Keeneland Thoroughbred Auctions – The Institutional Setting

By Robert L. Losey, Ph.D. – revised Fall 2022

Keeneland Sales just outside Lexington, Ky. holds four Thoroughbred auctions each year, including the largest grossing horse auction in the world, the Keeneland September yearling sale[1], where four thousand or so Thoroughbred racing prospects born in the first half of the previous year are offered over the better part of two weeks. In 2022 the Keeneland September Sale generated records for gross (>$405 million for 2,847 yearlings sold), average (just over $142K) and median ($70K).[2]

Keeneland's second-largest sale by dollar volume is the November Breeding Stock Sale, which Over the last 15 years or so, the September Sale has averaged selling about 9-10% more horses than the November sale, though the September Sale has generated sales averaging approximately 50% higher than the November sale. Keeneland's third largest sale if the January Sale that typically runs five to seven days and generates a minor fraction of dollar sales that does the September Sale. Least important is the Keeneland April Sale which recently has concentrated on horses of racing age, though in years past April has offered two-year-olds in training.

A typical auction day starts at 10 A.M. and runs until more than 300 horses go through the auction ring, which usually takes eight hours more or less.[3]

Thoroughbred auction prices are sensitive to the health of both racing and U.S. and world economic conditions. This century, prices dipped during each of the three economic recessions including the most recent Covid-induced recession. Prices roared back at the September 2022 Keeneland Sale as the economy saw record-low unemployment[4] along with growth in purses paid by racetracks.[5] The high price for a U.S. Thoroughbred auctions during the last twenty years was $9.7 million (2005 Keeneland September); the lowest $1,000, the latter being the "upset" price that is the minimum allowable bid at Keeneland.

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[1] Go to Annual Sales Figures | Keeneland for sales figures for all Keeneland auctions.

[2] Keeneland September Yearling Sale Roars to Finish with Record Gross, Average and Median | Keeneland

[3] Keeneland has often changed the format for the first few days of the September sale in hopes of combating the tendency for sale prices to be sluggish in the early going.

[4] List of recessions in the United States - Wikipedia

[5] See Jockeyclub.com for trends in purses.

The Physical Setting

The Keeneland auction site has the most expansive facilities of any horse auction site in North America, though it shares many of the basic features with other Thoroughbred auction sites such as Fasig-Tipton Kentucky, the Saratoga (New York) sale, the Ocala Breeders Sales, Barrett's of California, Tattersalls in England, and the Deauville, France auctions. At Keeneland horses are stabled in one of 49 barns, with the largest barns having stalls for 40 horses. The largest number of horses stabled at Keeneland during the last twenty years approached 5600 in the September 2006 sale. For that sale the number of horses catalogued was approximately three times the barn capacity on the Keeneland grounds. At its two major sales, Keeneland normally must use stalls multiple times to accommodate sale horses. Typically, horses come in two days before they are sold and consignors and buyers are asked to vacate stalls one day after a horse's assigned sale date. Other U.S. sales companies typically sell only a fraction of the horses that Keeneland does, and in many cases are able to stable all entries on the sales grounds at the same time.

The central focus at a sale is the sales pavilion, a facility that has a walking ring that funnels horses into the sales ring, where each horse typically spends less than two minutes while an auctioneer stationed above the sales ring voices a sing-song auction chant to try to coax maximum bids from attendees. Some potential bidders are seated in front of the sales ring; others stand around the chute leading to the sales ring, and bid "spotters" stationed in both areas relay bids to the auctioneers' stand. At all major auctions a lighted board provides information, including whether the horse is a "cribber," and whether a mare is "pregnant," "barren," or "not bred?" The board also reports the bidding as it progresses, and then flashes "sold" when the bidding stops, although this does not always mean that the horse really sold.[6] Inquiries may be made at the sales office after the horse exits the ring to see if the horse sold, or alternatively was a "buy-back" by the original owner.

