**A BRIEF OVERVIEW OF ART AUCTIONS**

In perhaps one of the world’s oldest duopolies, approximately 42% of the global art auction market is controlled by two major houses, Christie’s (est. 1766) and Sotheby’s (est. 1744)[[1]](#footnote-1). The former, headquartered in London, is privately held by French multibillionaire Francois-Henri Pinault and only reports sales figures twice a year[[2]](#footnote-2). Sotheby’s, headquartered in New York City, is publicly traded and reports detailed revenues and costs[[3]](#footnote-3). While both houses deal in art, often sourced from museum or private collections, in recent years Christie’s has become the larger player. In the first six months of 2015, Christie’s realized $4.5 billion in art sales, while Sotheby’s only pulled $3.5 billion[[4]](#footnote-4). That said, both houses have enjoyed their share of record-breaking auctions: Picassso’s *Les Femmes d’Alger (“Version O”)* sold for $179 million at Christie’s in 2015, while Pollock’s *No. 5, 1948* went for $164 million at Sotheby’s in 2006. The whole spectrum of art can be found at Christie’s and Sotheby’s, ranging from Impressionist oil paintings to Chinese ceramics. Auctions are usually themed around a certain artist, medium, time period, or represent a private collection. Often individual events are part of a series, such as Christie’s “First Open” series (launched in 2005) for post-war and contemporary art[[5]](#footnote-5). Other smaller but well-known auction houses include Bonham’s and Phillip’s, both headquartered in the United Kingdom.

In addition to art, both houses run auctions for other goods such as jewelry, automobiles, and furniture. Many believe, however, these houses play to different strengths. To sell photographs, go to Sotheby’s; to sell books and manuscripts, go to Christie’s[[6]](#footnote-6). For classic automobiles, go to Sotheby’s or Bonham’s[[7]](#footnote-7). Specialization is not limited to product selection, either. According to Raphaelle Benabou, Bonham’s (as a smaller house) appeals to many sellers because lower sales volume ensures pieces will be better noticed at auction. Competition between auction houses is fierce, and each tries to capture the best consignments by luring sellers with benefits such as higher guaranteed prices and waived house commission fees[[8]](#footnote-8). Yet, the two houses have cooperated and even colluded at times. In the early 2000’s, both houses were convicted of fixing commission fees charged to sellers, and were required to pay back $256 million each[[9]](#footnote-9).

The actual auction process is as follows. First, a client (prospective seller) will request an estimate from the auction house for their item of interest, either by submitting photographs or scheduling an in-person appointment with a specialist. If the item is deemed appropriate for auction, the house and the seller will enter negotiations and draw up a seller’s contract. The item then travels to the house to be officially photographed, catalogued, and stored before the auction event[[10]](#footnote-10). Clients may visit more than one auction house to compare arrangements.

Three quantities are decided by the seller and the house before any auction: a low and a high presale estimate for the art piece, and a reserve price. The low and high estimates represent the range of possible values the piece might go for, and are usually suggested by a committee of in-house art experts. As shown empirically by Ashenfelter (1989), these estimates do generally seem to accurately predict sale price[[11]](#footnote-11). Some cross-house differences may exist: Bauwens and Ginsburgh (2000), for instance, show that in certain art categories, Sotheby’s tends to undervalue expensive pieces and overvalue inexpensive ones (while Christie’s does the opposite)[[12]](#footnote-12). In negotiations, the seller and the house also determine a reserve price known only to those two parties. The reserve price, which designates the minimum price the seller will accept for an item, is a closely guarded secret in the art auction world. However, according to estimates by Ashenfelter, Graddy and Stevens (2004), the reserve price may be set around 70-80% of the low estimate. It is unclear why the reserve is concealed, but Vincent (1995) suggests that under certain circumstances, announcing the reserve may discourage potential bidders from participating and could lower overall bids[[13]](#footnote-13).

Before the auction event, the house will typically publish a presale catalog for the art pieces, available both in print and online. For each piece to be sold, the catalog includes photographs and the presale estimates, as well as information on the artist, the materials and a condition report, signs of authenticity such as a signature, and who previously owned the work (provenance). Houses also host pre-auction viewings where both potential bidders and the public can examine items in person. Bidders must register before an auction, and for particularly opulent events, must show proof of their assets.

Auctions are almost always conducted in an ascending first price format. Unless starting bids have been pre-placed, the auctioneer starts low (somewhere below the secret reserve price[[14]](#footnote-14)) and calls increasing prices[[15]](#footnote-15) until the bidding stops, upon which the item is declared to be “knocked down” or “hammered down.” The final sale price is the “hammer price.” On top of this, the house adds “buyer’s premium” commission fee, usually 20% to 25% of the hammer price, before the winning bidder receives the item[[16]](#footnote-16). At Sotheby’s and Christie’s, the seller receives payment approximately 35 days after the auction, minus a “seller’s premium” which is usually around 10% of the hammer price[[17]](#footnote-17) [[18]](#footnote-18). If an item does not meet its reserve price, it goes unsold and is said to have been “bought in.” The auction house, however, rarely purchases the item: instead, it may be resold later at a lower estimate or taken off the market. Historically, auction houses did not publish records of whether items went unsold. However, since the 1980s, auction houses in NYC have been legally required to report this information. And, according to Ashenfelter & Graddy (2003), houses in other locations are following this trend as well[[19]](#footnote-19).

