning. The results showed that warnings lead to higher detection rate than training, and if combined, detection success rate would be significantly increased. Zhou and Zhang (2007) studied the relationship between the communication media and deception detection. They documented that, in contrast to deception through typing mode, information through messaging is more likely to be detected and that media modality has significant impact on users' satisfaction and information usefulness. Román (2010) studied the relational consequences of perceived deception in online shopping. He found a significant negative relationship between deception and consumer loyalty, which is mediated by consumer satisfaction. Xiao and Benbasat (2011) systematically reviewed the literature in online deception detection and proposed a framework for future study. This paper presents a typology of product-related deceptive information practices that illustrates the various ways to deceive consumers via product websites. It also develops a model addressing why consumers are deceived by deceptive information and factors contribute to deceptions detection.

To conclude, by reviewing literature in online review, review manipulations, unethical marketing behaviors and fraud detection, we know that 1) online reviews are critical references to shoppers and also crucial in maintaining reputations, 2) review manipulations are adopted by interest groups, 3) deceptive marketing practices are more likely to occur online and are comparatively more difficult to detect, and 4) consumers could detect manipulations and adjust their reliance on the suspicious information source. However, in the review manipulation perspective barely had any researchers adopted the consumers' perspective to further investigate the consequence of manipulations. In this thesis, we would like to explore the influence of review manipulations from the aspect of the victims and provide insightful implications to the e-market practitioners.

Chapter 3 Exploratory Study: How Consumers View Review Manipulation

As discussed in chapter 2 that limited research has concentrated on consumers' views and reactions toward review manipulations. Understanding consumers' knowledge, views and their countering strategies is important: what do they know about strategies? Whether consumers are able to recognize such schemes? Are the three commonly used manipulation categories treated all the same or totally different? In contrast to the context of traditional unethical/deceptive marketing behaviors, consumers are now receiving verbal messages not only from retailers but also from anonymous "buyers", which may challenge the validity of the results from prior studies.

An exploratory study that investigates consumers' knowledge and attitudes will be helpful to our theoretical development, as it provides updated and objective points of views of the topic we want to study. An in-depth interview probing consumers' knowledge and opinions toward different types of review manipulations were conducted. This procedure provides us necessary background information and examines the validity of the existed theories under the context of our target topic.

3.1 Participants and Procedures

An in-depth interview was conducted in February 2013 with 16 online shoppers from Hong Kong and mainland China. China is an example of country where online shopping industry keeps rapid development and gradually come into the mature stage. Chinese online shoppers are interesting as they represent an emerging market where online shopping is starting to its gain momentum. McKinsey's (2013) report shows that China has become the world's second-largest e-tailing market in 2011, reaching US$120 billion in sales. The largest online marketplace operators (e.g., domestic firms such as Taobao, Tmall, and Paipai; multinationals such as e-Bay and Amazon) account for an enormous share of the Chinese e-tailing market. Taobao alone had more than six million registered sellers by the latest count, and together they generate hundreds of millions of product listings. According to data released in the China Internet Network Information Center (CNNIC)'s "2012 China Online Shopping Market Research Report", China's online shopping user base has reached 242 million and gross merchandise volume reached RMB 1.26 trillion.

In this study, information-rich cases were chosen by combining intensity sampling, maximum variation sampling, and snowball sampling (Patton, 2002). Via

the researchers' own social network, sixteen online shoppers (eleven females and five males) aged from 23 to 44 were recruited. All interviewees have substantive online shopping experience, with more than 5 times of purchase in the past three months and the amount of spending ranging from three thousand to hundreds of thousands RMB. To avoid online shopper similarity owing to snowball sampling, variation was sought by considering age, gender, occupation, home district, and the shopping websites. The shoppers do not necessarily shop at the same websites. As we assured their anonymity, all the sixteen shoppers were willing to take part in the interview. The in-depth interviews were conducted by the authors following a discussion guide (as attached in the Appendix A). The interview guide is continually revised to reflect emergent questions and issues. To expedite data collection, we collected data from the first group of 4 qualified online shoppers, while continuing to scout for the second suitable group of 4 shoppers. Thus it is envisaged that eight interviews were completed at the first stage, before conducting the other 8 interviews at the second stage. Under this arrangement, we had time to check for the applicability of new insights gained from the previous cases.

After some background questions about the Internet usage and online shopping experience, a thematic interview was conducted on shoppers' awareness, suspicion, detection and evaluation of different manipulation tactics, using indirect questioning techniques adapted from the Voice of the Customer (Griffin and Hauser, 1993). Interviews varied in length from 30 minutes to 90 minutes, averaging about 40 minutes per interviewee.

3.2 Data Analysis

The grounded theory approach has been widely used to the research questions about (1) the nature of a new construct, (2) the adequacy of prior conceptualizations of a relatively well established construct, (3) previously unrecognized facilitators or implications of a construct and (4) adequacy of prior conceptualizations of facilitators or implications of a construct (Fischer and Otnes, 2007). We adopt the grounded theory approach, as the study involves the development of a theoretical framework through the analysis of qualitative data. Our guiding question is "what do seller manipulations of online product reviews mean to consumers?" which falls into the first category of the research questions that the grounded theory approach can address.

According to Spiggle (1994), qualitative data analysis involves the techniques of categorization, abstraction, comparison, integration and iteration, which are the fundamental analytical operations to enable the construction of a coherent conceptual framework or explanation. The first step of the analysis is to classify and label the units of data during the process of coding, and then is to identify the patterns in the data and group them into more general, conceptual classes. Comparison and pattern matching are conducted in a systematic way to explore the differences and similarities across incidents within the data currently collected, and this process will provide guidelines for future quantitative studies.

Following the guidelines from Spiggle (1994), the interviews were recorded and transcribed. The transcripts were reviewed twice to uncover key themes (Miles and Huberman, 1984) by two members of the research team. After transcribing the interviews, the procedure of categorization, abstraction, comparison, dimensionalization and integration was followed. All passages of text that involved a reference to awareness, suspicion, detection and evaluation of manipulation practices were highlighted and tabulated by case (i.e., for each shopper, list all incidents that represent the construct) and by construct (i.e., for each construct, list all incidents that represent the construct across cases). This analytical procedure promotes a systematic back-and-forth movement through the data, uncovering all possible leads. Finally the results were aggregated to seek patterns in meanings.

3.3 Results and Discussion

In this section, we describe and discuss the main findings on 1) awareness of the occurrence of online manipulation, 2) suspicion and detection of different manipulation tactics, and 3) evaluation of different online manipulation practices. Other findings that pertain to these are also reported. Example quotes are provided in summary tables. We refer to the citations of their comments as from the interviewee ID, i.e., F1 for female No. 1, and M2 for male No. 2.

3.3.1 Awareness of the Occurrence of Review Manipulations

We explored consumers' awareness of the commonly used manipulation tactics by asking interviewees whether they know about any tactics that would be used to manipulate the online product reviews. The results are shown in Table 1. It suggests that adding positive reviews (mentioned by 9 interviewees) and using incentive to encourage positive reviews (mentioned by 8 interviewees) have a higher level of

awareness among interviewees. Deleting negative reviews are mentioned by only 3 interviewees, suggesting that it is more disguised and less known by consumers. Interviewees use their own language to describe the nature of different manipulation tactics.

(Insert Table 1 here)

As shown in Table 1, the three commonly used manipulation tactics are described as (1) Incentive manipulation: an online company encourages consumers to create positive product reviews by offering some type of incentives (e.g., discounts, special offers, cash rebate or gifts). (2) Adding manipulation: online sellers ask someone (e.g., employees, associates, close friends, acquaintances and even professional shill reviewers) pose as consumers and anonymously post fake positive reviews to their own products even though they may not really have bought or used the product. (3) Deleting manipulation: online companies intentionally delete and block unfavorable reviews of their products from the readers, or even edit them to become positive, with the assistance of the website administrator, if it is not on the seller's own website.

The fact that fewer consumers are aware of deleting manipulation than of incentive and adding manipulation may be due to a couple of reasons. Firstly, a variety of administrative measures are taken by shopping platforms such as Taobao and Tmall to prevent the practice of deleting any product reviews. These regulations further boost the implementation cost of deleting manipulation and consumers are less likely to exposure to deleting tactic. Thus, consumers have lower chance to be aware of the high-cost manipulation strategy. Second, the concealment of information is considered as the type of deception, which is the most difficultly to be detected (Xiao and Benbasat, 2011). Comparatively, product reviews with deleting manipulation disclose the least amount of cues, and the direct evidence of manipulation may also be the hardest to obtain. Lack of detecting capability may also significantly limit consumers' chance to recognize the manipulation tactic, and then, limit their awareness or knowledge about the manipulation.

3.3.2   Detection of Different Tactics

Interviewees were asked the extent to which they suspect the occurrences of the review manipulations. Among the 16 online shoppers, except one does not suspect the credibility of the reviews at all, most of them claimed that they were moderately

or extremely suspicious of review manipulations. They were then probed the cues, signals and information used for detection.

From the interviews, consumers seem to have sufficient knowledge and capability to separate the genuine reviews from the fake ones. As summarized in Table 2, the tricks and cues could be categorized into 4 types: 1) the quality of content, 2) the quantity of the reviews, 3) the mismatch between reviews, seller reputation and the trade record, and 4) the identities of the reviewers. Interviewees gave detailed descriptions of the cues they use to detect manipulated reviews. First, unbalanced distribution of positive vs. negative reviews certainly raises a flag in the mind of consumers, especially for products that have been on the shelf for a long time, as exemplified by "*all the reviews are good ones not even a medium rating*" (F10) and "*many reviews and all of them are positive*" (F8). Second, consumers also scout the actual content or writing for telling signs of manipulations, including "*extreme words*" (F9, M3), "*excessively harsh reviews*" (F6), unnatural descriptions such as "*similar or repeated phases, content and tone*" (F6, F7, F8 and M3). Third, mismatches between information disclosed by reviews and consumers' own evaluation also alert consumers the occurrence of manipulations, such as "*many good reviews despite a poor reputation*" (F9), "*the seller's rating rises rapidly within a short period*" (F1) and "*some reviews different from your expectations or from other reviews*" (M4). Last but not least, a surprising finding is that consumers are suspicious about and detect the fake reviews by identifying the unusual user IDs made of "*random combinations of letters and numbers*" (F4).

According to those example citations, it is obvious that consumers have the knowledge about hints or abnormalities related to review manipulations, as well as the vigilance and capability to avoid being misled by the manipulated reviews. The results are consistent with previous research in both traditional unethical marketing behaviors (e.g. Burke, et al. 1988; Darke and Ritchie 2007) and online marketing deceptions (e.g. Hu, et al. 2011; Riquelme and Román, 2014).

(Insert Table 2 here)

3.3.3 Evaluation of Different Tactics

At the last section of the interview, we asked participants to evaluate different manipulation strategies in terms of their perceived deceptiveness, ease of detection, perceived ethicality and the negative impact on their purchasing behaviors. To ensure

a consistent understanding of different manipulation tactics among 16 interviewees, we provided a short description of each type of review manipulations before asking the questions. The three manipulation tactics are presented to respondents in rotation to avoid the order bias. Table 3 presents the summary.

(Insert Table 3 here)

As shown in Table 3, one finding that has emerged from the interviews is that consumers express more negative attitude toward deleting manipulation, compared with those toward the other two tactics. Among the three manipulation tactics, hiding/deleting unfavorable messages was the most frequently rated as the most deceptive (as mentioned by 11 interviewees) and the most unethical manipulation tactic (as mentioned by 10 interviewees). And the negative impact of deleting manipulation on the purchase intention is most severe, followed by adding and then incentive manipulation. Deleting seems to be the most covert manipulation tactic and the most unethical as perceived by the interviewees. This is illustrated by the following quotes:

Deleting is the most unacceptable strategy because it influences my evaluation towards the products. This sort of behavior is like committing a crime and then erasing any evidence. To ignore and hide customer complaints is a serious misbehavior of online sellers, which will make me really angry. (F1)

Deleting unfavorable comments is the most unacceptable behavior because to deceive others is like deceiving yourself. Consumers need to be able to see both positives and negatives of the product to make a purchasing decision. (F2)

I would much rather see the negative side of a product than to be deceived. This is because awareness of past unsatisfactory experiences with the product from other consumers is crucial to making an accurate judgment. (F4)

Deleting is a sort of information asymmetry. It will affect my confidence in the product quality. Being deceived will lead to uncertainty, as we don't receive any negative signal from the reviews. (M1)

Meanwhile, some interviews consider incentive and adding tactics acceptable because those practices are more overt and similar to company propaganda and advertisement, as exemplified by the quotes listed below. Comparatively, adding and

incentive tactics are considered as much easier to be detected by consumers because the cues or hints cannot be fully hidden.

I can understand the seller seeking to showcase positive reviews, as long as exaggeration is kept at a reasonable level, otherwise reviews appear incredible. (M3)

Incentives are relatively acceptable, similar to promotions. After all, they made real purchases, thus have some credibility. (M4)

Every seller uses incentive strategy to encourage positive comments. If everyone commits the same crime and only one person abides by the rules, that one person is losing out. (F2)

I have heard that the gifts will be given to those who have written comments, but not necessarily good comments. It is not as deceptive as simply adding good comments, but almost the same. (F3)

Incentives are OK. At least they are customers who had made real purchases. If the product is really bad, I don't think they would change their reviews just for a small incentive. (F6)

This is a common occurrence in industry to add positive reviews to their own products. Most consumers focus their attention on negative reviews as opposed to positive ones. Therefore, the practice of adding positive reviews has an overall lower influence. (F11)

3.4 Discussion

There exist several conceptual frameworks of interpersonal deceptions (e.g. information manipulation theory; Buller and Burgoon's concealment–equivocation–falsification classification). These previous frameworks could be extended to online environments such as online product review manipulation. Here we discuss the results combining existed theoretical implications.

3.4.1 Difference of Three Manipulation Tactics

From the above discussions, we derive several conjectures. First, consumers are aware of the manipulations to different degrees, and such practices dampen their confidence in the reviews and the products. Second, different types of manipulations vary in terms of ease of detection, perceived unethicality, as well as their effect on consumer perceptions. Third, consumers have knowledge and apply them when they read online reviews. Certain hints often activate their persuasion knowledge and raise

their suspicion. Fourth, some websites or review systems make the reviews easier to be manipulated ("*If it is on the seller's own website, they will manipulate the buyers' view by deleting any negative reviews behind the scene*" - F10) than other brand-neutral websites ("*The probability of this situation occurring is very low*" - M2). Fifth, the effect of manipulations may vary depending on the status of the brands, i.e., whether it is a popular brand or a lesser known one ("*Repeatedly post good reviews when the product does not appear very popular yet*" – F2).