When a horse is sold, the bid-spotters direct a Keeneland representative to the winning bidder and that "buyer" verifies the sale. Buyers report to the sales office after

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[6] A horse that is not sold is said to be "bought back" by its original owner. This happens when an owner bids on her own horse in hopes of bidding the price up. If no one tops the owner's bid, this "reserve" price the owner has placed is not surpassed and the horse is said to be an "RNA" (reserve not attained).

their winning bids to arrange payments for horses and to obtain paperwork allowing them to remove their purchases from the Keeneland grounds. Most buyers have made arrangements for how they will pay for purchases prior to the sale. A short grace period before payment is required will usually be extended to buyers who have gone through a presale "vetting" process. Buyers also have a short period after the hammer drops on a sale to vet their purchase to assure that it meets certain sales guarantees.

Placing Horses by Quality

As do many other sales companies that have large numbers of entries, Keeneland attempts to offer the most valuable horses early. For the September yearling sale Keeneland tries to offer the most valuable yearlings in the first two to four sessions of the auction, and this is followed by groups of successively (at least on average) less valuable offerings. November and January horses are slotted in similar fashion One of the most important of several criteria used by Keeneland in stratifying the September sale by quality is the stud fee of the sire (father) of the yearling. Judged by the fact that sales averages decline after the early "select" days of all the multi-day sales, Keeneland is at least somewhat successful in stratifying by quality. But, as one of many possible examples, the observation that the high price for the 12th day of the 2005 sale equaled the median price for the 5th day of the sale suggests that this success is incomplete.

There is no attempt at stratifying intraday offerings: these are ordered alphabetically based on the name of the dam (mother) of each yearling. Horsemen will tell you that they would rather not sell during the first or last half hour or so of the sale, and an unpublished study by Assenov, Chinloy, and Losey (summarized at the end of this article) reports that Keeneland September yearling prices are usually higher by a statistically significant amount during the middle of the sale day than during either the first quarter or last quarter of the day. In order to minimize potential placement advantages for horses that sell during the middle of the sale day when sale prices tend to be slightly higher, the order of intraday sorting is rotated by Keeneland each year. For example, in 2020, 2021, and 2022 Keeneland September Sales the first foals through the ring were out of mares whose names began with U, I, and P respectively. Keeneland has rotated the starting letter at the sales for decades.[7]

The stratification of the sale by quality results in "waves" of potential buyers coming and going during periods of the sales most amenable to their price targets.[8] However, buyers typically have similar goals: Yearling buyers want to buy a potential racehorse that will "run a hole in the wind" when entered in a race a year or so later. Buyers of mares hope to buy a mare that produces a superb racehorse.

Potential buyers evaluate potential purchases on the basis of three major criteria—pedigree, conformation, and temperament. **Pedigree** is synonymous with "family ties," and an important question that potential buyers ask is "Is the family a running family?" The thought is that if the brothers, sisters, mothers, dads, aunts, uncles, etc. could run, this yearling is more likely to have the genes to become a runner.

Conformation is the term horsemen use when referring to physical attributes: Does the horse look like an athlete, walk like an athlete, have the physique of an athlete? If the horse is a yearling, does it appear to be put together so that the yearling will be able to prosper when subjected to the rigors of training? If a mare or stallion, is the horse likely to produce a well-conformed son or daughter that figures to be a good racehorse?[9]

Temperament relates to the mental faculties of a horse: Is (s)he too high-spirited or too phlegmatic? Does she have an "intelligent eye?" Does he go about his business in a professional manner? Though observations about temperament most certainly are only impressions given the short time that a potential buyer has to look at a horse, these impressions can make a world of difference. A horse that acts up, repeatedly balks, or otherwise does not impress may be marked off many a list of potential buys.

Buyer Activities at the Sales

Horses are kept in one of 49 barns located behind the sales pavilion and are typically "on the grounds" for three days, where they are shown to potential buyers from

[7]As yearlings have rarely been named, the alphabetical intraday sorting can't be done using the name of the yearling, and is based instead on the name of the dam (mother) of the yearling.

[8]During the first few days of the sale a "United Arab Emirates" Boeing 707 has often been parked on the tarmac at the Lexington Airport just across the road from Keeneland. During the last week of the sale, cowboy hats and jeans are more frequently seen than the khakis seen during the middle part of the sale.

