

EarthTrax, Inc. White Paper Series

Averaging Is Not Optimal

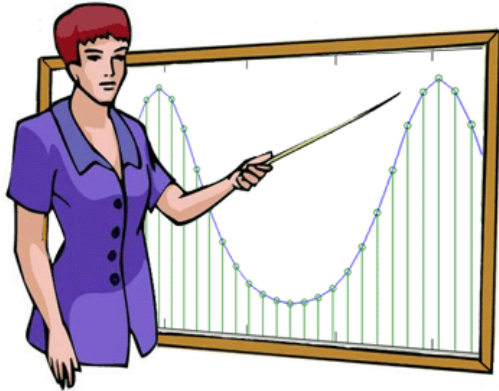
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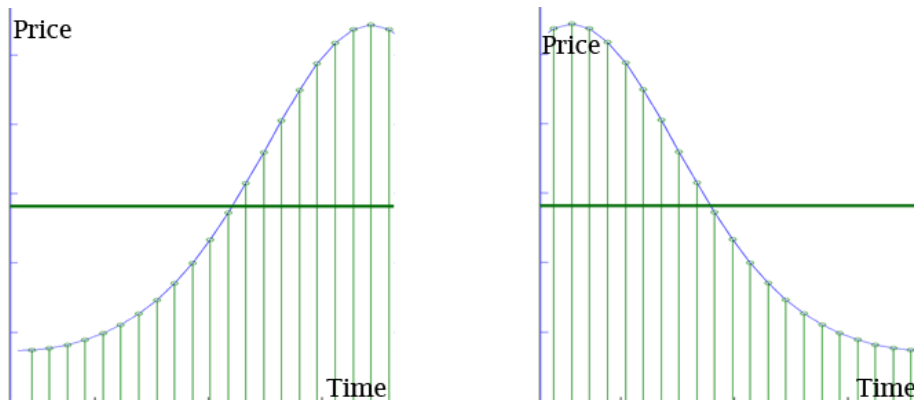
You've finally decided to sell something by auction. How would you begin? Before listing eBay, you must first come up with some worthy settings like what price to start the auction at, what time and day, etc. The answer is simple... or is it?

You could first look at all similar items currently held and consider their start prices. If you look at enough of them, you could take the average of all those start prices

and list your auction with that average. Suppose you find a way of obtaining months of completed auction data – you could again average all those start prices and use that number. The same thing holds true for all the other initial auction parameters.

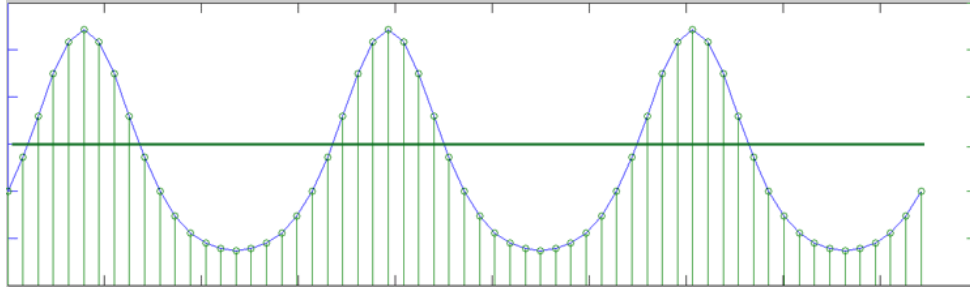
It's a Bad Idea

For some given amount of time, the price of an item will certainly vary from a low point to a high point. It will not always vary (either increasingly or decreasingly) in a linear fashion. In fact, plotted final price points would resemble a sporadic random graph, but if you're clever enough, you may be able to spot a trending curve through those points. Then these graphs would look like one of these:



Taking the average price of this particular item during the chosen time period would resemble the straight horizontal line through the graphs.

Let us describe a classical example and then expound on the disadvantages of averaging final price points: The price of Diesel Reslim Jeans varies wildly throughout the year. The range of prices may extend from \$45 all the way to \$185 for essentially the same pair of jeans. A graph of the final prices of the jeans during some past year may look like:



If we take the average prices for these jeans during the course of the entire year, we will find that it would be \$115.00. Now, suppose that I had several of these jeans to auction off, and I know from my calculation that the average obtainable price would \$115.00. What would happen if I used this \$115 point as a starting price?