The above findings suggest that while consumers are aware of the review manipulations and attitudes toward each tactic are diversified, at least, in terms of perceived deceptiveness and unethicality. From the opinions of all the 16 interviewees, the majority considered deleting negative review as the most unacceptable one, as it secretly violate consumers' rights to know and conceal the crucial negative reviews. They also believe that adding fake positive reviews would not influence their product evaluation as strong as deleting does, since the positive reviews are less valuable in decision making and the sufficient cues may help consumers to eliminate the fake noises. Furthermore, the results also show that offering incentives to positive reviewers is less likely to induce the negative emotions. Comparing with their attitudes toward adding and deleting, consumers tend to tolerate incentive manipulation. Some individuals consider this as the compensation for dis-satisfied buyers, which is beneficial in improving the quality of services and buy-seller communications. Since the reviews for incentives are posted by real consumers, the essence of the information in the reviews does not change, even though their objectivity may be questionable. For instance, unsatisfied consumers may be unwilling to leave good comments for small rewards. Therefore, offering incentives are described as tolerable and understandable by some of our subjects.

3.4.2 Consequence of Review Manipulations

Media Naturalness Theory (Kock, 2004) has been used to understand human behavior toward technology in various contexts such as education, knowledge transfer and communication in virtual environments. Since online product reviews are communicated in a less natural medium, the senders would put more effort in crafting the messages to compensate the loss in other cues, thus making online manipulations more disguised (Kock et al., 2007). It is easier for people to detect a lie through face-to-face medium. But with no time pressure, being anonymous and no

other cues available, well-crafted text message are more effective lies, thus more difficult to be detected. This leads to the same conclusion that manipulated reviews are more deceptive than deceptive messages via other media.

Online manipulation is much more dangerous and potentially more unethical because (1) it is an indirect deception done behind the scenes by manipulating the word-of-mouth of other consumers, (2) comparing to brick-and-mortar store, online sellers have lower entry and set up costs, which would lead to less severe consequences for the sellers to manipulate product information, (3) consumers normally view manipulated reviews as neutral or representative of other consumers' views rather than information from sellers (Biswas and Biswas, 2004), and (4) activities on such platforms are not yet regulated or governed by a set of agreed guidelines, although some marketplace operators like Amazon or Taobao do suppress such manipulative activities.

3.4.3   Role of persuasion knowledge

If we consider seller manipulations as persuasion attempts, consumers will develop beliefs and inferences about the appropriateness (e.g. fairness, manipulativeness) of specific types of persuasive tactics. According to Persuasion Knowledge Model, consumers' beliefs about the appropriateness of the online reviews will influence their product attitude and buying decisions (Friestad and Wright, 1994). Consumers with substantial online shopping experience have better-developed persuasion knowledge and then the defensive suspicion is more likely to be activated, which can protect them from being fooled by manipulations (Darke et al., 2007). According to Ahluwalia and Burnkrant (2004), when PK is activated, consumers become suspicious of marketers' ulterior motives. High PK consumers will demonstrate more positive (negative) attitudes toward the more favorably (unfavorably) evaluated brand when its advertisement contains promotional tactics while low PK consumers demonstrate no significant differences in their attitude toward the brand regardless of whether its advertisement contains promotional tactics or not. Grayson and Rank (2010) found that high PK consumers might be more sensitized and comfortable with the "rules of the game" of persuasion and therefore judge persuasion tactics as being more appropriate. Deception Detection Theory suggests that individuals follow two sequential processes to detect deception, namely the noticing of anomaly and the attribution of anomaly (Johnson et

al., 1993, 2001; Robinson, 1996; Robinson and Morrison, 2000). Following this logic, experienced consumers are able to notice the inconsistencies or deception cues in the product reviews. Thus, consumers with high PK would have a better chance to detect certain manipulation tactics and perceive the manipulations reviews as more deceptive.

3.4.4 Factors Influencing Review Manipulation

Previous literature finds that manipulation is more valuable for a firm whose product is less appealing to the target segment (Mayzlin, 2006; Dellarocas, 2006) and for products with lower average rating (Hu et al., 2011a). A possible explanation is that the firm with less popular products is found to spend more resources on advertising, compared with firms of popular products, as the latter believes consumers might receive information from other sources praising its superior product (Moorthy and Hawkins, 2003). We posit that companies want to manipulate and expect to gain from such practices because there are (1) not enough reviews for less popular products; (2) too many negative reviews for low quality products. Interviewees are suspicious of manipulated reviews when observing the fact that "*the product does not appear very popular yet, but the reviews are all positive*" (F2) and "*there are many good reviews despite a poor reputation*" (F9).

As warranting value (i.e., the extent to which the cue is perceived to be unaltered by the target) can be used by an observer to gauge the accuracy of online product reviews, warranting theory (Walther and Parks, 2002) may be useful to explain consumer reactions to online product reviews in different shopping platforms. Walther and Parks (2002) propose that there are two types of warranting information namely low warrant and high warrant. Low warrant information is easily manipulated and therefore less believable while high warrant information is more likely to be accepted as true. Several studies (Gibbs et al., 2011; Parks, 2011; Walther et al. 2009) confirm that the greater the potential for information misrepresentation, the more likely observers are to be skeptical. We argue that consumers trust the reviews from the brand-neutral websites (third-party sellers with many brands) more than those from the websites of brand owners due to the low warranting value of information in the latter, as manipulations can be done behind the scene if it is on the seller's own website but in the third-party websites the probability of manipulation is very low. The lack of trust may lead consumers to place greater weight on negative reviews

and/or seek reviews from neutral forums, thus resulting in a vicious cycle for the manipulators.

To sum up, in this chapter, we qualitatively investigated the attitudes and knowledge of experienced online consumers toward review manipulations. Based on the background knowledge, quantitative studies would be presented in the next few chapters to further examine the issues such as influence of review manipulations and differences among tactics.

Chapter 4   Theoretical Framework and Hypotheses

In this chapter, we continue our research by drawing on the qualitative findings from last chapter and existed theoretical frameworks to develop testable hypotheses. The hypothesized research framework of the thesis is shown in Figure 2. First, we propose that the three popular manipulation strategies are different in terms of perceived deceptiveness and suspicion of manipulation. Moreover, we expect that either review manipulations or suspicion of manipulation would negative influence consumers' purchase intentions, which would be moderated by consumers' persuasion knowledge. The last but not the least is that the correlations between review manipulation and sales would fade away over sufficient long period of time.

(Insert Figure 2 here)

In the following section, we draw from the Information Manipulation Theory and the Persuasion Knowledge Model to elaborate the relationships among variables and the hypotheses.

4.1 Perceived Deceptiveness and Ethicality

In this section, we draw on Information Manipulation Theory to develop hypotheses about the emotions invoked by review manipulations such as perceived deceptiveness and ethicality.

Information Manipulation Theory (IMT) offers a multidimensional approach to understand why message is considered as deceptive. It is designed by integrating Grice's (1989) theory of conversational implicature with research on deception as information control (e.g., Bavelas et al., 1990; Metts, 1989). IMT mainly concerns the content of the deceptive messages, the situational contexts that bring them about, the degree to which the detection of such a message affects perceived deceptiveness and the relational consequences associated with deceptive messages (McCornack, 1992). Deceptions are viewed as arising from covert violations of one or more of Grice's four maxims: (1) Quantity: Information given will be full (as pre-expected by the viewer) and quantity violation can result in lies of omission; (2) Quality: Information given will be truthful and correct and covert violations of quality involve the falsification of information; (3) Relation: Information will be relevant to the subject matter of the conversation in hand and (4) Manner: Things will be presented in a way that enables others to understand and not confusing other people (e.g., McCornack et al., 1992; Yeung et al., 1999; Zhou and Lutterbie, 2005).

Online seller manipulations can be viewed as deliberately breaking one or few of the four conversation maxims. We relate the maxim violations to different manipulation strategies as follows: anonymously adding positive messages and deleting/hiding unfavorable messages are mixed of quality and quantity violations. They either omit (deleting) or add (adding) the amount of consumer reviews, and directly change the quality of the information disclosed to consumers (e.g. average ratings). Offering incentives to consumers who post favorable messages results in quality violation, since they indirectly change the individual ratings of reviews but may not increase or decrease the volume. Even though prior research finds that violations of each maxim are rated more deceptive than baseline messages without any violations, different maxim violations are also considered differentially. In other words, not all deceptive messages are rated as equally deceptive. Violations of quality and relevance are typically seen as more deceptive than violations of quantity and manner (e.g., Jacobs et al., 1996; Levine, 1998, 2001; McCornack et al., 1992; Yeung et al., 1999). Hence, adding fake reviews and deleting negative reviews should be rated as more deceptive and evoke higher level of negative emotions.

Although IMT predicts that adding and deleting should be similar negatively rated, our qualitative finding suggests that there is distinction between the two. For adding manipulation which involves the manipulation of positive information, manipulators present totally inauthentic information as it were true. While negative review eliminators intentionally disguise the passive WOM and disclose only good ones, which only involves the manipulation of negative information. We believe that the symmetrically weights of positive and negative information could better explain the distinction. As mentioned by our interviewees, reviews are evaluated with bias--- negative reviews are thought as more important and authentic than the positive ones. The bias may be caused by several reasons: firstly, in real monetary transactions, individuals tend to be more conservative. Making the wrong decisions would directly lead to monetary loss, so consumers are more likely to focus on risk avoidance, the information of which would be disclosed by negative reviews. Therefore, it is reasonable that they prefer to rely on negative reviews rather than positive reviews. Secondly, commonly noticed fake positive reviews lead consumers to distrust positive reviews. As showed in the exploratory study, when talking about fake good reviews, interviewees could name the cues that help them to realize the fake positive

reviews such as extreme emotions, irregular account names and meaningless praises. While for concealing negative reviews, the detecting cues are limited (e.g. manipulation may be more in non-famous websites). Therefore, their experiences of fake reviews force them to gradually discount the persuasions of positive reviews. Thirdly, the differences in cost of conducting adding and deleting strategy lead consumers to distrust positive reviews. Adding fake reviews is considered as cheaper than erasing negative records because in most of the well-known online shopping websites (e.g. Amazon.com, TripAdvisor.com and Taobao.com), deleting or modifying UGC is extremely difficult to conduct. Comparing with the deleting strategy, adding positive reviews could be done via several cheap ways: a favor by friends and relatives, professional good reviewers and etc. The differences in costs of the two strategies make consumers to believe negative WOM are more reliable which help to eliminate the influence of potential manipulation. Overall, due to the asymmetry in the information evaluation, bias in information importance would lead consumers to generate the stronger negative emotions when the unfavorable reviews are concealed.

Our considerations are confirmed by previous research that consumers weigh negative reviews heavier than positive ones when making purchase decisions (e.g., Schlosser, 2005; Sen and Lerman, 2007; Zhang and Craciun, 2010), as is often called *negativity bias* (e.g., Birnbaum, 1972; Cacioppo and Berntson, 1994; Ito and Larsen, 1998). Among the three manipulation tactics, only deleting/hiding unfavorable reviews concerns the direct manipulation of negative reviews, which are often viewed as more sensitive or useful information. Based on the above discussion, we hypothesize the following:

> H1: Among the three manipulation strategies, hiding/deleting unfavorable messages (violations of quantity) (H2A) will be rated as the most deceptive followed by anonymously adding positive messages (violations of quality) (H2B), and offering rewards to consumers who post favorable messages (violations of both quality and manner) (H2C).

> H2: Hiding/deleting unfavorable messages would be treated as the most unethical strategy among the three manipulation strategies.

4.2 Mediating Role of Suspicion

McCornack and Levine (1990) explored the impact of the discovery of deception

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upon emotional intensity, negativity of emotional reaction, and relational stability for individuals involved in relationships. They suggested that increases in suspicion function to enhance reported emotional intensity for situations in which either the lie or the act of lying was judged as significant. In terms of review manipulations, even though consumers cannot fully distinguish honest reviews from fake ones, they have the capability to detect such tricks and adjust their interpretations of online product reviews accordingly (Hu et al., 2011a, 2012). When consumers learn that review messages can be manipulated, they may disengage somewhat from the ongoing interaction, draw inferences of some sort, get distracted from the message, consciously dismiss the perceived quality, or discount what the reviewer says (Dellarocas, 2006; Mayzlin, 2006). Thus suspicion of manipulations may disrupt the comprehension and elaboration of the reviews, discount the value of WOM (Friestad and Wright, 1994; Campbell and Kirmani, 2000) as well as to generate negative emotions to products and retailers (Dellarocas, 2006). In other words, manipulations make buyers to cast doubts on the evaluations of products indicated by online WOM, which decrease the likelihood of buying the products. Therefore, the increased ratings promoted by review manipulations would be less persuasive to buyers. Base on the above discussion, we hypothesize the following:

H3: Online product reviews with manipulations will invoke more suspicion of deception than those without manipulations.

H4: The amount of suspicion has a negative impact on consumers' purchase intention.

H5: With the same average rating, the purchase intention of product with review manipulations should be lower than that of the product without manipulation.

H6: The relationship between review manipulation and purchase intention is mediated by suspicion of manipulation.

4.3 Moderating Role of Persuasion Knowledge

Persuasion Knowledge Model suggests consumers have intuitive theories or beliefs about how marketers try to influence them, and under certain conditions, they use these knowledge to counter persuasion attempts (Friestad and Wright, 1994). Consumers' persuasion knowledge includes beliefs about marketers' motives, persuasion tactics, appropriateness and effectiveness of different persuasion tactics, and strategies for coping with influence attempts. Based on PKM, consumers will use

their knowledge of persuasion motives and tactics to interpret, evaluate and respond to the influence from marketers. Prior research has investigated the PK from the perspectives from adolescent skepticism toward TV advertising and knowledge of advertiser tactics (Boush et al., 1994), similarities and differences in beliefs among laypeople and researchers regarding television advertising techniques and strategies (Friestad and Wright, 1995), responses to persuasion in interpersonal sales settings (Campbell and Kirmani, 2000; Guo and Main, 2012), and the effect of regulatory focus on the use of persuasion knowledge (Kirmani and Zhu, 2007). These studies offered insights to the types of persuasion knowledge individuals hold, as well as when and how it is likely to be evoked. We argue that consumers with great experience in reading online product reviews have well-developed persuasion knowledge than novices. They have stronger capability to deliberately process the online product reviews and activate defensive suspicion. If persuasion knowledge is activated, consumers become suspicious of marketers' ulterior motives and behave more negatively, which can protect them from being cheated by unauthentic information (Darke et al., 2007).