[9] A broad definition of "conformation" should probably include "heart size," throat structure", and other features of a horse that are not obvious to the naked eye.

just after first light until 4:30 or so. First-day sales-yearlings will have been looked at for two to three days prior to the sale. A typical looker spends up to five minutes with a horse, first looking at the standing yearling from the front and the side, then (unless they really don't like the yearling) asking "Can I see him/her walk?" This is the cue for the handler to showcase the yearling's stride, the thought being that good walkers make good runners. Once the sale begins, lookers concentrate their activities in the morning, with the number of lookers tapering off significantly after the sale starts.[10] A popular yearling may be shown over one-hundred times (including repeat showings to especially interested potential buyers) while an individual with little going for it will have few if any repeat showings, and may be shown primarily to buyers who ask to see all of a seller's offerings. Mares offered at the November and January sales are subject to similar scrutiny, although potential buyers typically spend less time with a mare than with a yearling on the theory that the conformation of a yearling is more critical than that of a mare.

Horse auctions in the U.S. are almost always open-outcry, ascending price (prices start low and move upwards)[11] auctions in which horses are shown in an auction ring while an auctioneer sing-songs his (rarely her) auction chant. In a typical day at Keeneland over 300 horses pass through the ring, with the average time between individual sales being less than two minutes. Bidders can bid from any of three physically separate areas in the Keeneland sales pavilion, and there is the occasional phone bidder, who would presumably have had the individual inspected by his/her representative before making arrangements to bid by phone.

Reserves and RNA's

Sellers may place a reservation price (reserve) on their horses, and if there is no public bid above the reserve price, the offering will be retained by the original owner. During recent years at the Keeneland September sale, the percentage of yearlings entered in the sale that did not meet their reserve price was typically close to 20%. Horses that

[10] Sales typically start at 10:00 A.M., but may start later on first and second days if smaller numbers of "select" horses are offered then.
[11] In "Dutch" auctions the auctioneer starts out with a high price and works the price downward. The first bidder to bid becomes the buyer.

are not sold are termed "buybacks" or "RNA's" (from **R**eserve **N**ot **A**ttained), and are usually listed as RNA's in the sales results.[12] RNA's may be kept for racing or resold at a later sale. Less frequently RNA's are sold privately within a few hours or days of going through the sales ring unsold. Such sales may be to interested parties who scan the sales results for RNA's, or to underbidders who were observed by consignors and contacted after a buyback occurred.[13]

Auction Bidding Strategies and Round Number Bias

A review of typical sales results reveals that the sales prices for offerings end up at major "round numbers" ($10,000, $20,000, $50,000) more often than one would expect if sales prices moved along uniformly in relatively small round ($1,000 or $2,000?) increments. The bias toward major round numbers is (only) partially explained by the preferences of auctioneers to push the bidding along in increments that disproportionately land on these major round numbers. Research in horse auctions, stock sales, e-bay auctions and more suggests that other factors contribute to round number bias as well. Explanations for this round number bias often cite a psychological preference by bidders to choose round numbers when setting their maximum bids. If the maximum bids of many bidders "clump" at the same round number – an example would be the case where the three highest bidders all plan to bid a maximum of $10,000 for a horse--the result will be that bidding stops once these round numbers are reached, hence the prevalence of an unusual number of sales at especially "round" numbers including $10,000, $20,000, and $50,000..

If round number bias exists (and there is a high degree of agreement among market observers that it does), it has implications for both bidding and selling strategies. Perhaps most importantly for sellers trying to choose a reserve but normally preferring a sale to a buyback, reserves should be set **below** major round numbers rather than above them. For instance, reserves set at $19,000 or $49,000 are more likely to push an

[12] Not all RNAs are reported. Some owners "play games" by making up fictitious names under which they buy an offering back.
[13] Reservation prices submitted to the sales company can be "**live money only**" or "**all the way**," the latter forcing the bidding all the way to the reserve price. The number of RNA's is usually higher than reported, as some bidders buy back their offerings using pseudonyms. For more on reserves, see the Appendix.

interested buyer to the round number bid (s)he had in mind ($20,000, $50,000), while reserves above round numbers ($21,000, $51,000) are more likely to result in buybacks.

Market Characteristics

Race horse prospect (weanlings, yearlings, and two-year-olds, and mare auction markets do not easily fit into one of the four market types that economists typically use to describe market conditions. Most economists would probably label the market as a **monopolistically competitive** market from a seller's point of view. Monopolistic competition is characterized by a large number of sellers selling similar products. However, the yearling market has some monopoly aspects: Unlike traditional monopolistic competitive markets such as soap or cereal where each bar of Ivory soap or each box of Cheerios cereal is the same, each yearling is unique. The degree of uniqueness of the typical yearling means that the seller has (typically a very small degree of) **monopoly power**.