On an Upward Price Movement



If the general price trend of these Reslim jeans were increasing (perhaps because of the beginning of a new school year or the Christmas season), normal bidder psychology states that a bidder would wait until the last minute to bid. Your starting price of \$115 would be too high and thus would scare off most potential bidders – they may feel that there is another auction concurrent with yours that has a significantly lower starting price, and that they can possibly obtain these Reslim jeans for less than \$115. They may not realize that the final bid price of these jeans may go for well over the average \$115 price mark, but that doesn't really enter their mind at the time of bidding. You will have then effectively placed a ceiling on the price of Reslim jeans at \$115.00. Remember, most bidders are impatient – they may spend no more than about 5 seconds looking over your auction before bidding, and the first thing they consider is the current bid price. So, setting your initial start price to \$115 when everyone else starts his auctions at \$1.00 would lead the bidder to look elsewhere quickly.

What consequently would happen then on an upward trend of prices is that no one bids on your auction until the general current price (average price of all Reslim jeans at the moment the bidder is looking) is equal to, or surpasses \$115. This may occur as much as 6 days into your pre-set 7-day auction. This then implies that you will have wasted 6 days of your auction during which time there were no bids. Wouldn't it have

been better to set your auction duration down to 3 days, in this case? You would have to examine completed auction data to determine that or read over the section on 'Auction Duration' in the upcoming book for more information.

However, if you think you're clever by setting a Buy-It-Now price locked in at \$115.00 during this upward price swing, you may be able to achieve your goal of obtaining more money. You may be able to forecast a correct, reachable Buy-It-Now price -- in this case, an increasing value to \$115.00 that wouldn't scare off bidders, and be somewhat successful, although you should realize 2 caveats: at some point, the upward swing peaks and prices then begin shifting downward; and if you sell many of these jeans at that new calculated fixed price, you then effectively set the ceiling price, or make it too easy for bidders to obtain these jeans at that new price, and the result becomes a downward trend.

On a Downward Price Movement



Let us continue our above example of the price of Diesel Reslim jeans having an average price of \$115.00. If you start your auction at this calculated average price while the prices of these jeans from a peak and begins a downward trend, then if you're lucky you might be able to incur a bid or two for not much more than \$115, and only near the end of your auction. As noted, people may bid on your auction if the current price is 'right' -- since you will have begun this auction at such a high price of \$115, bidders will inevitably wait until the auction is about to end to bid. However, if the trending price is lower than \$115 on this downward movement, and you mistakenly start your auction at \$115, then it will soon be clear that no one would place a bid, and your auction will fail, leaving you with no sale and a bill for eBay's listing fees.

Suppose you choose to start this auction as a Buy-It-Now price of \$115 on this downward trend. Once again, if the 'current' market price of these jeans is less than \$115, then you will inevitably see no bidders and your auction will be a failure. But if you 'current' price is greater than \$115, then you may only be influencing the market by accelerating the downward price trend, or bidders may be shying away from all Reslim auctions, and thus refusing to bid on yours.

Averaging Duration Lengths

eBay offers a choice of auction durations as 1, 3, 5, 7, or 19 days on standard auctions.¹ If after performing a search on eBay's "Find Items" page, you take the average durations on the list, you will find that duration is very close to 7 days long. The reason for this is two fold: eBay defaults its auction duration to 7 days for people who wish to enter their auctions manually, but allows you to choose among the given set; and since the average duration length is 7 days, most people then believe that 7 days is a good start and don't bother to change it.

But on close examination of very successful completed auctions (those with many bids), you would find that people place bids basically only during the first and last day of the auction. This leaves the majority of the middle of the 7 days with no activity. And when there's no activity, this usually implies that potential bidders aren't even looking at your auction. Wouldn't it make sense in certain situations then to shorten the duration so as to be in the 'limelight' as much as possible, but not so short as to limit exposure of your item to a smaller set of bidders?

The Lesson Learned

In summary, averaging data point such as start price, Buy-It-Now price, start times of the day and week, auction duration, and any other factors is simply a bad idea. In fact, it will mostly be incorrect. The price of an item changes constantly over time, and so does the optimal time to auction it. This means that for every item going on auction, you should take the time to research and possibly calculate the optimal parameter setting few days or so, depending on the type of item.

There are major companies out there that not only provide a simple counter, but also claim that they will provide Power Sellers with "optimal" auction settings. If you took the time to read the fine print, they reveal that they do this only by the simplest methods: averaging data points. Since they keep an internal store of eBay's completed auction data (for an unknown window of time), they can simply average data points and provide Power Sellers with this (incorrect) calculated value. Is this what you want? Wouldn't it be more intelligent to get a better auction parameter setting by being closer to the trend in the graphs? You'd most likely make more money on each and every auction, every time.

¹ Standard auction means auctions started by entering auctions from regular eBay pages. This does not refer to eBay stores that can set their auction lengths arbitrarily on day boundaries to as much as 6 months.