If considering seller manipulations as persuasion attempts, consumers will develop beliefs and inference about the appropriateness (e.g. fairness and manipulativeness) of specific types of persuasive tactics. Review manipulations evoke consumers' persuasion knowledge since the problematic reviews contain abnormalities that deviate from their anticipations. For instance, consumers may detect adding strategy by the extreme positive rating and content that goes far beyond their evaluation, deleting strategy by the strange rating distribution or time of posting, and incentive strategy by the disclosed rebates or giveaways. These cues become stimulants for persuasion knowledge, if only shoppers have sufficient knowledge about marketers' motives and persuasive tactics. Once activated, persuasion knowledge would lead the consumers to appropriately perceive the persuasive attempts and evaluate the information. In other words, subjects who are more likely to use their persuasion knowledge have stronger perception of manipulations (Ahluwalia and Burnkrant, 2004). Thus we hypothesize the following:

H7: Persuasion knowledge would enhance the suspicion evoked by manipulated reviews.

However, persuasion knowledge may also help consumers to cope with the

persuasive attempts and maximize their benefits (Friestad and Wright, 1994). Previous research suggests that consumers with higher persuasion knowledge generate favorable evaluations when facing promotional tactics of the brands they like (Ahluwalia and Burnkrant, 2004) and consider persuasive attempts as "rule of the game" and tolerable (Grayson and Rank, 2010). In other words, PK does influence perceptions of persuasion acceptability, but the direction of link between persuasion knowledge and acceptability depends on how "acceptable" is defined. Inoculation Theory (McGuire, 1961; Crowley and Hoyer, 1994) provides an alternative explanation for the above contextual effect of PK. Consumers who were pre-exposed to attacks (review manipulation in our context) would view the subsequent strong attacks less believable and generate more supportively cognitive responses. We argue that the counterintuitive effect of Persuasion Knowledge may be caused by different mechanism of its function in two stages--- information evaluation and purchase decision. In the information evaluation stage when consumers evaluate the review information, learn the manipulative intent and make evaluations, consumers with greater persuasion knowledge would have higher level of suspicion of the authenticity of reviews and are more likely notice the cues of manipulation. Therefore, persuasion knowledge enables consumers to pay more attention to the suspicious abnormalities when evaluating the reviews. While, in the purchase decision stage when consumers evaluate the transaction and make decisions, persuasion knowledge would influences consumers' expectations about the authenticity of online reviews. High PK individuals are more likely to have experienced review manipulations. They are more familiar with the manipulative practices and expect certain extent of review manipulation. With these expectations, the consumers may adjust their reliance on the reviews. Moreover, high PK consumers perceive the manipulative intent as more tolerable and may not consider such practices as serious. Therefore, the purchase intentions of high PK consumers should be less influenced by suspicion than that of low PK consumers. The Inoculation Theory suggests that consumers who were pre-exposed to arguments would view the subsequent attempts less believable and are less likely to be influenced by them (McGuire 1961; Crowley and Hoyer 1994). Following the logic, we argue that high PK consumers have more online shopping experiences and know better how to cope with review manipulations. Given their prior exposure to

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manipulations, high PK consumers are more likely to filter out the abnormal reviews, accept review manipulations as "hidden rules" and tolerate them to some extent, even though they enjoy a higher possibility to detect manipulations. Thus we hypothesize the following:

H8: The negative impact of manipulation suspicion on purchase intention toward the focal product is more pronounced among low PK consumers than high PK consumers.

4.4 Effect of Review Manipulations

Review manipulations are commonly adopted as powerful marketing strategies by e-retailers. Online WOM is suggested as valid reference that the majority of consumers turn to before making purchase decisions (e.g. Godes and Mayzlin, 2004). The rating of WOM is also considered as one of the most influential factors (e.g. Chen et al., 2011). As suggested by the definitions of review manipulations, the key benefit they bring about is the increased WOM rating (Dellarocas, 2006; Mayzlin et al., 2013). To be specific, posting fake positive reviews increases average ratings by introducing better-than-average reviews into the pool, deleting/hiding negative reviews strategy deletes/hides the worse-than-average reviews and offering incentive to positive review posters that induce consumers to more positively rate the product. These three either increase the overall average rating (e.g. average rating of all reviews) or seeable rating (e.g. first-page rating). In comparison with non-manipulated products, items with intentional manipulation should enjoy a comparatively higher (seeable) rating. The increased rating may boost the probability that the focal products were highly evaluated by the potential buyers, which would finalize in higher purchase intention. Therefore, we hypothesize:

H9: Review manipulation would positively influence the sales of focal products.

Review manipulation may significantly promote sales of focal products, nevertheless, once consumers affirm that reviews are deceptive, they would adjust their attitudes and turn to other references of information (e.g. Friestad and Wright, 1994; Campbell and Kirmani, 2000; Hu et al., 2011a, 2012). On the hand, manipulators would elaborately design manipulation strategies and disguise the "warning" cues into something undetectable in case of being suspected, which reduces the probabilities of being suspected. In other words, although review manipulations are design as authentic and difficult to be noticed, but once detected,

review manipulations would adversely decrease purchase likelihood.

We think that review manipulation should be functional for the early-stage buyers, due to the fact that it is less likely for them to find out the tricks played by sellers. For repeated buyers, they have higher chance to suspect that the reviews are not as intact as they should be. This might be caused by the previous shopping experiences--- the mismatch between what they buy and what the reviews described. Repeated purchases provide comparatively sufficient opportunities for consumers to update their knowledge (Zhao et al., 2013). Following the logic, information learning and updating would lead consumers to cope with fraudulent reviews and also lead review manipulation to gradually loss its power in influencing product evaluations. Hence, we propose:

H10: The impact size of manipulation intensity on sales would decrease over time.

Chapter 5   Study One: Attitudes Towards Manipulation Strategies

One of the main goals of our research is to differentiate the 3 popular manipulation categories. Previous studies focused either on a single manipulation strategy or on the general consequences of using "manipulation", no one has ever concentrated on their distinctive characters and impacts. In this chapter, a within-subject survey was conducted to test hypothesis 1 and 2. This survey was designed to empirically examine consumers' attitudes of the three manipulation strategies.

5.1 Participants and Procedures

Our subjects were randomly recruited from Mainland, China. Qualified subjects should have experiences in online shopping and basic knowledge of manipulation strategies. The subjects were first told the definitions of the three commonly noticed manipulation strategies: (1) Anonymously adding fake (positive) reviews: Firms, retailers, their employees or associates pose as consumers and anonymously post "fake" positive reviews to their own products even though she/he may not really have bought or used the product. (2) Hiding/deleting negative reviews: Firms or retailers would intentionally delete, remove or hide negative unfavorable reviews of their products from the readers. (3) Incentives for positive reviews: Firms or retailers give incentives (a discount, a gift or other reward) to their consumers to encourage them to write positive reviews to their products. Then they are asked to imagine that they were encountering one of the 3 strategies sequentially (in a random order) and then their attitudes were measured by our questionnaire. Here we measured perceived deceptiveness (Maddox, 1982) and unethicality (Reidenbach and Robin, 1990) toward the situations involving each of the three manipulation strategies. The multi-item scales and the measured reliability are shown in Table 4.

(Insert Table 4 here)

5.2 Results

We collected 199 valid questionnaires. Average age of our subjects is 21.47 (min 18, max 34), and most are female (79.4%). We first use ANOVA to test the differences among the three groups. Significant differences in perceived deceptiveness ($F_{(2, 183)}=192.48$, $p<0.001$) and ethicality ($F_{(2,154)}=126.40$, $p<0.001$) are found among the three groups but not between genders (Perceived deceptiveness: $F_{(1,595)}=0.79$, $p>0.1$; ethicality: $F_{(1,595)}=0.80$, $p>0.1$). Pairwise t-test could help us

further examine the detailed relationships. Table 5 shows the mean scores of measured variables in the three manipulation strategies. Hypothesis 1 suggests that deleting should be considered as the most deceptive strategy and followed by adding and incentive strategy. As we may notice, the relations shown in first row of Table 5 confirm our H1: deleting is rated as the significantly more deceptive (mean=6.28) than the other two strategies, whereas adding (mean=6.11) and incentives (mean=4.54) are less deceptively considered. Hypothesis 2 assumes that deleting strategy would be regard as the most unethical manipulation type. The results also support our H2 that deleting (mean=6.22) is thought as more unethical than adding (mean=6.09) and incentives (mean=4.64). We also measured the ease of detection among the three tactics. The subjects commonly rated deleting strategy as the hardest one to be detected (mean=5.52), followed by adding manipulation (mean=5.22) and incentives (mean=4.35). These results are consistent with the findings in the prior study and our hypothesis 1 and 2 are strongly supported.

(Insert Table 5 here)

5.3 Discussion

In this chapter we empirically examine the manipulations differentiation concluded in the exploratory study. We find that consumers generally considered the three popular tactics differently in terms of perceived deceptiveness and ethicality: consumers commonly rate deleting strategy as the most unethical and deceptive manipulation strategy than the other two. Our H1 and H2 are all well supported. As we expected, consumers commonly hold the *negativity bias* comparing to the *positivity bias* (i.e. rely more on negative information rather than positive ones). Review manipulations disturbing the disclosure of valued information would be treated as more deceptive. In addition, through mean comparison, we also note that the perceived deceptiveness and unethicality for incentive manipulation are much lower than those of adding and deleting manipulation. This confirms our finding in the exploratory study that incentive manipulation is relatively tolerable than the other two tactics.

However, one of the key questions remains unanswered: if the review manipulations are disliked by consumers, would they negative influence the purchase decisions? From the analysis of study 1, we realize that the three tactics vary in terms of detectability. Therefore, whether consumers are able to detect such strategies and

react to them remains an interesting empirical problem. In the next study, the negative influence of manipulations would be examined under a more realistic circumstance, in which consumers need to face the deceptive tactics and make their own judgments.

Chapter 6   Study Two: Simulated Field Experiment of Consumer Response

Previous study suggested that manipulations are rated as deceptive and unethical, which may severely influence the credits of retailers. However, why online review manipulations are still popular among distributors? Would consumers react to manipulated product reviews in the way as what they should be? To answer the questions, consumers' responses will be investigated when they encounter a more sophisticated environment. In this study, rather than evaluating descriptions and definitions, consumers may read manipulated reviews without warnings and notifications. Hence, it would be an interesting question for us: how would their knowledge, detecting capability and coping strategy shape their performances in decision making? A simulated field-experiment is conducted to examine our hypotheses 3 to 8 in a more realistic context. The goal of the experiment is to examine the negative consequences of review manipulations, i.e., how severe are the potentially actual negative consequences stemming from the inauthentic reviews and how persuasion knowledge can influence this negative impact.

6.1 Participants and Procedure

More than two hundred students in a major Hong Kong university participated in the experiment. Subjects were volunteers recruited among the undergraduate students in the Faculty of Business. As an incentive for their participation, each of them received two highlighters at the end of the experiment. Participants should have online shopping experience in the past one year and have been used to viewing online product reviews when making purchase decisions. Qualified subjects are randomly assigned to one of the four scenarios, each of which simulates a realistic online product homepage for a pair of outdoor shoes with the most recent six consumer reviews. The brand and the online store are designed to be unrecognizable that subjects cannot relate the product and platform with their previous experiences.

Scenarios are designed as follows. Anonymously adding fake (positive) reviews: some positive reviews (5 out of 5 stars) with extremely positive comments are intended to be added after the negative ones using a same user account. Hiding/deleting negative reviews: the negative reviews were deleted/hidden so that subjects could only read the positive ones. Incentives for positive reviews: incentive information is presented in a highlighted form so that consumers know that positive reviewers received an immediate discount, which is confirmed by posters in their

reviews. Control group: The reviews are left intact and objectively reflect the attitudes or opinions of the reviewers. An example of the scenario design is shown in the Appendix B.

The respondents were informed that the study is to test their ability to understand, analyze and evaluate the online product reviews. They should read the product homepage and reviews very carefully before answering the questions. They may go back to the product homepage and reviews at any time and read them again, if necessary, when they have trouble answering any of the related questions. Respondents were then asked to choose the assigned scenario and report their perceived ethicality, suspicion of reviews and their purchase intention toward the product. At the end of the experiment, they complete some other measurement of individual traits (i.e., persuasion knowledge, online expertise) and demographic items. The experiment ended with a usable sample of 254 respondents.

6.2 Measurement

Variables are measured by scales which have been successfully used in several previous studies showing good reliability and validity. Purchase intention is measured on a scale bipolar labeled with 1 (very unlikely to buy) and 7 (very likely to buy). Suspicion of deception (alpha=0.910, Kirmani and Zhu, 2007), persuasion knowledge (alpha=0.782, Bearden et al., 2001) and review involvement (alpha=0.770, Novak and Hoffman, 2000) are measured by multiple item scales. All scales are scored in such a way that high values indicate a greater degree of the traits.

The manipulation scenarios are represented by a categorical dummy variable. Three dummy variables represent the scenario subjects received: subjects in each group with manipulation (adding, deleting and incentive) would be coded as 1 in the corresponding dummy, while control group would be coded as 0 (representing "without manipulation") in all the three dummy variables.

6.3 Results

6.3.1 Main Effect

Descriptive statistics and zero-order correlations of variables (except for perceived ethicality) are shown in Table 6. Review involvement strongly affects consumers' attention and usage of the reviews (Novak and Hoffman, 2000). Gender may also affect purchase intention since previous research suggests that female adopted a stricter ethical stance than males when assessing unethical practices

(Weeks and Moore, 1999). Hence we control these two variables in our regression analysis.

(Insert Table 6)

We hypothesize that persuasion knowledge moderates the impacts of both manipulation on suspicion and of suspicion on purchase intentions. Given that consumer responses were measured on 7-point scales with larger values indicating higher purchase intention, negative regression estimates indicate the hypothesized negative consequences of manipulation on suspicion and suspicion on purchase intention. The OLS results are shown in Table 7.

(Insert Table 7 here)

We first focus on the suspicion invoked by review manipulations. Hypothesis 3 suggests that online reviews with any categories of review manipulations would lead consumers to suspect the authenticity of online reviews. As shown in 1st column of Table 7, after controlling for gender and review involvement, the estimated coefficients of manipulation dummies are all significantly larger than 0, showing a strong positive influence of review manipulations on suspicion. Therefore, Hypothesis 3 is strongly supported.

