

CS155a: E-Commerce

Lecture 15: October 30, 2001

**C2C Commerce:
eBay and Auctions**

eBay Overview

- World's largest "online trading community"
- Current number of users:
Approx. 30M
(2M end of 1998; 12M middle of 2000)
- Offers a global marketplace for individuals worldwide to buy and sell from one another.



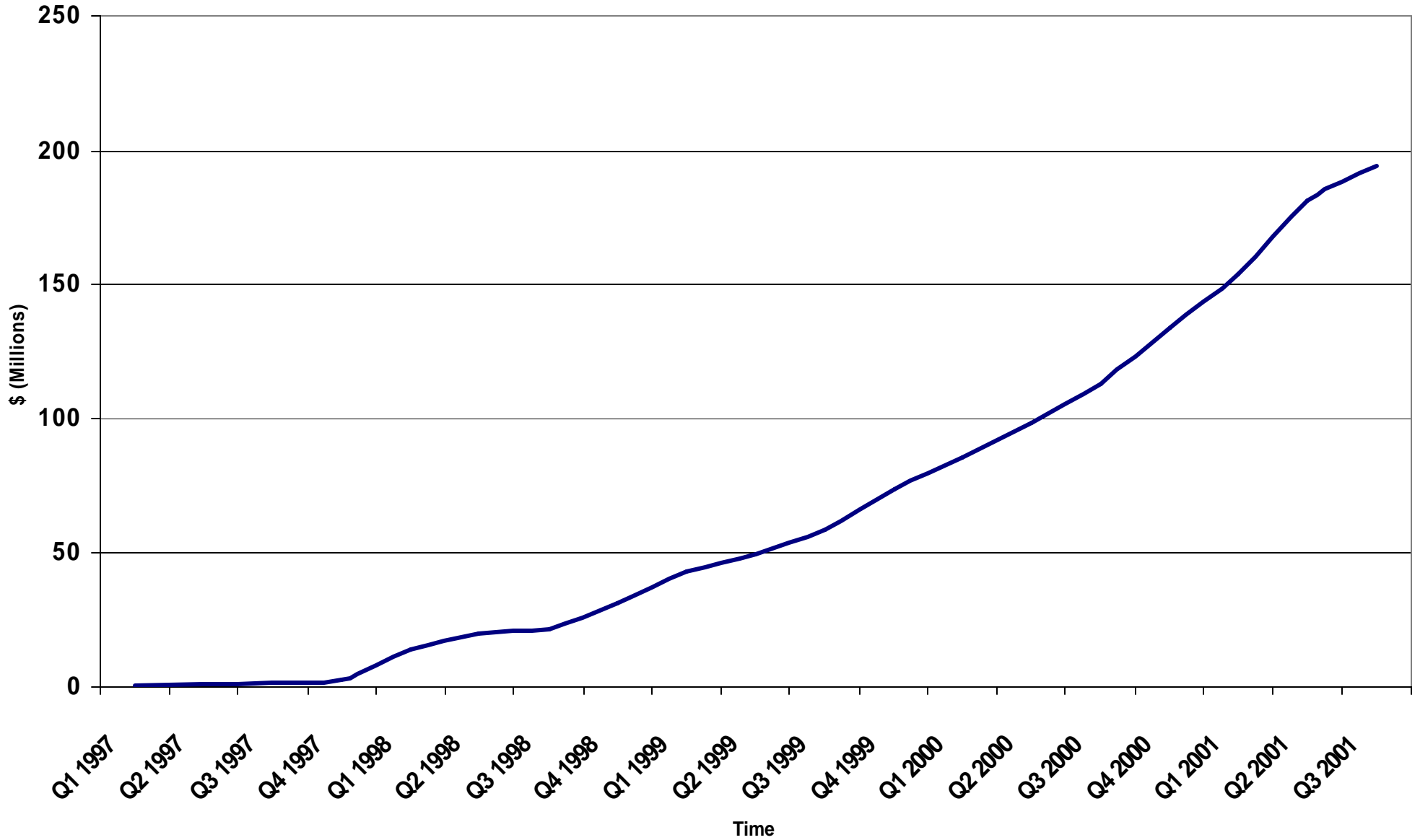
eBay History

- 1995: Founded by Pierre Omidyar on Labor Day
- 1998: IPO in September at \$18/share
- 2000: All-time high stock price of \$127/share in March. Value of goods traded on eBay in 2000 is over \$5B.
- Current:
 - Stock price: 51.70 (10/29/2001)
 - Earnings/share: 0.31; P/E ratio: 190

eBay: Stock Price (EBAY)



eBay: Quarterly Revenues



eBay Business Model

- Sellers pay small fee (<\$2) per listed item.
- eBay takes a cut (~2.5%) of each sale.
 - Sellers are willing to pay this fee because it's a very small price to pay compared to the global exposure they get.
- Although the percentage earned on any given item is small, this is profitable for eBay precisely because the market is global: over 500,000 new items are added to the site everyday.

Business Model (continued)

- Buyers and sellers handle exchange and payment.
- eBay has no inventory, no transportation, no costs at all except website operation.