However, the monopoly power of sellers is often largely offset by the fact that for many horses offered for sale, there are often only a small number of serious potential buyers. In an extreme case there might be only one potential bidder for an offering, and if the potential buyer knew this (s)he could exploit this by refusing to bid and then negotiating with the seller after the offering fails to sell. When the seller has only this one potential buyer, the potential buyer has monopoly power, a market condition that economists call "**monopsony**." It is perhaps most reasonable to characterize the yearling market as somewhere between monopsony and monopolistic competition from the buy side, as there is rarely only one potential buyer, but often there are only a few.

Part of the reason why there are a limited number of bidders is that each horse is unique, both genetically and physically, and the costs of assessing the characteristics of a horse are significant. It would be unusual for a bidder to bid on a horse without first having carefully scrutinized it. The "due diligence" on a yearling can become quite sophisticated, with some wealthy potential buyers employing expert bloodstock agents and veterinarians to help assess the health, pedigree, and physical characteristics of yearlings in which they are interested. The tendency toward monopsony is increased by a "clientele effect," with many of the potential buyers at an auction limiting their analyses to horses that they expect will fall within their budget constraints and meet other specific criteria as well.[14]

The market for horses is one where arbitrage (via resale) is possible, but costly, especially for cheaper horses. (The practice of buying specifically to resell is called "pinhooking," a term drawn from the tobacco market where potential buyers use "pinhooks" to pull out and examine tobacco.) Because the next plausible sales after the September yearling sale are the "two-year-olds-in-training" sales the following spring, buyers of yearlings (including those buying back their own offerings) must be prepared to spend $1500 or more per month in training expenses plus commissions (usually 10% total with 5% to the sales company and another 5% to the consignor, often with a minimum of $2000) for the resale, plus shipping, vet, farrier, and a variety of other expenses. Moreover, a significant percentage of young horses develop (or already have) physical problems that cause them to have to delay training, or in more serious cases, force them to have to be diverted to use as pleasure horses, with concomitant major decreases in their values.

A *Thoroughbred Times* 2005 Auction Review, using an estimated $15,000 figure as the cost of carrying a yearling forward to a two-year-old sale reports that 40% of yearlings offered for resale made a profit. However, the reported figure for percentage of yearlings bought at prices below $10,000 being resold profitably was only 17%, and this category generated the greatest percentage losses per pinhooked yearling for resellers.[15] These figures suggest that it can be costly to try to either buy back your offering to resell at a 2yo sale, and that making money by pinhooking (buying for resale) yearlings is not an easy proposition.

APPENDIX I ON RESERVES

Why Sellers Use Reserves (Bid on their own horses)

Sellers typically place reserves on offerings for either of two reasons:

1) **They want to make sure that they do not sell the offering for less than a minimum acceptable value.** This might be the value they think for which they could resell the

[14] A second clientele effect often applies to offerings that have strong runners in their families. Owners and other connections to these strong runners are often attracted to offerings that are related to the strong runners, and often we see these connections end up being the buyers.

[15] *Thoroughbred Times 2005 Auction Review*, Lexington, Ky Jan. 7, 2006, p. AR-16.

horse privately, the value to them of the horse as a potential racehorse, or less frequently for a yearling, the value of the horse as a potential breeding prospect.

2) **The seller wants to "push" the bidding**, perhaps just to get the bidding started, or more aggressively, to try to extract something close to the maximum bid that public bidders are willing to pay for their offering. There may be a psychological aspect to "bid pushing," especially as it relates to (probably a minority of) buyers who try to "read" the auction action. A slow start in the bidding may be viewed by some bidders as a signal of a lack of interest by knowledgeable bidders, hence a signal to stay out of the bidding. In contrast, spirited bidding may be viewed as a positive signal by auction "readers."