The second stage results are shown in the 2nd column of Table 7. As we expected, the standardized estimate supports our H4 that it confirms a strong negative relationship between suspicion and consumers' purchase intention (β=-0.68, p<0.001). The moderating effects of persuasion knowledge and mediating effect of deception suspicion are tested by path analysis suggested by Edwards and Lamber (2007, see Model D) that the effects should be calculated by the multiple of coefficients and selected values of moderator (here we selected the +/- 1 standard deviation of the mean centered persuasion knowledge), the analysis results are shown in Table 8.

(Insert Table 8 here)

Hypothesis 5 suggests that, after controlling for the average ratings, review manipulations would negatively influence the purchase intention toward the focal products. The estimated total effects (5th column of Table 8) only marginally support H5 when high PK consumers encountering strategy of adding (β=-0.35, p<0.1), and no supporting evidences are found in other situations. Therefore, we cannot safely conclude that H5 is supported.

6.3.2   Mediation of Suspicion

The mediation of suspicion is tested by the estimated indirect effect (4th column of Table 8). The coefficients of indirect effects support hypothesis 6: for the high PK group, suspicion mediates the relationship between review manipulations and purchase intentions for subjects in adding, deleting and incentives groups. While for people with lower PK, the indirect effects are ignorable that the influence of review manipulations on purchase intentions only contains the direct influence. Figure 3 shows the relationship.

(Insert Figure 3 here)

6.3.3   Moderation of Persuasion Knowledge

We continue our analysis on the first stage moderation of persuasion knowledge. The hypothesis 7 claims that persuasion knowledge would enhance the suspicion invoked by review manipulations. The estimated results are shown in the 1st column of Table 8.

For the group of subjects receiving adding scenario (upper part), the estimated first stage difference (Diff=1.09, p<0.01) that consumers with higher persuasion knowledge would generate more suspicion than the consumers with lower persuasion knowledge. The difference of the total effects (Diff=-0.61, p<0.01) shows that, overall, consumers with higher persuasion knowledge should be depressed to buy the product when reading reviews with adding strategy while consumers with lower persuasion knowledge are not influenced by the added reviews.

The middle part of Table 8 shows the results for deleting group. Its results indicate that the first stage moderation of persuasion knowledge on the relationship between deleting strategy and suspicion is only marginally supported (Diff=0.56, p<0.1). The overall effects of deleting strategy on purchase intention are not found to both higher and lower persuasion knowledge consumers, showing that subjects reading reviews with deleting strategy is not significantly influenced in terms of their willingness to buy.

The results of incentive group, which is the lower part, suggest that the first stage moderation of persuasion knowledge (Diff=0.31, p>0.1) is not existed to the subjects facing reviews with incentive manipulations. Similar to subjects in deleting group, subjects in incentive group are not significantly influenced by the manipulations on their purchase intention. This result is consistent with our prediction that persuasion knowledge would enhance the negative relationship between manipulations and

suspicion, thus hypothesis 7 is partially supported.

Hypothesis 8 verified the second stage moderating effect of persuasion knowledge. It predicts that persuasion knowledge would weaken the negative influence of suspicion of deception on purchase intention. The estimated results are shown in the 2nd column of Table 8. The difference (Diff=0.17, p<0.05) support our prediction that the negative impact of suspicion on purchase intention is weaker among high PK subjects. Therefore our hypothesis 7 is also strongly supported. To better illustrate our results, the path analysis is shown in Figure 4 and the simple slopes of the two stage moderating effects are shown in Figure 5.

(Insert Figure 4 here)

(Insert Figure 5 here)

6.4 Discussion

In this chapter, we investigate the influences of review manipulations on consumers' purchasing behaviors and the impacts of persuasion knowledge. By conducting the simulated field-experiment, we find that subjects receiving reviews with 3 categories of manipulated reviews generate more suspicions than those receiving intact one, but their purchase intentions are not significantly influenced. Interesting results are also found with respect to the moderating role of persuasion knowledge. Supporting evidence is found for the hypothesis that persuasion knowledge would enhance consumers' suspicion for the subjects receiving reviews with adding and deleting. We also find the supporting evidence for our hypothesis that persuasion knowledge would drive consumers to tolerate certain extent of review manipulations and weaken the negative influence on their purchase decisions. These two stage moderating effects could more clearly explain how consumers detect and cope with review manipulations they encountered. If the two moderating effects are considered concurrently, the purchase intentions are more likely not to be influence by reviews with manipulation. Mediation of suspicion is also supported that it mediates the relationship between manipulations and purchase intention if the subjects have higher level of persuasion knowledge.

The results help us to understand how consumers react to the manipulated reviews when they read reviews of an unknown brand in an unfamiliar website. However, under the setting of our experiment, we were unable to investigate the positive influence of review manipulations, which is usually induced by the increased

ratings. In our experiment, the average ratings are held constant across the 4 groups, therefore the positive influence of review manipulations is not considered in this study. In the next study we would further address the questions by examining the effect of review manipulations on sales.

Chapter 7   Study Three: The Effect of Review Manipulations on Sales

In previous chapter, we use simulated field experiment to examine the consumers' responding mechanisms to review manipulations. However, due to the limitations of experiments, the benefits of review manipulations cannot be tested. To invest the empirical performance of review manipulations and realistic validity, we use the historical data to test the influence of manipulations on consumers' attitudes and sales.

7.1 Data Description

The product category in the study is fashion clothes, as it is suggested that user-generated reviews are particularly important to the experience products (King and Balasubramanian, 1994). We acquired the data from one of the biggest online apparel retailers in China. The data covers 555 product promotional campaigns on a well-known third-party social network website, which includes the 31-days cumulative unit sales of the promoted products, the WOM information in the social network and in their own websites from year 2011 to 2013. The average sales over the 31 days are shown in Figure 6, which suggests that the majority of sales concentrated within the first week of promotion. Since it is suggested that the life cycle of fashion product is comparatively shorter than other types of products, we assume the cumulative sales of 31 days could represent the overall sales of these products.

(Insert Figure 6 here)

Our data comes from two sources: the retailer's own online store and its public page on a well-known social network. On the retailer's web store, the review system is similar to that of Amazon.com, through which consumers can browse, buy the products on the shelf, and leave reviews only after each purchase. The buyers should rate the product according to their satisfaction from 1 star to 5 stars, and write a comment about the product if they want. On the social network website, whose review system is similar to facebook.com, the retailers post blogs to promote or recommend their products to the "fans" of its public page. After reading the advertisements, consumers may choose to "like", "share" or do nothing. Therefore, the "like" system could be considered as a bipolar rating system where "like" represents positive WOM, while the absence of a "like" could be interpreted as lack of interesting, neutral or negative perception.

We believe that the extent of review manipulations differs across the two platforms due to a couple of reasons. Firstly, the cost of manipulations is different. It is believed that the costs of manipulations on the corporate websites are lower than those on the third-party platforms. The retailer, who's also the manager of the web store, can access the database of product reviews and modify the review data. Regulations regarding manipulation of reviews on their own web stores are not as strict as on the well-known third-party retailing platforms. The retailers are able to manipulate reviews at a minimum cost on its own store. Therefore, it is reasonable to assume that the cost of review manipulation is lower on the company website than on the third-party website, and review manipulations are more common on retailer's own web store than the third-party forum.

Secondly, the motivation of manipulating WOM may vary across the two platforms. The amount of "like" is lower in the reference value for the future buyers, thus retailers may not prefer to manipulate it. On public forums, marketers generally release product promotions and advertisements (usually once or several times a day) to attract consumers to view the product on their own web stores, which suggests that the WOM in public forums reflects consumers' pre-purchase attitudes. In contrast, product evaluations are more likely to occur on the web stores rather than on the promotional pages, since the pre-purchase attitudes are considered as comparatively lower in reference value for future buyers. Thus, retailers would have greater motivation to manipulate the reviews on their own websites rather than the "likes" on the third-party forums. Furthermore, a "like" in social network is relatively less valuable in WOM transmission, thus a retailer is less motivated to manipulate it. To promote their products, retailers hope its reader to spread their promotions and advertisements to reach as many consumers as possible. Given to the regulations of the social network website, these ads could only be directly distributed to the "fans" of the retailer's public page, and their fans may reposted by "share" to reach other non-fan users. However, fans "share" the ad may either due to their positive emotions or negative ones. In contrast, "like" the ad will not contribute to the transmissions of promotions, but only express the readers' positive attitudes. We argue that the benefit of manipulating "like" is lower than manipulating average ratings on the company website. Hence, retailers' motivation of manipulating the amount of "likes" should be weaker than that of the amount of positive reviews on their company website.

The summary statistics for WOM and other key variables are provided in Table 9. We may notice that the average rating on the company website is higher than we generally thought: average rating is 4.74 out of 5 and over 90% of the products receive average rating above 4.5 out of 5. Generally, online WOM is assumed to follow a normal distribution (Hu et al., 2011a). The distributions of the two key measures in Figure 7 show that the ratio of likes is more close to normal distribution than the ratio of positive reviews on the company web store. This could support our assumption that manipulation is more popular in retailer's web store.

<center>(Insert Table 9 here)</center>

<center>(Insert Figure 7 here)</center>

We think that the positive skewness of average ratings may be due to review manipulations that retailers intentionally use to increase the average ratings of poorly rated products, and therefore the rating of reviews concentrates on the positive range (above 4 out of 5). Otherwise, the alternative explanation is that the qualities of products appropriately compensate for the discrepancy across initial evaluations of different products, which results in the concentration of product ratings. In other words, the majority of products receive indifferent after-purchase evaluations, although they were heterogeneous in quality and differently rated before transactions. The latter explanation is less likely to be fulfilled than the one of review manipulation. Therefore, we think that the manipulation of WOM ratings should be attributed for this rating concentration.

7.2 Methodology and Results

As described, we collected data from the two sources, the retailer's own web store and the public page on a third-party social network. The key difference between the reviews from the two sources is that WOM in public page are less likely to be manipulated. In other words, WOM in social networks more precisely represents consumers' evaluations toward the products. The difference between the WOM across the two platforms could potentially help us identify the intensity of manipulations. Previous research suggests that both volume and rating are critical predictors of the sales of product (e.g. Chen and Xie, 2005; Chen et al., 2011; Godes and Mayzlin 2004). However, in our study, reviews could only be posted within 6 months after the transactions occur, therefore the WOM volume in web store is caused by sales but the other way round. To eliminate the influence of volume, we

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would control this variable in our estimation model instead studying the influence of WOM volume.

7.2.1 The Differences Between WOM on the Two Platforms

Prior studies suggest that WOM rating is an effective indicator of sales. When there is no manipulation at all, online reviews on the two platforms are expected to be equally effective. However, the implementation of manipulation may decrease the authenticity of online WOM rating and therefore reduce its predictive power. Here we first study the effectiveness of the WOM on the two platforms to further support our basic assumption. We try to approximate the WOM ratings on the public page as follows: consumers could read the product advertisements and "like" it, which could be considered as a bipolar rating system that "like" is similar to posting a positive WOM. Otherwise, no "like" means a neutral or negative WOM. Therefore, we use the ratio of "likes" and "reads" to approximate the WOM rating and total number of "reads" as WOM volume.

Consider the estimating equation:

(1) $Sale_{ij} = \mathbf{X_{ij}B_1} + \mathbf{OwnWOM_jB_2} + \mathbf{ThirdWOM_jB_3} + \varepsilon_{ij}$

This specification estimates the correlations between the sales and online product WOM. Our primary interest will be the predicting power of average ratings from both the retailers' own websites and the third-party social networks, on the 31 days cumulative sales. $Sale_{ij}$ represents the unit sales for product j in promotion i, $\mathbf{X_{ij}}$ contains the controls for the characteristics of campaign i and product j such as brand status, season, theme, giveaways, coupon rebates, discount rate and time limit. $\mathbf{OwnWOM_j}$ contains the volume and average ratings of the reviews for product j on retailers' websites. $\mathbf{ThirdWOM_{ij}}$ contains the approximated ratings of product j in promotion i on the public page, as well as the total amount of "reads" promotion i receives. To directly compare the effect sizes of key variables, we use the standardized value of the key measures.

Prior literature suggests that ratings cannot significantly influence the sales of products after considering volume (Liu, 2006), dispersion (Godes and Mayzlin, 2009) and endogeneity (Duan et al., 2008). These findings are counter-intuitive because it is commonly believed that consumers would refer to online reviews before making purchase decisions. Zhu and Zhang (2010) suggested that several factors including review manipulation may be attributed to this counter-intuitive finding. In our study,

we assume that consumers are aware of review manipulations, thus influence of reviews would be weakened. Even though it is commonly believed that the average ratings indicate the quality of a product and should be positively correlated with sales from the online store. However, if reviews are suspected to be manipulated, consumers would adjust their reliance on product reviews. According to our assumption that review manipulation is more likely to occur on the retailer's own web store rather than on the social networks, we expect the average rating on retailer's web store would have weaker influence than the "ratings" on the social network. The estimation results are shown in Table 10.

<center>(Insert Table 10 here)</center>

From Table 10, we note three key findings from the analysis. First, we focus on the effect of average rating and volume of the reviews on retailer's own web store, as shown in the column 1. As we expect, the estimated coefficients suggest that the average review rating is not significantly correlated with cumulative sales when product-level variables are controlled. Second, the estimated coefficient suggests a strong and statistically significant impact from the rating of the public page on the cumulative sales even after controlling for the amount of reads, as shown in the 2nd column. Third, the approximated rating in social networks (with fewer manipulations) performs better in predicting sales than rating in its own web store (with more manipulations) in terms of the significance level. In other words, the cumulative sales significantly correlate with their initial preferences but not the observed reviews. All the control variables have the expected signs. We find negative effects of price and time limit as well as the positive impact of coupon and discount rate on the cumulative sales. The result supports our assumption that reviews on the web store suffers from more severe manipulations and thus has less value to the shoppers.

