

## Chapter 5.9

# Nibbling, Sniping, and the Role of Uncertainty in Second-Price, Hard-Close Internet Auctions: Empirical Evidence from eBay

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### **ABSTRACT**

Internet auctions have gained widespread appeal as an efficient and effective means of buying and selling goods and services. This study examines buyer behavior on eBay, one of the most well-known Internet auction Web sites. eBay's auction format is similar to that of a second-price, hard-close auction, which gives a rational participant an incentive to submit a bid that is equal to his or her maximum willingness to pay. But while traditional second-price, hard-close auctions assume that participants have reliable information about their own and other bidders' reservation prices,

eBay participants usually do not. This raises the possibility that eBay participants may adapt their bidding strategies and not actually bid their reservation prices because of increased uncertainty. In this article, we empirically examine the bidding patterns of online auction participants and compare our findings to the behavior of bidders in more conventional auction settings.

### **INTRODUCTION**

Over the past decade, Internet auctions have gained widespread appeal as an efficient and

effective means of buying and selling goods and services (Stafford & Stern, 2002). These auctions provide a market that brings together a large number of participants, a large selection of goods and services to be exchanged, and a more flexible time frame within which to conduct transactions. Internet auctions have, as a consequence, become a multibillion dollar industry where a broad range of products, from raw materials to used consumer goods, are regularly bought and sold (Anonymous, 2004; Baatz, 1999).

Conducting an auction using an electronic medium necessitates that the rules for participation differ somewhat from more traditional auction formats. For example, auctions on eBay have a specific time frame within which participants are able to bid, and the value of the highest bid is displayed at any given point in time. These characteristics, in conjunction with other Internet auction attributes, either individually or in combination, allow bidders to employ a series of unique strategies in an attempt to gain an advantage over rivals. Sniping and nibbling are two such commonly-employed strategies.

Sniping occurs when a bidder with a very high reservation value waits until the final moments of a hard-close auction to submit a bid. By waiting until the last moment to submit a bid, this individual may win the auction and do so at a price that is significantly below his or her reservation value by tendering a bid that is only marginally higher than the existing high bid. Nibbling is the strategy employed when a bidder is unsure about the value of the good or service being auctioned and uses an incremental process to approximately deduce the value of the good or service. In addition, nibbling may be used to determine the maximum willingness to pay of the current high bidder.

Nibblers bid one increment above the highest current bid in the auction, and then will wait to see if someone else outbids them. If they are not outbid, then they win the auction at a price very close to what at least one other person was willing to pay. If they are outbid, they may automatically

place a new bid that is, again, one increment above the current high bid. Nibblers repeat this process until either they are certain that they have met their reservation value or the auction is complete. Nibblers are more generally classified within the context of a larger group of auction participants known as incremental bidders, which include all participants who place multiple, responsive bids over the course of the auction.

Using the online auction environment as a setting to develop, test, and extend knowledge regarding electronic commerce and its influence on consumer behavior is an important research effort (Dholakia, 2005a,b; Kauffman & Walden, 2001). The characteristics of Internet auctions have implications for both business managers and policy-makers, because bidder strategies can be interpreted as either unethical or reducing the efficiency of an auction's outcome (Gardner, 2003; Marcoux, 2003). As such, it is of interest to empirically characterize the impacts of these strategies on auction outcomes, particularly for those auctions with high public visibility or those used frequently by the public.

## **LITERATURE REVIEW**

Recent auction literature has focused on the impact of auction ending rules and sniping on the efficiency of Internet auctions. For example, Roth and Ockenfels (2002) examined eBay and Amazon auctions for both antiques and computers and find that the format for ending the auction has a significant impact on both the amount of sniping and the auctions' subsequent outcomes. Ockenfels and Roth (2002) also examined the impact that artificial bidding agents have on the amount of sniping in eBay auctions. Bajari and Hortacsu (2003) collected a sample of data on eBay coin auctions and estimated how various characteristics of bidder behavior, such as sniping, impact the efficiency of auction outcomes.

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