Reserve Mechanics

Reserves can be placed with the auctioneers, or can be bid directly by the seller or her agent. Many sellers view it as bad form to be seen bidding on their own offerings, and more than a few potential buyers dislike seeing sellers bid against them, so sellers are more likely to use a friend or an agent or to place reserves through the auctioneers than to bid overtly themselves. If reserves are placed with the auctioneers, they may be either of two types: "**All the way bids"** instruct the auctioneer to bid to the reserve price even if there are no public bids. "**Live money only**" reserves instruct the auctioneers to bid to the reserve price only if a "live" bidder continues to top the bids made by the auctioneer as the price approaches the reserve price set by the seller.

The relative merits of "all-the-way" versus "live-money-only" bids are debatable: Advocates of "all-the-way" bids might argue that all-the-way bids may move the price at a pace, or through a price point, that encourages public bidding.[16] A possible additional

[16] Many years ago this author told a farm manager rather too presumptuously that his $3900 reserve on a no-pedigree mare was a big mistake, and that all that would come out of it would be a buyback and a van ride back to the farm. I sat with the farm manager watching the goings-on, waiting to say "I told you so!" while the auction on the mare proceeded toward $3900. There was not a bidder in sight nor a "yep" from a bid-spotter to be heard as the auctioneer kept pulling bids out of thin air on his way toward an RNA. The bidding hung at 3900 as the auctioneer searched for a live bid, and just as the auctioneer was about to bring down the hammer a bleach blonde sitting against the right wall who had been sitting on her hands seemed to lose control and her hand sprang up with the only live bid for Miz No-Pedigree. As you would probably hope, I have parked my "I told you so's," along with all-knowing advice in the remote parking lot much more often since then.

advantage is that if the offering is bought back, the listed hammer price (the last price) may be the starting point for bargaining in a private sale. In many cases this starting bargaining price would be lower had a "live money only" bid been used. But the higher listed prices that often obtain when all-the-way bids are used come at a cost. Commissions paid to the sales agency and to the consignor of the offering are normally based on the highest bid made, whether or not it represents a sale or a buyback. Hence higher commissions are usually paid on buybacks that resulted from all-the-way bids.

What is better, placing reserves with the auctioneers or whether the seller bidding directly up to his/her reserve should be preferred is not clear. In a presentation to U of L students at the Keeneland January 2010 Sale, Ryan Mahan, the head auctioneer at Keeneland, argued that placing the reserve with the auctioneers gave them a better chance to find a bidder willing to pay a price in excess of the reserve. Mr. Mahan argued that placing a reserve through the auctioneers increased their ability to achieve a sale for at least two reasons:

1) They knew better how to orchestrate the bidding in aiming to arrive at a price above the reserve price, and

2) They would not be fooled into thinking that the seller bidding on his own horse was a true public bidder and thus would be less likely to gavel the offering down before reaching the seller's reserve price.

Some sellers would retort that placing reserves through the auctioneers often results in a quick run-up toward the reserve price that has the auctioneers paying less attention than they should to potential bidders until the reserve price is reached. Sellers sometimes argue that this results in a somewhat artificial sound to the auction process that astute buyers can sometimes pick up on.

Leaving "Money on the Table"

Assume that you are hoping to get $25,000, but are debating between setting a reserve of $19,000 or $20,000 on your flashy yearling.[17] Assume also that you place a

[17] If you are aware of the "round number bias" that results in an apparent tendency for bidders to choose round numbers as their maximum bids, and you don't want to "step on" someone's potential maximum bid of $20,000 on your yearling, you will probably choose the $19,000 reserve rather than the $20,000 reserve. This way you won't risk the possibility that the maximum potential public bid was $20,000 and the top potential bidder walked away saying that he "would have bid 20."

live money only $19,000 reserve and there are two public bidders on your yearling, one willing to pay $25,000, the other willing to pay $15,000. When the bidder with the $15,000 top bid drops out, the auctioneer will raise the remaining bidder until the bidding exceeds your $19,000 reserve. Thus, the likely sale price will be $20,000. The question that you might be asked is "Did you leave money on the table?" The terminology refers to the poker analogy of betting in a way that will not take the maximum number of chips from competing players. But let's be practical: As high bidders rarely will admit what level they would have bid to, you are unlikely to ever know for sure whether or not you "left money on the table." Moreover, the consequences of pushing too far can be costly, and it is this author's view that, given the uncertainty about what potential bids might be forthcoming from bidders, more often than not one should set a reserve that is likely to leave some money on the table, otherwise you will too frequently find yourself regretting that you have to van your own horse back to the farm.