**HOW ANCHORING AFFECTS ART AUCTIONS**

The art auction market is especially vulnerable to unobserved psychological and behavioral biases, because on both sides of the market, participants must rely on subjective judgement, past experience, and personal preferences to evaluate artwork. The ever-changing heterogeneity of art pieces, buyers, and sellers makes it intractable for both auction houses and economists to perfectly estimate demand for art. Thus, the auction format, designed to set prices by discovering private valuations, seems fitting for this context. Yet, auction outcomes can be shaped drastically by behavioral phenomena. Competition can become fierce between bidders who wish to win the same item (“bidding wars”), driving up hammer prices far beyond an artwork’s estimated value.[[20]](#footnote-20) Auctions are very emotional experiences, as we learned firsthand when we attended an auction for Chinese ceramics at Christie’s NYC. When one sculpture got caught in a bidding war and ended up selling for nearly $500,000, the room erupted in applause.

Anchoring is one of the most-studied biases in the behavioral sciences: it is at once trivial to demonstrate and difficult to explain away. The effect occurs when first (quantitative) impressions distort future outcomes, even when the initial information is irrelevant[[21]](#footnote-21) [[22]](#footnote-22) or obviously mistaken[[23]](#footnote-23). As described in our introduction, we can identify anchoring through the impact of past sale price on current price, if hedonic quality and non-hedonic influences on current price are controlled for. The assumption of constant hedonic quality across sales is foundational for Beggs & Graddy (2009), and this quality must be controlled for since it informs price at every time step. Yet, non-hedonic influences may also shape current price. For instance, if buyers believe an artwork will sell for more in the future, then they may be willing to pay more at time. These high expectations may carry forward to later buyers, further driving up the current price at time. Thus, controlling for both hedonic and non-hedonic determinants of current price is necessary if we wish to study how past price anchors current price.

As mentioned earlier, the exact behavioral mechanism by which this occurs is a black box: the overall effect may be attributed to buyers, sellers, auctioneers, or some combination of all three[[24]](#footnote-24). Below, we briefly describe what this could look like for those different groups.

Bidders may anchor on numbers provided prior to auction: this can include presale estimates and past prices for an artwork, as well as estimates and prices for related pieces. Estimates are expected to anchor bidder perceptions, because by definition, they give a general idea of how much a piece is worth. As discussed, past prices can reflect not only hedonic value but unobserved past factors such as bidding activity, the wealth of individual customers, and even exogenous factors such as the weather[[25]](#footnote-25). It is worth noting that anchoring is difficult to avoid, though more expertise in the given area (such as art) generally helps to guard against this bias[[26]](#footnote-26).

Sellers may anchor on past sales prices when setting the reserve. Some research[[27]](#footnote-27) finds that anchoring is more powerful for sellers than for buyers, but weakens with increased seller experience.[[28]](#footnote-28) Auctioneers can actively anchor bidder perceptions of value through the numbers they call out, particularly at the start of an auction. While this can be a powerful tool for the auctioneer, one veteran warns against setting anchors too high (to drive up future bids) or too low (to attract starting bids)[[29]](#footnote-29). Go too high, and your numbers lose credibility; go too low, and bidders will suspect something is wrong with the item.

We learned from Raphaelle Benabou (of Bonham’s) that auction houses are aware of anchoring effects, not only between resales of the same item, but between sales of related pieces. When internal departments formulate presale estimates for a work of art, a single specialist will research past sales of comparable pieces (similar size, artist, medium, etc.) to get a ballpark idea of the current work’s value. Next, the specialist describes the current work to others in the department, but without revealing any numbers from those past sales (which would introduce anchoring). Every person volunteers an estimate for the current work, and only then does the specialist reveal what related works went for in the past. From there presale estimates are formed, presumably as a combination of information from past sales of related pieces (the anchors) and more up-to-date knowledge of the art piece in question. These anchoring cross-effects between related goods are the primary focus of our study, and discussed further in the next section.

The question of what makes two art pieces similar (i.e., substitutes) is therefore of enormous interest to those in the field. Before one can appraise a piece of art, one must identify past sale precedents, which requires understanding what makes art pieces similar. Only then is it possible to properly analyze anchoring and other biases that can distort prices and sales.