Conventional wisdom: Service is technically commoditizable, but strong network effects favor eBay.

Market Characteristics

- eBay was rather unique at its inception in 1995, but many alternatives exist today including www.epier.com, www.ubid.com, and recently www.amazon.com.
- eBay's original dominance causes a network effect and perpetuates its continued dominance:
 - 1) Sellers want to sell their item on the auction service with the most buyers, so they put their items up for sale on eBay.
 - 2) Buyers want to find the best prices with many sellers, so they go to eBay.
 - 3) Because of (1) and (2), eBay is even bigger than it was before. Repeat from (1).

eBay Branches Out

- Acquired Half.com, a fixed-price online marketplace, in July, 2000.
 - Identical to eBay in all respects except that prices are fixed.
 - It has since grown tremendously and is doing very well, listing over 100 million items today.
- Sale of "distressed inventory" from tech companies.
 - Good way for companies to recover costs from older and/or excess equipment. The most prominent example is IBM, which has its own store (<http://www.ebaystores.com/ibm>).
- ? Auction of art and/or luxury goods, known as "eBay Premier" (<http://pages.gc.ebay.com/>). Fine works of art regularly list for tens of thousands of dollars.
 - To provide the level of trust necessary for such large sums, eBay only allows established, reputable auction houses (such as Butterfields) to sell items here.

Other New Developments

- **Buy It Now**

- The seller can specify a price at which (s)he would be willing to sell the item to any buyer who meets that price.
- This gives buyers the option of buying the item instantly for a known price, without waiting for the auction to end.
- This option is currently free as an introductory promotion, but it will eventually cost an additional fee.

New Developments (continued)

- **Exodus**, the internet connectivity provider responsible for many top companies' servers including eBay, Yahoo!, and MSNBC, just filed for Chapter 11 bankruptcy. While MSNBC will stick with Exodus, Yahoo! and eBay are lodging with a number of different hosters.

Technical Foundations of Internet C2C Commerce

- Market Design (e.g., Auction Types)
- Payment Systems (can't always use credit cards)
- E-Market Operations
 - Website Design Issues (e.g., UI)
 - ★ System Reliability and Availability

Massive Scale Commercial- Website Operation

eBay scale:

Approximately 30M users.

Over 500K items added each day.

Massive strain on website reliability
and availability.

Major issue for high-traffic B2C sites,
too.

June 1999: Three eBay Crashes

- eBay service unavailable for "prolonged" periods of time.
 - Revenue-loss estimates: \$3M to \$5M
 - Stock-price fall: 20%
 - Blamed on ISP router failure and SUN OS "memory bugs."
- eBay started outsourcing (using Exodus, before its bankruptcy).

Auction Types

- Ascending bid structure
- Descending bid structure
- First-price, sealed bid
- ★ Second-price, sealed bid (Vickrey):
 - Highest bidder gets item
 - Pays second-highest bid price
 - Advantages: "Strategyproof," user-friendly

Auction Design in C2C Commerce

Why Auctions?

- Hard for typical C2C seller to do market research and set optimal fixed price. Auctions allow seller to maximize revenue.

eBay ascending-bid auctions include:

- Starting Price
- Ending Time
- Bid Increment
- (Sometimes) reservation price
- "Proxy bidding agents"

eBay Ascending-Bid Auctions (continued)

- Technically equivalent to 2nd-price Vickrey
- Importance of “strategyproofness”:
 - Buyers, like sellers, will have little or no information about others’ valuations of the items; so “dominant-strategy solution concept” is appropriate.
 - “Truth telling is a dominant strategy” helps sellers maximize revenue.
- Seller can choose to use a descending bid structure (“Dutch Auction”).

Auctions for Unlimited-Supply (Digital) Goods

- “Optimal Fixed Pricing” (OFP)
- No truthful auction (even multi-price) can beat OFP revenue
- “Competitive” = Ω (OFP revenue)
- No truthful, deterministic auction is competitive.
- There exists truthful, randomized auctions that are competitive.

[Goldberg, Hartline, Wright '99]

Sale of Monroe Photos and Release

(From February 22, 2001 WSJ)

Auctioneer: eBay Premier and Butterfields of SF (eBay acquired Butterfields in 1999)

Seller: Tom Kelley Studios of Ventura, CA

Item: Five outtakes of Marilyn Monroe's 1949 "Red Velvet" photo shoot and the negatives and the "model's release form"

Expected price: \$700K to \$1M

Implications for Internet-Based Business

- Intellectual-Property Rights Questions Inescapable
 - Butterfield's auction catalog: Right to use name and likeness for "trade and advertising purposes"
 - CMG Worldwide (which represents Monroe estate): Will go after anyone who uses "those images in a commercial fashion"
- Potential limits to eBay scope
 - Previous sales of high-end photos, prints, and art have "fallen flat."
 - Can eBay be more than a "hugely successful ... online flea market"?

Homework

- **Reading for 11/1:**

"Lochner in Cyberspace: The New Economic Orthodoxy of 'Rights Management,'" Julie Cohen, originally published in the Michigan Law Review, 1998. (without footnotes)

- **Assignment for 11/6:**

The third written homework assignment is due in class on November 6.