

# **DYNAMIC INTERACTION EFFECTS BETWEEN PRODUCT SALES, ONLINE WORD -OF-MOUTH, AND E-COMMERCE SERVICE QUALITY IN B2C SALES PLATFORMS**

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## **ABSTRACT**

Online shopping has become an establish channel for consumer purchases and the reputation and quality assurance of major online retailers are generally accepted by consumers. Faced with a wide collection of online products, consumers rely on the information in product sales pages, in order to save time and reduce the risk of the online purchase (Bikhchandani et al., 1998). Among the information shown on a pproduct page, online word-of-mouth (WOM) and online observation learning (OL) are two kinds of vital user-generated information. Researches has shown that, compared to traditional marketing activities, user-generated information is more powerful in the selection behavior of consumers (Trusov et al., 2009).

## **INTRODUCTION**

In this paper, we focus on the information of online comment-based WOM and OL-based e-commerce service quality (e-SQ). Online comments play an important role in shaping consumers' attitudes and buying behavior which affect product sales (e.g., Chevalier and Mayzlin, 2006). As a type of OL information, e-SQ has significant impact on consumers' satisfaction and purchase intention (e.g., Ho and Lee, 2007). This means that the two types of information affect product sales both, directly and indirectly. Thus, it is worthwhile to study whether these are dynamic interaction effects between these three variables.

In recent years, several scholars have studied the dynamic interaction between product sales (or sales) and online WOM. Duan et al.(2008) and Lu et al.(2013) found dynamic interaction between consumers' offline behavior and online WOM in the context of theatre box office and

restaurant sales. Different from these papers, our study focuses on online sales by obtaining data from a large B2C online merchant to analyze the dynamic interaction between online WOM and consumers' online purchasing behavior. Some prior literature uses Vector Autoregression (VAR) to analyze the dynamic interaction between online WOM and consumers' purchasing behavior using time series data of one product (e.g., Luo, 2009; Tirunilla and Tellis, 2012; Trusov et al., 2009; Villanueva, 2008).

## METHOD

This study uses data from tmall.com, a large B2C e-commerce platform in China; panel data from notebook sales pages have been collected over a period of 20 weeks. We use a panel vector autoregression (PVAR) model to investigate the dynamic interaction effects among product sales, online WOM, and OL information on e-SQ. Further, we analyze to what extent weekly product sales, online reviews on WOM, and online e-SQ have predictive capabilities, using impulse response function analysis and forecast error variance decomposition. In other words, we study how the effect of the current impulse of one information variable changes future values of the three categories of information variables, and to what extent a current fluctuation of one information variable can explain future fluctuations of the three categories of information variables.

## RESULTS

The findings show that weekly product sales, online WOM, and OL information on e-SQ all have dynamic interaction effects: weekly sales has dynamic interaction effects on both kinds of online WOM variables used in the study (the change in volume of reviews for the product and the percentage of positive review ratings), and has dynamic unidirectional effects on description consistency, an e-SQ variable. Further, the impulse of the percentage of positive reviews ratings attributes the largest share to the fluctuation of weekly product sales (in the long term, more than 30%). The impulse of weekly product sales explains the fluctuation of future online reviews of WOM to some extent.

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