Setting Reserve Prices

Setting minimal acceptable prices (reserve prices) for offerings is not a task for which a simple formula can be easily devised. The question of the "optimal" reserve price is discussed in a companion piece to this paper, "Setting Reserve Prices," and for those of you who are aspiring game theorists, see a contrived numerical example of "optimal betting strategy" in Appendix II below.

Appendix II – Auction Market Terms

Ascending price auctions - An auction that starts at a low price and works its way up until only one bidder remains.

Asymmetric Information -- This is a condition in an auction market (or potentially any other market) in which buyers have incomplete information. Buyers seek to lower the potentially adverse effects of having incomplete information by "doing their homework" to gain as much information as is reasonably possible to decrease the possibility of overpaying for an offering or buying a "lemon". In financial markets "due diligence" is the term applied to the process of collecting information to determine what is and what isn't potentially a "good buy."

Bid increments - The amounts by which the bid price is incremented by auctioneers in the auction. For low-priced horses at Thoroughbred auctions, the increment may be as little as $100. ($1,000, $1200, $1300…). For million-dollar plus horses the increments may be $25,000 or even $100,000. For e-bay auctions and pleasure horse auctions, bid increments can be substantially lower.

Buybacks – Auction offerings that are not sold because the potential seller bid above the last public bid, resulting in the potential seller buying back his/her own offering. (See RNA's).

"**Caught Speeding**" – A term (heard at Maryland auctions) applied when an owner trying to push a bidder to a higher price bids too high and buys the horse back. Ann Merryman, one of my favorite trainers, always seemed to smile when she used this term.

Commissions -- These are usually 5% of hammer price at most Thoroughbred auctions. Higher percentage commissions are charged at most pleasure or working horse auctions. Consignor commissions for top-end horses can sometimes be negotiated down.

Culls – Many of the mares at an auction are being "culled" from the broodmare band of sellers because they are viewed as inferior for one reason or another. The buyer of culls is likely to face **asymmetric information** problems that could lead to buying a "lemon." Yearlings and weanlings are less likely to be culls because farms that specialize in selling racing prospects tend to sell all their foals instead of "culling."[18]

Dispersals – Dispersals are sales of all or a major portion of an owner's holdings. It has been observed many times that when a seller completely disperses his/her holdings, prices tend to be higher than when a seller sells only a fraction of his/her offerings. The expectation is that a complete dispersal will have a lower incidence of problem mares than a partial sale of holdings, thus lowering asymmetric information problems.

Entry fee – Amount ($500-$1000) for Keeneland and Fasig-Tipton (two major U.S. auction companies) to enter your horse in an auction. In some cases the entry fee counts toward the minimum sales company commission.

Hammer price – the last (high) price of an auctioned item. It is said to be the "hammer price" because the auctioneer brings down the gavel (hammer) to signify the end of the auction for a particular item.

High bidder - The buyer- the last bidder in an auction (who bids the high price and is the new owner).

Leaving Money on the Table – Setting a reserve price that does not force the high bidder to their bidding limit. Consignors who try to push bidders to their maximum bids on every offering will more often than not miscalculate and get "caught speeding."

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[18] Weanling and yearling consignments from farms that both race and sell are typically more likely to cull than farms that do not race. Savvy buyers will tend to discount the value of racing prospects offered by farms that race.

Minimum Bid - The lowest bid the auctioneer will accept ($1000 at Keeneland and Fasig-Tipton.)

Optimal Bidding Strategy Example – Though 99.9% of the time a seller will not find that the information presented in the following example is available, the thought process involved is helpful in planning a seller's strategy.

We start by using a contrived example derivative from the Mel Gibson "What Women Want" movie in which Mel had a head injury that caused him to be able to read minds. Belle Glibsome, a psychic owner/consignor, divines that potential bidders on her best weanling will make maximum bids as per the first column below.