7.2.2 Manipulation Intensity

We have explored the effects of average ratings on web store and public page in last section. To further investigate the direct influences of review manipulations, we adopt a more accurate measurement of manipulation intensity. One of the goals of review manipulations is to increase the percentage of positive reviews; hence, the difference between the WOM ratings of same products could approximate the increased no. of positive reviews and the relative intensity of manipulations. This approach is similar to the one used by Mayzlin et al. (2013). The proxy of relative

manipulation intensity is:

$$\text{Manipulation Intensity}_j = \frac{\text{No. of positive reviews}_j}{No.\ of\ reviews_j} - \frac{\text{No. of likes}_j}{No.\ of\ reads_j}$$

Where $\text{Manipulation Intensity}_j$ represents the relative manipulation intensity product j suffers. $\text{No. of positive reviews}_j$ indicates the amount of positive reviews (4 and 5 stars) for product j on the retailer's own website, while $No.\ of\ reviews_j$ indicates the volume of reviews to product j. No. of likes_j refers to the amount of "likes" the promoted product j receives on its public page and $No.\ of\ reads_j$ refers to the number of times that the advertisement of product j was read. Here we take difference for the two transformed ratios because the ratio of positive reviews is tremendously larger than the ratio of likes (Mean=0.9515 vs. 0.0076). They are transformed into the range [0, 1] in order to balance the weights of information carried by the proxy. The details of transformation are presented in the appendix. Now consider the estimate equation 2:

(2) $Sale_{ij} = \mathbf{X_{ij}}\mathbf{B_1} + Manipulation_j\mathbf{B}_3 + \varepsilon_{ij}$

Similar to equation 1, $Sale_{ij}$ represents the unit sales for product j in promotion i. $\mathbf{X_{ij}}$ contains the controls for the characteristics for campaign i and product j such as brand status, season, theme, free extras, coupon rebates, value, discount and time limit. OwnVolume_j indicates the volume of the reviews for product j on retailers' websites. Manipulation_j means the relative manipulation intensity of promoted product j. Our primary interest in equation 2 is to find the relationship between the cumulative sales and the relative manipulation intensity. We hypothesize that the increased ratio of positive reviews would increase product evaluations and cumulative sales. The estimates of equation are shown in Table 11.

(Insert Table 11 here)

From Table 11, we notice that the estimated coefficient of manipulation intensity on cumulative sales is positively significant (1st and 2nd column), suggesting that the increase in the ratio of positive reviews effectively promotes sales, which supports hypothesis 8. This shows that generally, manipulated reviews significantly boost consumers' purchase willingness. The signs of other control variables are consistent with the results of equation 1.

In contrast to the simulated settings in study 2, buyers may be more sensitive to the deceptions. However, retailers should also elaborately disguise the abnormalities

in case their efforts do not pan out. Hence, in real settings, review manipulations turn to be more complicated and may significantly influence consumers' judgments. This provides sufficient temptation for sellers to manipulate the reviews. Even the cues of manipulation are so elaborately disguised that the first-time shoppers can hardly detect the manipulated reviews, but prior experiences may lead consumers to adjust their beliefs. In the next section, the key issue is to investigate time effects of manipulations.

7.2.3 Effects of Manipulations Over Time

In this section we investigate the effect of manipulations on sales overtime, i.e. the influence of time on the performance of manipulations. Previous research shows that consumers actually learn from online WOM and further modify their knowledge. In long run, online review manipulations would increase the perceived risk of buyers (Zhao et al., 2013). In the context of review manipulations, consumers update their knowledge by receiving the products which is not as high quality as the reviews suggested. Following the logic, manipulations should be effective at the early stage, but after a period, consumers would eventually discover this trick and adjust their reliance on the suspicious reviews. We divide the promotions into 3 groups according to the occurrence date and code them into a category variable. The interaction terms of time dummy and manipulation intensity are introduced to equation 3 that we could further test the influence of time. Now consider equation 3:

(3) $Sale_{ij} = \mathbf{X_{ij}B_1} + Manipulation_j \mathrm{B_2} + Manipulation_j * \mathbf{TmeDummy_i B_3} + \varepsilon_{ij}$

The definitions of variables are similar to equation 2. $\mathbf{TimeDummy_i}$ represents the time when promotion i occurs, and the interaction term indicates the impact of time on the influence of manipulations. To contrast the three periods, we select time period 2 as reference. We expect that the coefficients of the period-1 interaction to be positive while period-2 interaction to be negative, i.e., the impact size of increased positive review ratio decreases over time. The estimate results are shown in Table 12.

<center>(Insert Table 12 here)</center>

The estimates of equation 3 partially support our hypothesis 9. The results suggest that the impact size of manipulation intensity increases from time period 1 to 2 ($\beta=-79.88$, $p<0.05$), but from period 2 to period 3, the impact size dramatically decreases ($\beta=-107.35$, $p<0.01$). All other coefficients of control variables are expected as our previous results. The estimates support our prediction that review

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manipulations would eventually lose its power over time and turn out to be an ineffective marketing strategy over the long run.

7.2.4 Robustness Checks

In this section, we would further check the robustness of our results for various specifications. The biggest concern is the robustness of the manipulation intensity proxy, which indicates the relative increase in the ratings for a product. Manipulation intensity is measured by the difference between the ratios of positive reviews of two platforms. In previous section we considered both 4- and 5-star reviews as positive WOM, as suggested by previous research (e.g. Hu et al., 2011a; Mayzlin et al., 2013). However, in our case the average ratings on the retailer's own store is 4.74 out of 5, and over 90% of products receive the average ratings above 4.50 out of 5. In this case, the 4-star reviews may not be as positive as commonly considered since the 4-star reviews are lower than the average. Nonetheless, we provide robustness results where we examine the basic specification in equation 2 and 3, but consider only the determinants of 5 star reviews. The results of the robustness checks are shown in Table 13.

(Insert Table 13 here)

In the first column of Table 13, we consider only 5-star reviews as positive reviews to re-estimate the equation 2, and the second column for equation 3. Notably, the exclusion of 4-star reviews doesn't alter our previous results; the manipulation intensity significantly impact on the cumulative sales (β=13.63, p<0.001) and the size of this effect decreases from the first time period to the third. This results better support our hypothesis 9 and 10.

Secondly, we include the volume of reviews in the measurement of manipulation intensity and re-test our hypothesis. In previous section, the difference between the two ratios of positive reviews would reflect the increased rating brought by the review manipulations (Mayzlin et al., 2013). However, volume of reviews may also affect the perceptions of product quality or popularity. For instance, to increase the average rating from 4.5 to 5 is more costly and convincing for the products with 100 reviews than for the products with only 10 reviews. To more accurately measure the manipulation intensity, we would also include the volume of reviews into the proxy, which is shown as:

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$$\text{Manipulation Intensity}_j = \left(\frac{\text{No. of positive reviews}_j}{\text{No. of reviews}_j} - \frac{\text{No. of likes}_j}{\text{No. of reads}_j} \right) * OwnVolume_j$$

Here, we multiply the volume of reviews with the differences of ratios, i.e., the increased rating multiplied by the volume of reviews. This new proxy represents the total number of stars one product is increased, in which the influence of volume is considered. Table 14 repeats the regression specifications of Table 13, replacing the proxy of manipulation intensity with the new one.

(Insert Table 14 here)

In the first column of Table 14, as we read, in the influence of manipulation intensity on sales remains unchanged, suggesting that including the volume would not significantly alter our previous finding with respect to hypothesis 9 (β=0.79, p<0.001). The second column of table 14 shows that the relationship between manipulation intensity and sales still decrease over time, indicating that the H10 still remains valid even after the influence of volume is included. Overall, we take these two sets of results as supportive the robustness of our findings are robust when alternative proxies of manipulation intensity are considered.

7.3 Discussion

Our preceding analyses in this chapter focus on the influence of manipulations on the reviews effectiveness and product sales. We first investigate the predictive power of the ratings across different platforms--- web store and social network. Secondly, we approximate the relative manipulation intensity and empirically examine the influence of review manipulations on sales. Third, we also examine the correlations of review manipulations and cumulative sales overtime. The results of our analysis suggest that, 1) the average review ratings in the retailer's own web store (with more manipulations) cannot effectively reflect the sales of products, while the approximated ratings on a third-party social network (with less manipulations) predict sales more accurately, suggesting that manipulations would decrease the predictive power of WOM; 2) review manipulations positively correlate with the cumulative sales of products; and 3) although review manipulations positively influence sales, its impact size decreases over time. The results are expected because, as mentioned by our interviewees in pre-study, experienced consumers may expect manipulations in the store of independent retailers rather than on third-party website. Furthermore, we also believe, consumers, as intelligent beings, also learn and adjust

their knowledge toward the reference value of reviews. Experiencing review manipulation would teach consumers to rely less on the suspicious reviews to make their decisions, thus weakens the correlation between average ratings and sales. This is supported by of previous studies that review manipulations increase the risks of consumers (Zhao et al., 2013), and the updated beliefs make manipulated rating to eventually lose its effect and even backfire the manipulators.

To sum up, in this chapter, we empirically investigate the relationship between review manipulation and the cumulative sales, and its potential consequence. The results could better illustrate the performance of this strategy and the consequences of adopting it.

Chapter 8   Discussion

8.1 Results and Conclusions

In this thesis, we attempt to address the following questions: Whether review manipulations are workable as marketing strategies? How would consumers respond to different manipulations? Apparently, previous literature fails to answer the two questions. The mechanism of how review manipulation influences consumers was verified in the four subsequent studies. The results of our hypotheses are listed in Table 15.

(Insert Table 15 here)

To guarantee that our analysis is not divorced from the reality, we first explored consumers' views of review manipulations. In the exploratory study, we interviewed 16 experienced online consumers about their knowledge and attitudes toward the three popular manipulation strategies. The records of interviews show that consumers have the general knowledge of different categories of manipulations. Besides, they recognize these tactics as unethical behaviors and such strategies would negatively influence their emotions (e.g. distrustfulness) as well as depress their willingness to buy. The interviewees evaluated the three different strategies in terms of severity and tolerance. Among the three, the majority of the interviewees show aversion toward deleting/hiding negative reviews and posting fake positive reviews, because they think these two tactics modify the intact information and essentially influences their decisions. Besides, the interviewees also differently evaluate the incentive strategy, which they think is less serious and sometimes tolerable. We further compared the content of interviews with an existing theoretical framework (e.g. Information Manipulation Theory) to shed light on the background knowledge and theoretical direction of the quantitative analysis.

In study one, we surveyed consumers to investigate their attitudes about the three manipulation patterns. The study mainly differentiates the three categories in terms of perceived deceptiveness and ethicality. The results confirms our hypotheses that, among the manipulation strategies, deleting/hiding negative reviews is commonly rated as the most deceptive and most unethical, followed by adding positive reviews and offering incentives to positive reviews. This suggests that reviews manipulated by deleting strategy would evoke the most negative consequences if consumers encountered and detect certain types of manipulation (i.e. fully aware of

manipulations).

In the following study 2 we investigated how consumers cope with review manipulations under a more realistic setting, where subjects were required to make their own judgment in simulated field-experiment scenarios. Our analysis shows that manipulated reviews would invoke more suspicion of deception compared with intact reviews. This supports the findings in previous empirical study that consumers could detect manipulations in rating (Hu et al., 2011b), but the manipulations cannot significantly decrease purchase intentions. In other words, even though consumers generally hold negative attitudes toward different manipulations, their purchase intentions are not significantly reduced. The hypotheses of two stage moderations of persuasion knowledge are also well supported. PK first enhances the suspicion caused by manipulations. This is consistent with previous research that persuasion knowledge drives individuals to be more sensitive to persuasion behaviors (e.g. Kirmani and Zhu, 2007). It also moderates the consequences of suspicion in that it decreases purchase intentions of focal products. In other words, persuasion knowledge not only enables consumers to discover review manipulations, but also lead them to more appropriately cope with them. Besides, our analysis also suggests that, to the consumers with higher persuasion knowledge, the relationship between manipulations and purchase intention is mediated by subjects' suspicion. Through the process, persuasion knowledge promotes consumers to suspect manipulated reviews but also to reduce the negative influence of suspicion.

In study 3, we empirically investigate the influence of review manipulations on product sales. We compare the predictive power of WOM on an independent retailer's own web store and on third-party social networks. The results support our basic assumption that the average ratings on the company web store enjoy comparatively less predictive power on sales than the response to the advertisements on the public page. Thus, consumers discount the information obtained from the reviews that they don't trust, while their purchase decisions are primarily based on their own evaluations. In addition, the changes in sales brought by manipulations are also examined. Analysis of equation 2 indicates that manipulation (intensify) positively correlates with the cumulative sales of focal products. In the real online transactions, the deliberately designed review manipulations are effective marketing strategies instead of causes of the antipathy. The results are consistent with the

findings of Hu et al. (2011b) that consumers could only partially eliminate the influence of fake reviews. More importantly, we also find that that after a sufficient period, the general influence of review manipulations on sales decreases. We find that the impact size of manipulation intensity drops from year 2012 to 2013, which is consistent with the prediction of Dellarocas (2006).

To sum up, the four sequential studies investigate review manipulations from the perspectives of consumers' attitudes, response and effectiveness. The results could be generalized as 1) consumers generally considered deleting manipulation as the most intolerable strategy while incentive to positive reviews as the most acceptable; 2) reviews with manipulations invoke more suspicion of deception than authentic user reviews, but the purchase intentions are not significantly influence by manipulations; 3) persuasion knowledge both enhances the suspicion brought by manipulations and weakens the negative influences on purchase intentions; and 4) review manipulations are able to promote sales of products, but the benefits decreases overtime.

Our research contributes to the literature of review manipulations that we are the very first to compare the three commonly adopted manipulations tactics. The unique characters and properties of the three categories may diversify future research into specific directions. The Information Manipulation Theory is extended to the context of online review manipulations, based on which the revised framework in our study provides a solid background framework for the future studies of review manipulations.

Another important contribution is that we further investigate how review manipulations shape consumers' attitudes in online transactions. Prior literature seldom studied how manipulations influence consumers' purchase decisions, which should be of great interest to managers and consumers. As far as I know, we are also pioneering in studying the influence of review manipulations on transaction willingness. Furthermore, we empirically verify the influence of manipulations on product sales, as Mayzlin et al. (2013) appealed. The results of our studies would shed light on further research such as online WOM, review manipulations and online deceptions.

The persuasion knowledge literature is also enriched by our analyses. Prior PK research generally focused on the offline interpersonal communications, while in our study we introduce persuasion knowledge into a more complicated online

environment. The results show that the Persuasion Knowledge Model remains valid in such a context. Besides, persuasion knowledge is previously considered as the trigger of negative reactions of consumers toward the persuasive attempts, as our analysis indicates. But we also found surprising evidences on the contextual effects that persuasion knowledge would also lead consumers to tolerate the "latent rules" and react less negatively to the persuasive attempt. With the help of PKM, we understand better the underlying mechanism of reactions invoked by review manipulations.

To sum up, the thesis significantly contributes to the academic literature from the perspectives of online WOM, review manipulations, Information Manipulation Theory and Persuasion Knowledge Model. The results of our analysis also provide rigorous academic suggestions to online shopping market.

