How Do Online Product Reviews Impact Consumers' Post-Purchase Processes?

Recent research provides considerable evidence on the significant effects of online product reviews on product sales and firm value (e.g., Moe and Trusov 2011; Tirunillai and Tellis 2013). Yet little is known as to whether and how consumers' post-purchase behaviors are influenced by these online reviews. In two studies, this research aims to empirically examine the effects of online product reviews on consumers' post-purchase evaluations and subsequent behaviors (such as word-of-mouth and product repurchase/return). One unique contribution of this research is that we study consumers' *complete* online journey. In other words, we examine a *mediation* process, in which the effect of the online rating environment on consumers' post-purchase behavior is a function of their post-usage evaluation (i.e., experience and satisfaction). Many of the previous studies in this area solely focus on the effect of the online rating environment either on product sales (e.g., Liu 2006; Duan, Gu and Whinston 2008; Chevalier and Mayzlin 2006) or consumers' posting behavior (Moe and Trusov 2011; Moe and Schweidel 2012). We employ a unique time series dataset provided by a specialty retailer, which includes all consumer decisions (specifically, purchasing a product/brand, posting a review and repurchasing/returning a product) over a 2 year-period across a number of different product categories. This enables us to explore the online social dynamics from the consumer point-of-view, and examine the long-term consequences of online rating environment on the complete consumer online decision process.

The basic premise of this study is that consumers are likely to set different expectations and make more accurate product quality assessments through reading other consumers' evaluations of products. Consequently, the opinion of others in the online rating environment may: (1) shape consumers' post-purchase evaluation (i.e., overall product experience and satisfaction); and (2) influence their subsequent behavior (i.e., whether and what product reviews they post and share with others). The online rating environment contains user-generated product reviews which differ in their *valence* (positivity vs. negativity of postings), *volume* (number of postings) and *spread* (variance of postings) (c.f., Tirunillai and Tellis 2013). For instance, consumers exposed to more (or less) favorable product reviews may set their product expectations accordingly; and in turn, may feel more dissatisfied with their product experience. As a result of their evaluation, some consumers may choose to post their own product reviews and share their opinion with others, while others may settle with only browsing behavior. Furthermore, the content of consumers' product reviews may be influenced by the other consumers' online ratings at the time they intend to share their opinion. Some consumers may prefer to stand out from the crowd by providing

product reviews distinct from the majority in terms of valence, volume and spread, while others may prefer to be consistent with the consensus. Therefore, the *first* study will investigate the short and long term effects of the online rating environment on consumers' (i) product experience and satisfaction, and their (ii) whether (and what) they post online product reviews.

Furthermore, there may be certain boundary conditions to the predicted effects of online rating environment on consumers' post-purchase evaluations and behavior. These boundary conditions may include consumer-specific, product-related, brand-specific and situational factors. For instance, consumer characteristics may determine the robustness of the impact of user-generated online reviews. Due to the consumers' overall uncertainty with regards to the true product quality or the match of the product to their usage preferences, *novice* consumers may be more likely to be influenced by the user-generated reviews compared to experienced consumers. Moreover, consumers may rely on recommendations for *experiential* products significantly more than other types of products. Other potential contingency factors may include as to whether brands have loyalty programs, the purchase is impulsive (or planned), the product category is hedonic (or utilitarian), or product brand is premium (or regular).

Another important but largely unaddressed issue pertains to the influence of firms' marketing efforts versus the consumers' online reviews on the other consumers' decision processes. Seller-created product information conveys only favorable messages, while user-generated product reviews may differ in *valence*, *volume* and *spread* of the reviews. Therefore, the objective of the *second* study is to investigate how the seller-generated and buyer-generated information interact with each other to influence short-term and long-term product sales through product experience. Two theories in the previous research account for the interaction effects of advertising and consumer experience on consumer behavior: diagnostic framing and usage dominance. Diagnostic framing theory suggests that advertising directly influences how a consumer experiences a product; hence, impacts the probability of (re)purchasing. Deighton et al.'s (1994, p. 30) explanation for the framing effect is that "after the experience the advertising could suggest to the consumer how to make sense of that he or she had just experienced, resolving ambiguities and influencing what is retained in memory". On the other hand, usage dominance theory argues for low or no influence of advertising on post-purchase evaluation because consumers tend to rely more on their own experiences than on external information easily accessible (Alba, Hutchinson, and Lynch 1991; Fazio and Zanna 1978). Hence, these two theories suggest opposite effects: diagnostic framing supports that advertising has significant effects on consumer decision process, while usage dominance argues that the effect of consumers' own experiences dominates that of

advertising. According to Hoch and Ha (1986), the category of the advertised product determines which of these two effects is dominant. We argue that the user-generated online rating environment is another significant determinant. More specifically, the online rating environment may attenuate the impact of the seller-generated marketing messages on product sales through influencing consumers' post-purchase evaluations. Hence, we study the moderating impact of the online rating environment on the mediation between seller marketing efforts and product purchase through product experience, *over time and across different categories*.

Extending Moe and Schweidel (2012)'s approach, we will analyze our research questions in three utility models: (1) whether to post a product review, (2) what to post, i.e. the content of the product review, and (3) repurchase/return decision. In these models, we will also specify the *valence-volume-spread* of the rating environment and seller-generated marketing efforts, as well as the consumer characteristics, product and brand specifications. We will employ hierarchical Bayesian estimation. The data is provided by a North American Specialty Retailer which operates three retail brands primarily in the US and Canada (with a small online presence in other countries). Each brand has its own independent line of products sold exclusively in the brand's own stores, catalogs and websites. While customer data is stored in a common CRM system and tracked across all three brands, the brands are managed independently and stores are not co-located. The data focuses on a sample of 42,000 US and Canadian customers. For each brand, 14,000 customers are randomly sampled from among those who showed active interest in the brand during the two-year window between July 2010 and June 2012. '*Active*' consumers are defined by a set of '*key customer events*' that include web browsing, purchasing, creating a wish list and responding to direct marketing. The data variables include consumer touch-points with the firm (both those initiated by the customer and those initiated by the company); more specifically, *marketing efforts* (direct mail, catalogs and e-mails sent to consumers), *web visits* (consumer visits to the online store), *product purchases* (in-store and direct, online and telephone purchases) and *product reviews* (ratings and contents posted by consumers).

Research Questions

<u>Study I:</u>

- How does the online rating environment affect consumers' post purchase evaluations (i.e., product experience and satisfaction) and post-purchase behavior (product repurchase/returns and whether/what to post) in the short-term and long-term?

- How do certain boundary conditions (new *versus* existing customers, regular *versus* premium brands, hedonic *versus* utilitarian products, impulse *versus* planned purchases, or the existence of a customer loyalty program) influence these relationships?

Study II:

- How does user-generated online rating environment influence the short *versus* the long-term effectiveness of seller-generated marketing messages in generating product sales through influencing product experience?
- How does this influence differ based on the *valence*, *volume* and *spread* of the product reviews in the online rating environment?

Conceptual Overview