Col. 1 Max bid Buyers will make	Col. 2 Last bid If no reserve*
50,000	40-42K
40000	35-37K
35000	30-32K
30000	27-28K
27000	26-27K
25000	25K
Average gross proceeds expected =	

**The hammer prices (last bids) observed reading down column 2 assume that the seller does not bid on the yearling, and that a bidder competes with the bidder willing to offer the next highest price. So, when the bidder willing to pay 50,000 competes with the bidder willing to pay 40,000, the bidding stops at 40,000 when the bidder willing to pay 50,000 bids 40,000 first, and (usually[19])stops at 42,000 when the bidder willing to pay 40,000 bids 40,000 first, causing the bidder willing to pay 50,000 to make one more bid - at 42,000. The average paid for the yearling will be 41,000 when the two most aggressive bidders compete.*

If the 50,000 bidder gets an important phone call and can't bid, then the 40K and 35K bidders will compete and the last price will be 35K, 36K, or 37K.

If we assume that there are multiple bidders willing to pay a maximum of 25K, then when there are no bidders willing to pay more than this, the bidder who first bids 25K will take home the horse (unless the owner makes one more bid).

[19] At this bidding level, auctioneers will ask for either 42K or 45K after 40K is bid. The potential 50K bidder might try to bid 41K at this point to get the horse at the lowest possible price. The typical bid sequence at this point is 40-42-43-45-47-48-50, though sometimes some of these bids will be skipped. If the potential 50K bidder knew that the 40K bidder would not bid again, (s)he might stick one finger up and mouth "41" to a bid spotter, whereupon the auctioneer will typically eventually reluctantly recognize the 41K bid if they can't get 42K.

What should Belle do if she ascertains with certainty that the 50 K and 40K bidders will be willing to bid to 50K and 40K respectively? Ask yourself what last bid Belle should make then read this footnote.[20]
An optimal reserve strategy is rather easily determined when you know what bids will be made by bidders. In practice it's much more complex. You may have an idea that the potential bids are as represented in our example, but the array of bids bidders will actually make may be substantially higher or lower than you expect.[21] If you are wrong, the potential financial implications can be very costly.

Buying back a yearling rather than accepting a reasonable offer will typically cost you tens of thousands of dollars in carrying and resale costs that you won't recoup. If you choose to race instead, your losses are likely to be higher still. Buying back a mare will typically entail lower (but significant) costs.

As long as there is uncertainty a seller cannot be sure what the optimal reserve price is. However, if the seller finds that (s)he almost never buys back an offering, then reserves are almost surely being set too low. In contrast, if the seller buys back a high percentage (> 20%?) of offerings, reserve prices are probably being set too high.

The Repository - X-rays and announcements of surgeries and some other important facts about auction offerings are required to be left with the sales co. in a publicly accessible room (the repository) on the sales grounds where buyers or their representatives can access this information.

Reserve price - The lowest price the seller will accept. If this price is not reached the seller retains the horse as a **buy-back** and the sale is listed as an "**RNA,**" or "**Reserve Not Attained.**" Sellers can put their reserve prices in with the auctioneer, in which case the auctioneer will pull the bids out of the air if necessary. Or the seller can bid his/herself until the reserve price is reached. Reserves left with the auctioneer can be of two types as follows.

Types of reserves --
"All the way reserves" instruct the auctioneer to bid to the reserve price even if there are no public bids. "**Live money only**" reserves instruct the auctioneer to bid to the reserve price only if an interested bidder is making "live" bids to increment the price.

> Q. **If the "*live money only*" reserve is $47,000, and the highest public bidder bids $33,000, where will the "hammer price" be?**
>
> **A. The auctioneer will bid either $34,000 or $35,000 and then stop.**

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[20] Belle should try to bid to either 48K or 49K. The bidding will have reached at least 40K without Belle doing anything. But once it reaches 40K it's time for Belle to raise her hand. (And to guard against not being recognized, it would be a good idea for Belle to have bid earlier in order to make sure that a bid spotter knows she may want to bid past 40K.) Bidding to 48K will typically result in the 50K bidder bidding that amount as the auctioneer will ask for 50K after a bid of 48K.

[21] Dan Rosenberg, former farm manager at Three Chimney's Farm and now a leading consultant, reported to a U of L equine finance class that the management group at Three Chimney's was typically able to pinpoint the average price of their sales consignments withing 10% of actual. But the typical deviation of individual horses from management's estimates was approximately 30%.

Q. If the "*all the way*" reserve is $47,000, and the highest public bidder bids $33,000, where will the "hammer price" be?
A. **The auctioneer will bid in increments "all the way" to $47,000 and stop there.**

RNA's – Short for **R**eserve **N**ot **A**ttained. This occurs when an owner sets a reserve price that is not topped by public bidders. The result is a "**buyback**" where the potential seller buys back his own offering.