8.2 Managerial Implications

Review manipulations are commonly used by online retailers and manufacturers as a powerful marketing tool, which costs little but generates much benefit. These benefits popularized this marketing behavior among e-tailers. On the other hand, these behaviors are generally considered as deceptive and unethical by consumers and regulators. It is believed that once direct evidence of these behaviors is obtained, the manipulators may suffer from consequences such as loss of credibility or prosecution. Although the retailers elaborately disguise the manipulated reviews in order to be persuasive, the popularity of review manipulation still offers shoppers a golden opportunity to learn the knowledge as well as protecting their own rights. As buyers' knowledge and experiences improve, the magic power of these strategies may eventually fade away. Therefore, one of the most challenging questions is whether these strategies are effective or even backfire? Although introduced by previous literature, few studies have examined these questions from the perspective of consumers, i.e., how would consumers think of different manipulation strategies and how would they respond to them?

Our analysis shows that the consumers' knowledge and attitudes toward manipulations vary across different tactics. Among them, deleting is commonly perceived as most negative one, while incentive as the least negative one. The uniqueness of each strategy determines its hazards to the consumers and development of e-market. Comparing with adding fake reviews and offering incentives, deleting

negative reviews is not only the most misleading but also enjoys the highest difficulty to be detected. As our interviewees mentioned "these behaviors disguise the crucial negative WOM and violate their rights to know, which unethically lead them to make inferior deals". In other words, deleting distorts the reference value of online WOM to the greatest extent and its influence cannot be easily ruled out. This "nuclear weapon" may lead to the most severe consequences. Therefore, the market regulators should be paid more attentions to the implementation of the harmful tactic.

Furthermore, offering incentives for positive reviews are relatively tolerable from the perspective of consumers. In contrast to the other two tactics, offering incentives to consumers may slightly increase product ratings, but may not totally change the essence of the review, as most consumers would not recommend a poor product just for a small compensation. Therefore, the incented review should still be considered as informative and objective. Moreover, consumers may not consider offering incentives as deceptions but as remediation for service-failure, since it is a voluntary activity and the manipulated reviews are still generated by consumers. If managed appropriately, such manipulations could help promote the quality of online shopping services. Therefore, e-commerce operators may adopt this strategy with caution, and regulators need to monitor the incentives in case of inappropriate variants such as harassment and intimidation.

Our study also suggests that review manipulations can effectively increase sales without serious consequences in a short term, but we strongly suggest that the manipulators should stop using them. Prior literature claims that review manipulations increase both risks of online shopping (Zhao et al, 2013) and costs of e-retailers (Dellarocas, 2006). On one hand, consumers equipped with knowledge of manipulations generally cast doubts on positive online WOM or even sometimes become over-sensitive (i.e. consider intact reviews as manipulated). This has been referred to as the *generalized suspicion* (e.g. Darke et al., 2007). The loss of confidence in online WOM may deteriorate the environment of online market. In other words, the increased risks force consumers to be cautious about the review pitfalls and increase the costs of consumers. On the other hand, once consumers recognize the manipulations, the negative influence would spill over to other similar merchants. Non-manipulators also have to pay more to maintain their reputations and endure the loss of review credibility. The rat race among e-retailers may induce

non-manipulators to engage in review manipulations and increase the resources spent on manipulating reviews. In a long run, fierce competitions require manipulators to invest more on these unethical behaviors, which significantly endangers the healthy development of e-commerce.

There is also some bad news for the manipulators. Consumers generally hold the belief that independent retailers are less trustworthy than well-known retailers and third-party platform providers. According to our analysis, the influence of average rating on the retailer's web store (with more manipulation) cannot catch that of WOM on a third-party platform that has less manipulation. Besides, the analysis also shows the decreasing effect of review manipulations overtime. Even though the increased ratings significantly increase sales, given sufficient time, consumers would eventually notice them and adjust their reliance on the suspected WOM. Our analysis shows no evidence that manipulations would significantly reduce sales, but we strongly believe that the consequences caused by the bad reputation would gradually offset the profits cumulated in the early stage. Furthermore, with the enhancement of related laws and regulations as well as emergence of experienced consumers, the increasing competitions and costs of manipulations also remarkably change its performance. Therefore, review manipulations, especially adding fake reviews and deleting negative reviews, may not be the optimal strategy for retailers.

Policy makers and market regulators should also pay special attention to review manipulations. On one hand, according to our analysis, review manipulations are commonly considered as unethical activities whose victims are average consumers. They cannot completely filter out the "noise" in online WOM and consumers using the distorted information might not be able to make optimal choices. The utility loss forces consumers to stay alert to the pitfalls and gradually lose confidence in e-commerce. On the other hand, consumers with generalized suspicion may depreciate the high-quality online WOM of the honest e-retailers. This may lead to a vicious cycle in which honest sellers are forced to participate in manipulating WOM. Globally, the vicious cycle definitely impedes the healthy development of e-market. To prevent such consequences, policy makers and regulators should devote sufficient resources to ensure the functioning of the fair market mechanism. For instance, as the strategy of deleting negative reviews is more damaging to consumer welfare, regulations and laws should forbid this kind of behavior and increase the costs of

such a strategy. Therefore, we could suppress the wide-spread unethical strategies in order to protect the healthy development of e-market.

8.3 Limitations and Suggestions for Future Research

Among the research limitations of this research, a major issue is external validity. In our research, the focal products are mostly apparels, one classic category of experienced products. Online WOM may play a different role in evaluating search products because information could be obtained from multiple sources (King and Balasubramanian, 1994). Our study 2 was done using student subjects, which may influence the generalization of our findings. Student samples are suggested to be more active in online shopping and more likely to use persuasion knowledge (Campbell and Kirmani, 2000), while the average consumers may not be as sensitive as the samples that we used in our study. Cautions should be exercised in generalizing these findings to other product categories and the average consumers. Future research may examine the generalizability of the phenomenon to other product categories and other subject populations.

Another key limitation in our research is that we cannot empirically examine the influence of manipulation on attitudes change across different tactics. One of the biggest problems is that the extent of manipulation by different tactics remains to be clarified. Hence, the degree of manipulation among the three tactics is not comparable, which significantly limits the effectiveness of inter-scenario experiment. For instance, in study 2, because the efforts devoted into manipulations are not comparable among the 3 tactics, we cannot rigorously compare the influence of manipulation across them. The inter-tactic tests could only be done unless the levels of manipulation are the same. Therefore, in future research, of the extent of manipulativeness among the tactics should be explored, as manipulation strategies may influence consumers' attitudes in different ways. For example, the difference between "adding one 5-star fake review" and "adding one 4-star fake reviews" may be interesting.

In addition, future research could improve the measurement of manipulation intensity. In our research, even though the approximation of relative manipulation intensity is relative valid and robust, it is difficult to accurately quantify the extent of review manipulations. Indirect measurement may include other factors that affect the accuracy of the measurement.. We strongly suggest that future researchers gather

direct evidence or detailed information of review manipulation and develop a more accurate proxy of the manipulation intensity.

Future research could also further investigate the distinctions between incentive strategy and the other two. In our analysis, we treat all the three types of manipulations as homogenous, that is, they are all deceptive and unethical marketing activities. However, the interesting point is that some of our interviewees considered incentive manipulation different from adding and deleting. They show that, comparing with adding and deleting, incentive turned to be much tolerable and acceptable in the opinions of consumers. Besides, the results also suggest that incentive is rated as far less deceptive and unethical than the other two. To explain the distinction, we believe the essential differences between incentives and other manipulation strategies should be highlighted. For instance, should offering incentives be treated as deception that is harmful to consumers or service-failure recovery that is beneficial? Hence, future researchers are encouraged to further investigate the distinctions between incentive manipulations and the other two strategies.

Appendix A   Discussion Guide For Online Shoppers

1. <u>**Warm Up**</u>

   o   Gender, Age, Occupation

2. <u>**Internet usage and online shopping experience (10 minutes)**</u>

Objectives:
   -   To find out his/her online shopping experience
   -   To understand his/her usage of online product reviews

   o   *Online Shopping Experience*

   - Have you ever purchased products on the Internet?

   - If yes to the above question, from which websites you purchase the most often? Which categories of products have you purchased the most often (books, electronics, clothing, toys, movies……)? Probe motivations of online shopping

   - How many times have you purchased the products online in the past 3 months?

   - How much money have you spent on online shopping per year? Please estimate.

   o   *Usage of Online Product Reviews*

   - Have you ever read the online product reviews before making purchase decision?

   - What type of information are you interested in? (+ or – reviews, reputation of the seller…)

   - How much do you rely on the online product reviews for making the purchase decisions?   Probe why.

3. <u>**Suspicion and awareness of different manipulations strategies (10 minutes)**</u>

Objectives:
   -   To understand consumers' suspicion about the seller manipulations of online product reviews
   -   To find out their awareness of different manipulation strategies

   o   *Usage of Online Product Reviews*

   -   Are you suspicious of manipulations by a seller (do you feel something wrong with the online product reviews)?

   -   If yes to the above question, <u>the extent to which you are suspicious</u> about the occurrence of the seller manipulations. Use 1-10 point scale to describe perceived suspicion of the online product reviews (1 – not at all

suspicious, 10 – extremely suspicious).

Probe what are the cues that make you suspicious about the occurrence of the manipulations (too many positive comments, high ratings, incentive to encourage the positive postings…)

- If no to the question, explain why you are not suspicious of manipulations by a seller.

  o *Awareness of different manipulation strategies*
    - What strategies do you know the sellers would use to manipulate the online product reviews?

Evaluation of different manipulation strategies (20 minutes)
Objectives:
- To find out respondents' responses toward different manipulation strategies

Rotate order of different manipulation strategies when doing the interview with different respondents.

Strategy 1: Incentive Manipulation

An online company employs various tactics for encouraging customers to create online product reviews by offering some type of <u>incentive</u> in exchange for content.

Strategy 2: Deleting Negative Reviews

An online company automatically filters out (delete) negative consumer reviews.

Strategy 3: Adding Positive Reviews

An online company posts positive reviews for its own product. For example, in February 2004, an error at Amazon.com's Canadian site caused Amazon to mistakenly reveal book reviewer identities. It was apparent that a number of these reviews were written by the books' own publishers and authors.

Can lead them to freely talk about these 3 strategies

o Would you tell me your overall impression about each manipulation strategy? Which one do you think is most negative?

o Rank the perceived deceitfulness among the three (隐蔽性，欺骗的严重性).   <u>Probe why</u>.

o Rank the perceived ethicality among the three. Probe why.

- o Rank the perceived ease of detectability. Probe why.
- o If such a manipulation strategy is applied by the online store you usually shop, how much would it affect your attitude toward the seller? *(trust, confidence, or stay away, or even blacklist them, NWOM to other consumers…)*
- o Influence on the purchase decisions. Use 1-10 point scale to describe the impact of strategy on your purchase intention (1- not at all influence; 10 – totally change my decision)
- o Do you feel it is fair or ethical to manipulate reviews? How would you feel about regulations by government or industries?

CONCLUSION AND WRAP UP

APPENDIX B   AN EXAMPLE OF THE SCENARIO DESIGN

Product Details

Customer Reviews

★★★☆ (11)
3.3 out of 5 stars

ABC Brand outdoor shoes
Item Weight: 2 pounds
Shipping Weight: 2 pounds
ASIN: B*******Y
Price: HK$580.00
Please check shipping policy
here!

5 star	■	3
4 star	■	3
3 star	■	1
2 star	■	2
1 star	■	2

Please find the most **recent 6 reviews** (**the reviews should be ordered by their posting dates**) here. For more reviews, please go to the next page.

★★★★☆ **Some kinks**, *March 7, 2013* By **Michael L Reynolds**
The shoes are very comfortable, even though they run small. Even after I returned a pair and got a size bigger, the left shoe was tight on my big toe. After two weeks of wear, they have loosened enough to where this is not a problem.

★★★★★ **The shoes are amazing**, *January 9, 2013* By **asdf%#0**
The shoes are amazingly good! And it's perfectly comfortable! I would like to buy another pair just for my dad!!

★★★★★ **Great Hiking Shoe**, *January5, 2013* By **asdf%#0**
I purchased these for a 10 day hiking trip and they were perfect. They are extremely comfortable and durable! What a good deal! Trust me! These are the shoes that you need if you are a serious hiker! You can take my words for it!

★☆☆☆☆ **tight fit uncomfortable, same size has always been good for me**, *January 4, 2013* By **acadia hiker**
This is the second pair of ABC shoes I have purchased. The first pair has been great. This pair is uncomfortable in the same size.

★★★★★ **Replaced My 10 Year Old Pair**, *December 25, 2012* By **asdf%#0**
This is my 2nd pair in 10 years. These shoes are amazing. Comfortable, dry, sturdy and light. Can't ask for anything better and the fact that my 1st pair lasted as long as they did is recommendation enough!

★★☆☆☆ **Comfortable, but not durable.**, *December 24, 2012* By **Kevin**
I used this shoe hiking around and playing disc golf. Less than two weeks and about 10 miles into using the shoe, it developed around a 3 inch rip on the outside of the shoe. I promptly set them back for a refund. They were very comfortable, but obviously I had concerns with the durability.

This material is designed for subjects in adding group. In the scenario, a consumer named "asdf%#0" repeatedly post positive reviews using extreme words.