1. http://www.bloomberg.com/news/articles/2015-06-21/auction-wars-christie-s-sotheby-s-and-the-art-of-competition [↑](#footnote-ref-1)
2. http://www.bloombergview.com/articles/2014-12-03/how-sothebys-and-christies-went-wrong [↑](#footnote-ref-2)
3. http://www.wikinvest.com/stock/Sotheby's\_Holdings\_(BID) [↑](#footnote-ref-3)
4. http://www.nytimes.com/2015/08/17/arts/international/sothebys-and-christies-jostle-for-sales.html [↑](#footnote-ref-4)
5. http://www.christies.com/auctions/first-open-september-2014/#specialist-picks-section [↑](#footnote-ref-5)
6. http://www.forbes.com/2001/11/14/1114connguide.html [↑](#footnote-ref-6)
7. http://www.nytimes.com/2015/08/17/arts/international/sothebys-and-christies-jostle-for-sales.html [↑](#footnote-ref-7)
8. http://www.bloomberg.com/news/articles/2015-06-21/auction-wars-christie-s-sotheby-s-and-the-art-of-competition [↑](#footnote-ref-8)
9. http://www.wsj.com/articles/SB969829620926708015 [↑](#footnote-ref-9)
10. http://www.sothebys.com/en/news-video/videos/2014/10/how-to-sell-at-auction.html [↑](#footnote-ref-10)
11. Ashenfelter, Orley. "How auctions work for wine and art." *The Journal of Economic Perspectives* 3.3 (1989): 23-36. [↑](#footnote-ref-11)
12. http://www.jstor.org/stable/pdf/40724283.pdf?\_=1459015351227 [↑](#footnote-ref-12)
13. Vincent, Daniel R. "Bidding off the wall: Why reserve prices may be kept secret." *Journal of Economic Theory* 65.2 (1995): 575-584. [↑](#footnote-ref-13)
14. Ashenfelter, Orley. "How auctions work for wine and art." *The Journal of Economic Perspectives* 3.3 (1989): 23-36. [↑](#footnote-ref-14)
15. Typically, the auctioneer will call out prices that are approximately 10% higher than the current bid. http://www.sothebys.com/en/Glossary.html [↑](#footnote-ref-15)
16. Interview with Raphaelle Benabou, also http://www.ppge.ufrgs.br/giacomo/arquivos/econ-cultura/ashenfelter-graddy-2003.pdf [↑](#footnote-ref-16)
17. http://www.christies.com/features/guides/selling-guide/selling-at-christies/after-the-sale/ [↑](#footnote-ref-17)
18. http://www.ppge.ufrgs.br/giacomo/arquivos/econ-cultura/ashenfelter-graddy-2003.pdf [↑](#footnote-ref-18)
19. http://www.ppge.ufrgs.br/giacomo/arquivos/econ-cultura/ashenfelter-graddy-2003.pdf [↑](#footnote-ref-19)
20. http://video.cnbc.com/gallery/?video=3000504214 [↑](#footnote-ref-20)
21. Tversky, A.; Kahneman, D. (1974). "Judgment under Uncerstainty: Heuristics and Biases" (PDF). Science 185 (4157): 1124–1131. doi:10.1126/science.185.4157.1124. PMID 17835457. [↑](#footnote-ref-21)
22. Sugden, Robert, Jiwei Zheng, and Daniel John Zizzo. "Not all anchors are created equal." *Journal of Economic Psychology* 39 (2013): 21-31. [↑](#footnote-ref-22)
23. Edward Teach, "Avoiding Decision Traps", CFO (1 June 2004). Retrieved 29 May 2007. [↑](#footnote-ref-23)
24. Graddy, Kathryn, et al. "Anchoring or loss aversion? Empirical evidence from art auctions." (2014). [↑](#footnote-ref-24)
25. De Silva, Dakshina G., Rachel AJ Pownall, and Leonard Wolk. "Does the sun ‘shine’on art prices?." *Journal of Economic Behavior & Organization*82.1 (2012): 167-178. [↑](#footnote-ref-25)
26. Northcraft, Gregory B., and Margaret A. Neale. "Experts, amateurs, and real estate: An anchoring-and-adjustment perspective on property pricing decisions." *Organizational behavior and human decision processes* 39.1 (1987): 84-97. [↑](#footnote-ref-26)
27. Sugden, Robert, Jiwei Zheng, and Daniel John Zizzo. "Not all anchors are created equal." *Journal of Economic Psychology* 39 (2013): 21-31. [↑](#footnote-ref-27)
28. Alevy, Jonathan E., John A. List, and Wiktor L. Adamowicz. "How can behavioral economics inform nonmarket valuation? An example from the preference reversal literature." *Land Economics* 87.3 (2011): 365-381. [↑](#footnote-ref-28)
29. https://mikebrandlyauctioneer.wordpress.com/2015/04/13/value-anchoring-in-the-auction-business/ [↑](#footnote-ref-29)