Resale costs - The net incremental costs of carrying an offering to the next sale. At a minimum these will include the "sales expenses" (see below).
Q. How do resale costs affect the value of a seller's reserve?
A. Higher resale costs make it more expensive to buy back your offering, hence you logically should have a higher/the same/lower reserve when resale costs are higher.

Sales Expenses - The costs of running a horse through a sale. Sales company c**ommissions a**re often 5%, though additional sales company assessments may increase costs signficantly. Pre-sale horses are **prepped**, and prepping costs an extra $15-20? per day in addition to the costs of boarding. Other sales expenses include the **day rate** at the sale ($100+), vanning ($150 local to hundreds from NY or FL to $2000+ from CA to the East Coast). There are also advertising, signage, and vet fees. Vet fees for racing prospects include X-rays ($500 +) and scoping ($60-75?) of throats. Mares must be checked for pregnancy or breeding soundness. (My estimate of resale expenses for a $30,000 broodmare is approximately $5000, more for a yearling – RLosey).

Underbidder - The bidder who bid the 2nd highest price. *(It is it useful to know who the underbidder is if the seller bought back his/her own offering?)*

Wavers—Bidders who either mistakenly signal a bid or who "bid and run" when they find they are the high bidder.

Winner's Curse – A term used by academics to describe the situation in which the bidder bids too much and thus is saddled with an overpriced purchase. This may be because the seller covered up flaws, or because the buyer overestimated the value of the offering (or both).

A Targeted Statistical Analysis of Thoroughbred Auction Markets

By Peter Chinloy, Assen Assenov, and Robert Losey

Summary

Chinloy, Assenov and Losey (CAL) analyze multiple years of two thoroughbred sales, the two-week Keeneland September yearling sale and the one-night Adena Springs November sale of broodmares/seasons. They report the following findings.

1) Prices exhibit three patterns

A. Prices tend to fall on average for each successive day of the Keeneland sale, which is consistent with Keeneland's efforts to offer the best horses early in the sale.
B. Intraday prices tend to start out low during the first quarter of a day's offerings, trend upward through mid-sale, then fall back the last quarter of each sale day. This was true for both the Keeneland and Adena Springs sales. In order to be fair to consignors, sales tend to rotate sales offerings by changing the letter of the alphabet that starts the sale so that it follows a cycle over several years.
C. The first day, and the day after the break at Keeneland show an accentuated effect of the pattern from B above, with prices relatively lower during the first quarter of the day than during other sale days. Sellers dislike the first day (this observation is based on discussions with Keeneland officials and with sales participants) because of this phenomenon. Keeneland has changed to alphabetizing over more than one day (three days in 2011, four in the upcoming 2013 auction) during the day sessions of the first week, and as discussed above, will rotate the starting letter of the alphabet in future years in order to not consistently disadvantage horses with names starting with "A."

2) At Keeneland the incidence of RNAs (reserves not attained, or buybacks) tends to occur more frequently during the early days of the sale and diminish each successive day.
3) At Keeneland the incidence of "outs" or scratches from the sale tends to start at low levels during the first days of the sale and increase each day until it reaches a peak during the last day of the sale.

Discussion

1A – This price trend is easily explained by Keeneland's quality control efforts.

1B – There are multiple possible explanations, including

a. A learning curve phenomenon by potential buyers that causes them to want to see how the market is performing before risking too much money.
b. Money management effects combined with efforts to find "bargains"
c. Attendance effects
d. Other explanations?

1C – This may be explained by an accentuated version of the learning curve phenomenon and/or money management effects that carry over more than one day.

2) Buying back the higher priced offerings from early sale days entail lower percentage costs of resale and expenses to carry forward to the next sale , hence a greater chance of being able to profit from buybacks.

3) Scratches by consignors occur more frequently later in the sale because

a. consignors are more likely to be disappointed with the quality signal of a late day placement by Keeneland. If they think that their horse deserves a better day and will not sell well on the assigned day, they are more likely to pull the horse out of the sale, making it an "out."
b. There is more chance that attending buyers have "shopped ahead" and bought horses out of later days before they go through the auction ring? (We doubt

that this is a significant factor.)