APPENDIX C   FIGURES

ASIN	AverageRating	TotalReviews	Rating	HelpfulVotes	CustomerId	TotalVotes	RevDate	
0385504209	3.5	3052	4	36	A1M4NJYP0WNLBQ	52	2004-05-08	Take Only As Dir
0385504209	3.5	3052	4	11	A16W9E27VW9IND	36	2004-05-05	Gripping and intri
0385504209	3.5	3052	5	27	A2MV5ADA3568DO	56	2004-05-04	A "Code" Worth
0385504209	3.5	3052	3	37	A3TEH90X39WC8F	43	2004-04-30	What Makes a T
0385504209	3.5	3052	5	13	A2SIE5S9TB4JI9	36	2004-04-29	I AM ENJOYING
0385504209	3.5	3052	1	35	A2JA9LYSXZES1A	83	2004-04-25	probably better if
0385504209	3.5	3052	1	35	A10ZH57J6QP844	46	2004-04-24	Buyer Beware
0385504209	3.5	3052	2	57	AU1XXY2S6FZQ2	86	2004-04-23	I dont get it
0385333218	5	491	5	0	A8LB47171JOQJ	0	2000-07-20	AN ADVENTURE
0385333218	5	491	5	0	ASNLJKAV3DBZX	0	2000-07-19	Funny, poignant,
0385333218	5	491	4	0	A1YVCJVWGCOIAI	0	2000-07-18	A Sweet Book
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-10-04	One of the best b
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-10-03	Just great
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-10-03	The book was an
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-10-02	A Wonderful Boo
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-09-29	Dreams Beyond
0385333218	5	491	5	0	AHVTCYHS5XSYM	0	1999-09-28	AN INSPIRATION
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-09-25	THANKS FOR T
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-09-23	A wonderful book
0385333218	5	491	5	0	A3N8ITRDS67TVO	0	1999-09-23	Fantastic
0385333218	5	491	5	0	A3IX35WEY1Q21U	0	1999-09-09	I havent read a b
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-09-03	THIS BOOK IS I
0385333218	5	491	5	0	A2WVAQN7UM2LDW	0	1999-09-03	Wow!
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-09-02	All childhood roc
0385333218	5	491	5	0	A19EWP1U3X1I2B	0	1999-08-29	Inspirational stor
0385333218	5	491	5	0	A2THG37NXPJB6C	0	1999-08-28	A Superior Book
0385333218	5	491	5	0	ATVPDKIKX0DER	0	1999-08-28	Americana at its
0385333218	5	491	5	0	A2Z9YD0WG6VB0G	0	1999-08-28	If you read only o

Figure 1   An Example of Adding Manipulation
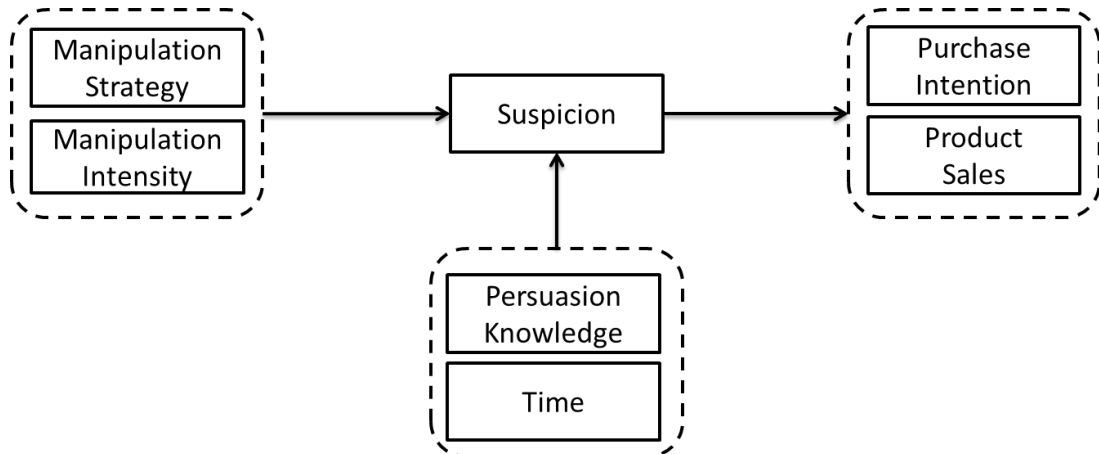
Figure 2   Conceptual Framework

High PK consumers

Suspicion

A: -0.76*** D: -0.35** I: -0.51***

Manipulations (Adding, deleting and incentives)

A: 0.42** D:0.40** I: 0.21

Purchase Intention

Low PK consumers

Suspicion

A: -0.15   D: -0.03   I: -0.36

Manipulations (Adding, deleting and incentives)

A: 0.42** D:0.40** I: 0.21

Purchase Intention
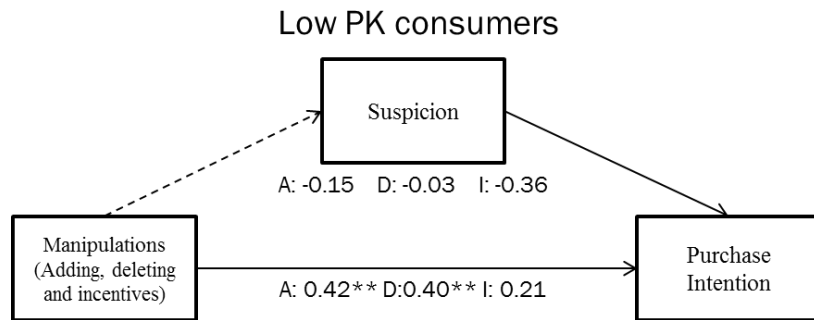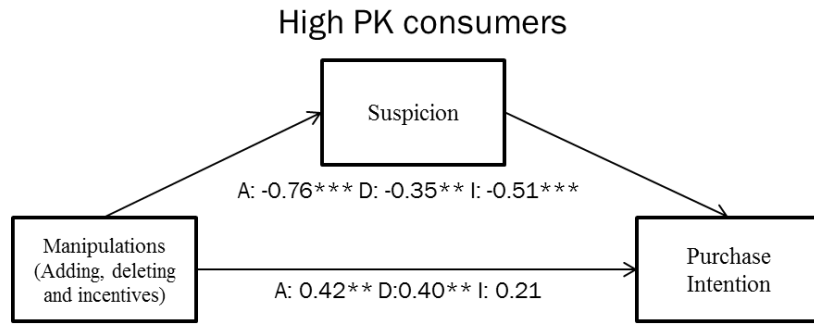
Figure 3 Mediating Effects of Suspicion

Adding Path

Manipulations (Adding, deleting and incentives)

Suspicion

Purchase Intention

1.09***

Persuasion Knowledge

0.17**

Deleting Path

Manipulations (Adding, deleting and incentives)

Suspicion

Purchase Intention

0.56*

Persuasion Knowledge

0.17**

Incentive Path

Manipulations (Adding, deleting and incentives)

Suspicion

Purchase Intention

0.31

Persuasion Knowledge

0.17**

Figure 4   Two Stage Moderating Effects
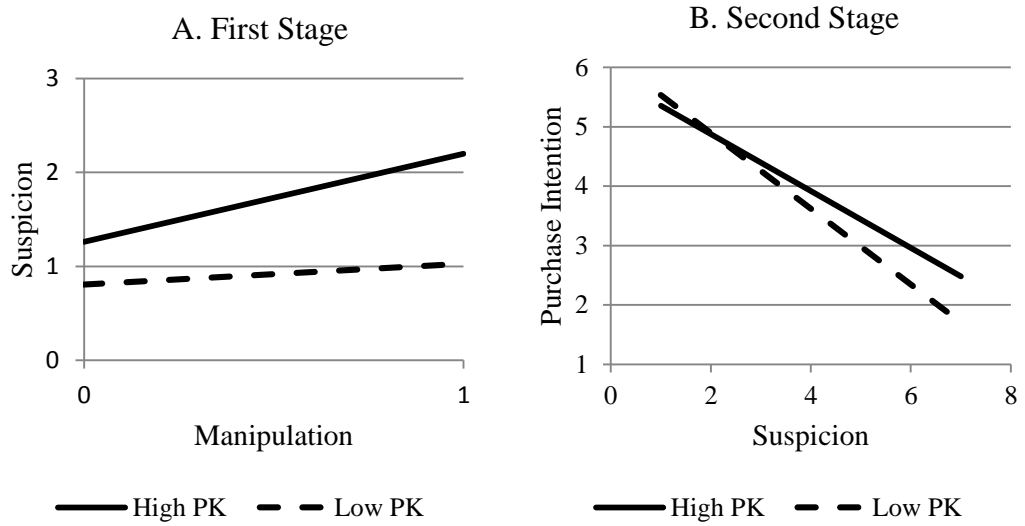
Figure 5   Plots of Simple Effects
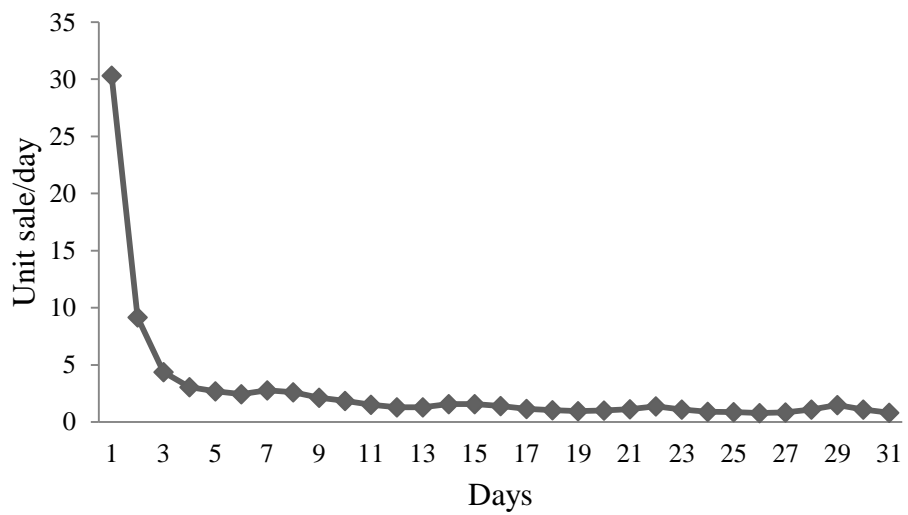
Figure 6   Average Daily Sales Over 31 Days
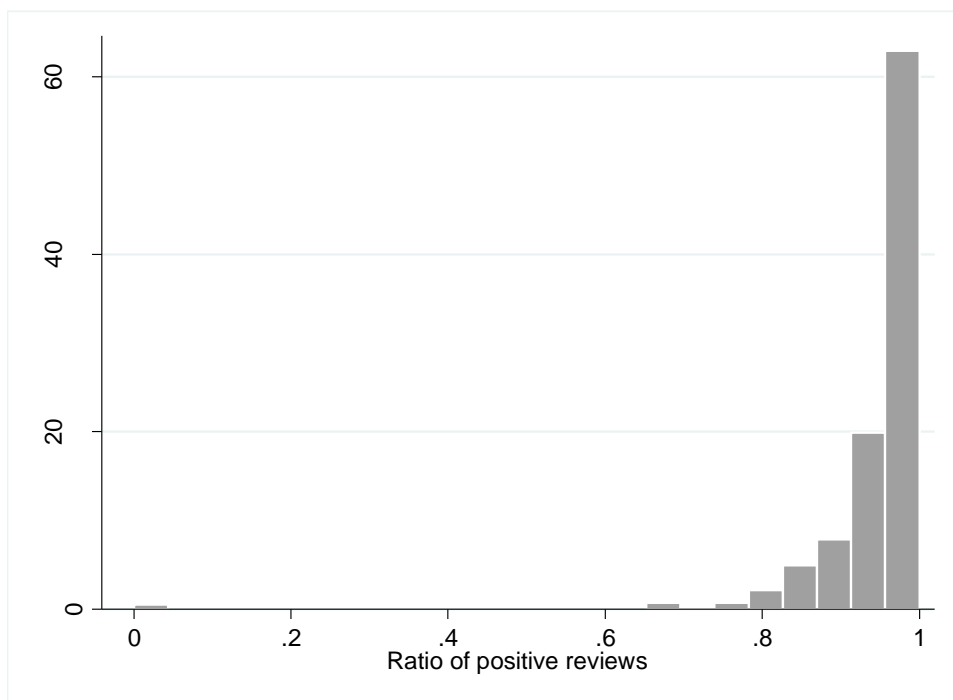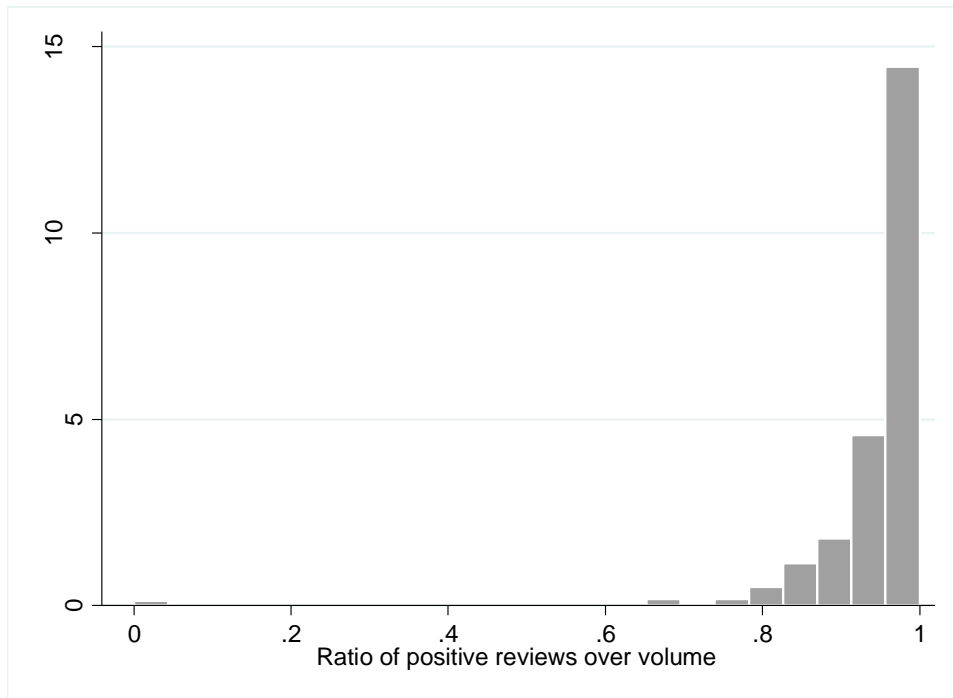
Figure 7   Distribution of Rating and Likes

Table 1   Awareness of Different Manipulation Tactics

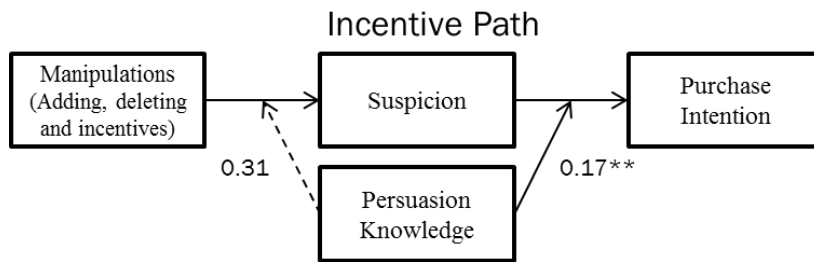| Manipulation Tactics	Example quotes
Incentive	- Once you buy products from a website, they will give you discounts in return for good reviews. (F5) - Sometimes, the seller will privately contact buyers with special offers in return for good reviews. Or, they might harass and bother the buyers, in an attempt to get them to change their negative reviews to become positive. (F10) - The seller may bribe the customer as payment for good reviews. (F11) - The seller might even directly give cash rebate or send gifts, in the hopes that buyers will leave good reviews. (M3) - The seller of Taobao will contact me when I left a negative review and promise to offer me extra benefits if I remove the negative reviews. (M5)
Adding	- When there are users who repeatedly post good reviews, or the product does not appear very popular yet, the only reviews are all positive and do not raise any issues, the reviewers appear to be less genuine. (F2) - I have heard that sellers employ professional shill reviewers in order to increase their positive reputation by posting more good reviews. (F5) - The sellers either pay professional shill reviewers to leave good reviews or they themselves create multiple accounts under false names and leave positive reviews on their own products. (M1) - The seller may ask his close friends or relatives to leave good reviews, in an attempt to convince potential customers to buy the product. (M3)
Deleting	- Some sellers will deliberately highlight the positive reviews, while putting aside the negative reviews. (F9) - If it is on the seller's own website, they will manipulate the buyers' view by deleting any negative reviews behind the scene. (F10) - In order to block the negative reviews, they will delete the negative reviews or edit them to become positive. (F11) - When they have connections to the administrator of the website they are selling their products on, they can get the assistance when deleting or editing any negative reviews. However, the probability of this situation occurring is very low, as only few seller ever have such connections. (M2)

Table 2   Suspicion of Online Manipulation Practices

Cues for Detection	Example Quotes
The quality of the content	- Finding that most of the good reviews contain similar or repeated content gives the impression of fabricated reviews. Likewise, excessively harsh reviews are likely written by competitors. (F6) - When you buy a product, you tend to look at different sellers offering the same products. If you find out that many of the reviews contain similar phases, content and tone, then they must be fabricated by professional "shill" reviewers. (F7) - When the same review is posted by different reviewers, at a glance, you can tell they are fake. (F8) - Reviews that have been repeated, are too short, or have given extremely high ratings are not believable, and likely copied and pasted. (F9) - Very short phrases like "good" and "very good." Or extreme words. For an expensive or medium-priced product, if they are described as without comparisons or substitutes, then we can tell. Copy and paste of whole sections are also problematic. (M3)
The quantity of the reviews	- If there are repeated purchases by the same person, followed by reviews and not showing the goods having been returned, they must friends of the seller trying to help shore up its reputation. (F1) - Buy your own products to increase sales volume to attract more sales, but there are not many reviewers only a few reviews. (F2) - Within one minute, the person produces many reviews and all of them are positive. The person is likely a false reviewer. (F8)
The mismatch between reviews, seller reputation and trade record	- If a seller's rating rises rapidly within a short period, it must be manipulated. If they been in business or on the shelf for not long, it is difficult to believe. (F1) - A prospective buyer will look at the seller reputation first, and if there are many good reviews despite a poor reputation, the seller will appear very suspicious. If many people are buying this product, then the good reviews are more believable. But if few people are buying the product at all, and there are still good reviews, then the reviews become quite questionable. (F9) - Sometimes all the reviews are good ones, not even a medium rating. That is not realistic. (F10) - When you buy a product, you have some basic knowledge. If some reviews are very different from your expectations or from other reviews, they seem nonsense. (M4)
The identities of reviewers	- Upon seeing so many repeated reviews by the same person, the reader will instantly become suspicious. (F2) - You can tell from the registered user IDs. We mostly give ourselves meaningful names. Some IDs are just random combinations of letters and numbers. I typically skip those reviews. (F4)

Table 3   How Consumers Perceive Different Manipulation Strategies

Manipulation tactics	Most deceptive	Most detectable	Most unethical	Most negative impact
Incentive	1	6	1	0
Adding	3	7	2	1
Deleting	**11**	**3**	**10**	**9**
All equally significant	1	0	3	5
All equally insignificant	0	0	0	1

Table 4   Multi-item Scales and Reliabilities

Measurement Scale	Reliability
Perceived Deceptiveness	
1. Accurate/Misleading	0.930
2. Truthful/Deceptive	
3. Factual/Distorted	
Ethicality	
1. Fair/Unfair	0.927
2. Just/Unjust	
3. Acceptable/Unacceptable	
4. Morally right/Not morally right	
Ease of detection	
1. Detectable/Undetectable	0.909
2. Distinguishable/Undistinguishable	

Table 5   Comparison of Mean Scores Among Three Strategies

	Adding (a)	Deleting (b)	Incentive (c)
Perceived Deceptiveness	6.11bc	6.28ac	4.54ab
	(0.070)	(0.052)	(0.082)
Unethicality	6.09b*c	6.22a*c	4.64ab
	(0.074)	(0.056)	(0.100)
Ease of Detection	5.22bc	5.52ac	4.35ab
	(0.100)	(0.086)	(0.142)

Note: a/b/c – significant difference at 95% confidence interval, two-tailed t-test;
a/b*/c* – significant difference at 90% confidence interval, two-tailed t-test;*
Standard errors are given in the parentheses.

Table 6   Descriptive Statistics and Zero-order Correlation for All Variables

	Mean	S.D.	1	2	4	5
1.Purchase Intention	3.67	1.16	1.00			
2.Suspicion	4.17	1.03	-0.51*	1.00		
3.Persuasion Knowledge	4.46	0.73	-0.10	0.29*	1.00	
4.Review Involvement	5.02	0.87	0.01	-0.16*	0.22*	
5.Gender	0.65	0.48	0.06	-0.02	-0.19*	0.11

*Note: *p<0.05; All variables were measured on seven-point scales.*

Table 7   OLS Results for the Two Stage Model

	First Stage Model	Second Stage Model
Dependent Variable	Suspicion	Purchase Intention
Gender	0.11	0.20
Review Involvement	-0.27***	-0.15**
Adding Dummy (X1)	0.74***	0.42**
Deleting Dummy (X2)	0.32*	0.40**
Incentive Dummy (X3)	0.67***	0.21
Persuasion Knowledge (PK)	0.11	0.18*
Suspicion		-0.68***
X1*PK	0.75**	
X2*PK	0.38*	
X3*PK	0.27	
PK*Suspicion		0.12*
Adj. R-Square	0.235	0.280

*Note: *p<0.1,**p<0.05, ***p<0.01.*

Table 8   Path Analysis of Simple Effects

Moderator variable	Stage		Effect		
	First	Second	Direct	Indirect	Total
Adding Path					
Persuasion knowledge					
High	1.28***	-0.59***	0.42**	-0.76***	-0.35*
Low	0.20	-0.76***	0.42**	-0.15	0.25
Differences	1.09***	0.17**	0.00	-0.61***	-0.61***
Deleting Path					
High	0.59***	-0.59***	0.40**	-0.35**	0.05
Low	0.04	-0.76***	0.40**	-0.03	0.37
Differences	0.56*	0.17**	0.00	-0.32	-0.32
Incentive Path					
High	0.86***	-0.59***	0.21	-0.51***	-0.30
Low	0.47	-0.76***	0.21	-0.36	-0.15
Differences	0.31	0.17**	0.00	-0.15	-0.15

Note: $*p<0.1$, $**p<0.05$, $***p<0.01$ for bias corrected confidence interval;
5000 times bootstrapping analysis.

Table 9   Sales and User Reviews at Own Websites and Social Networks

N=555			Percentile		
Variable	Mean	Std. dev.	0.10	0.50	0.90
Product					
Sale	94.04	142.39	9	49	231
Price	88.44	48.76	39	79	139
Discount Rate	28.27%	13.09%	15.40%	25.65%	43.75%
Web Store					
OwnVolume	94.37	98.67	10	66	213
OwnRating	4.74	0.32	4.50	4.80	4.96
Public Page					
No. of likes	43.97	45.31	6	22	120
No. of reads	7776.21	5219.98	3013	6530	14077
Ratio of likes (in%)	0.76	0.92	0.07	0.03	2.08

Note: The table reports the summary statistics for user reviews for 555 promoted products
and their 31 days cumulative sales from year 2011-2013.

Table 10 Estimated Results for Equation 1

	Review Rating and Volume	Third Rating and Volume
Extra	21.26	33.87*
	(16.482)	(20.269)
Coupon	1.73	25.94**
	(8.928)	(10.838)
Time Limit	-12.32***	-21.33***
	(3.175)	(5.485)
Price	-0.58***	-0.84***
	(0.123)	(0.162)
Discount (in %)	1.01**	1.34**
	(0.497)	(0.530)
Gender	Yes	Yes
Brand	Yes	Yes
Year	Yes	Yes
Theme	Yes	Yes
	OwnWOM$_j$	**ThirdWOM$_j$**
STD Volume	61.46***	60.81***
	(11.678)	(11.847)
STD Rating	11.13	13.28**
	(7.500)	(5.160)
R-Square	0.373	0.356

Note: *p<0.1, **p<0.05, ***p<0.01

Regression estimates of equation (1). The dependent variable in all the specification is the 30 days cumulative sales of promoted product. Heteroskedasticity robust standard errors in parentheses.

Table 11 Estimated Results for Equation 2

	Volume is not controlled	Volume is controlled
Extra	36.19*	22.41
	(20.759)	(16.645)
Coupon	5.38	-4.27
	(9.245)	(9.199)
Time Limit	-17.75***	-12.90***
	(4.767)	(3.293)
Price	-0.88***	-0.60***
	(0.172)	(0.124)
Discount (in %)	1.64**	1.18**
	(0.592)	(0.511)
Gender	Yes	Yes
Brand	Yes	Yes
Year	Yes	Yes
Theme	Yes	Yes
STD OwnVolume		55.15***
		(10.610)
STD MI	15.12***	17.11**
	(4.17)	(6.129)
R-Square	0.239	0.365

Note: *p<0.1, **p<0.05, ***p<0.01

Regression estimates of equation (2). The dependent variable in all the specification is the 30 days cumulative sales of promoted product. Heteroskedasticity robust standard errors in parentheses.

Table 12 Estimated Results for Equation 3

	Control volume on public page	Control volume on web store
X$_{ij}$		
Price	-0.14***	-0.09**
	(0.032)	(0.028)
Extra	19.19	10.28
	(16.551)	(13.977)
Coupon	13.65	-4.88
	(10.279)	(9.799)
Time Limit	-18.49***	-10.19**
	(5.040)	(3.033)
DiscountRate (in %)	0.68	-0.42
	(0.493)	(0.505)
ThirdVolume	62.08***	
	(12.235)	
OwnVolume		59.83***
		(10.995)
Time1	15.66	56.92**
	(24.194)	(25.429)
Time3	31.93**	91.35***
	(15.380)	(21.112)
Year	Yes	Yes
Gender	Yes	Yes
Brand	Yes	Yes
STD MI	86.06**	127.30***
	(25.298)	(28.758)
MI*Time1	-79.88**	-108.41**
	(25.565)	(30.318)
MI*Time3	-107.35***	-113.63***
	(28.769)	(30.811)
R-Square	0.360	0.382

Note: *p<0.1, **p<0.05, ***p<0.01

Regression estimates of equation (2). The dependent variable in all the specification is the 30 days cumulative sales of promoted product. Heteroskedasticity robust standard errors in parentheses.

Table 13　Robust Check One

	Equation 2	Equation 3
Extra	26.08	28.89*
	(16.639)	(16.770)
Coupon	-2.10	2.84
	(9.285)	(9.714)
Time Limit	-12.60***	-12.38***
	(2.925)	(3.154)
Price	-0.60***	-0.63***
	(0.126)	(0.129)
Discount (in %)	1.14**	1.14**
	(0.511)	(0.565)
STD OwnVolume	54.61***	58.57***
	(11.095)	(11.361)
Gender	Yes	Yes
Brand	Yes	Yes
Year	Yes	Yes
Theme	Yes	Yes
Time1		139.13
		(95.362)
Time3		239.05**
		(90.315)
STD MI	13.63**	58.22**
	(4.262)	(20.578)
MI*Time1		-184.69
		(122.710)
MI*Time3		-260.47**
		(122.268)
R-Square	0.359	0.374

Note: *p<0.1, **p<0.05, ***p<0.01

Regression estimates of equation (2). The dependent variable in all the specification is the 30 days cumulative sales of promoted product. Heteroskedasticity robust standard errors in parentheses.

Table 14   Robust Check Two

	Equation 2	Equation 3
Extra	21.06	24.42
	(16.135)	(15.799)
Coupon	-5.67	3.77
	(8.688)	(9.161)
Time Limit	-11.51***	-10.33***
	(2.833)	(4.767)
Price	-0.55***	-0.52***
	(0.117)	(0.118)
Discount (in %)	0.96*	0.800
	(0.489)	(0.538)
Gender	Yes	Yes
Brand	Yes	Yes
Year	Yes	Yes
Theme	Yes	Yes
Time1		15.81
		(27.904)
Time3		89.82**
		(27.096)
STD MI	0.79***	1.00***
	(0.140)	(0.242)
MI*Time1		-0.25
		(0.284)
MI*Time3		-0.56**
		(0.262)
R-Square	0.397	0.419

*Note: *p<0.1, **p<0.05, ***p<0.01*
Regression estimates of equation (2). The dependent variable in all the specification is the 30 days cumulative sales of promoted product. Heteroskedasticity robust standard errors in parentheses.

Table 15   General Results Conclusion

Hypothesis		Study 1	Study 2	Study 3
H1A	Among the three manipulation strategies, hiding/deleting unfavorable messages (violations of quantity) (H2A), followed by anonymously adding positive messages (violations of quality) will be rated as the most deceptive (H2B), and offering rewards to consumers who post favorable messages (violations of both quality and manner) (H2C).	Supported		
H1B		Supported		
H1C		Supported		
H2	Hiding/deleting unfavorable messages would be treated as the most unethical strategy among the three manipulation strategies.	Supported		
H3	Online product reviews with manipulations will invoke more suspicion than those without manipulations		Supported	
H4	The amount of suspicion has a negative impact on consumers' purchase intention.		Supported	
H5	With the same average rating, the purchase intention of product with review manipulations should be lower than that of the product without manipulation.		Not Supported	
H6	The relationship between review manipulation and purchase intention is mediated by suspicion of deceptions.		Supported	
H7	Persuasion knowledge would enhance suspicion toward manipulated reviews.		Partially Supported	
H8	The negative impact of perceived deceptiveness on purchase intention toward the focal product is more pronounced among low PK consumers than high PK consumers.		Supported	
H9	Review manipulation would positively influence the purchase intention toward focal products.			Supported
H10	The impact size of manipulation intensity on sales would decrease overtime			Partially Supported

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