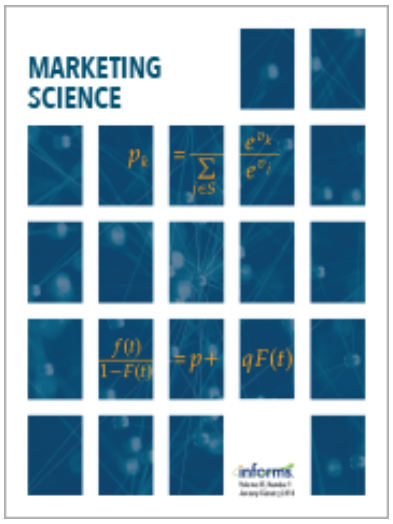

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The Effect of Explicit Reference Points on Consumer Choice and Online Bidding Behavior

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Sellers often explicitly suggest to buyers that they compare one option to other (reference) options. Building on the notion that loss aversion is more pronounced when comparisons are explicit rather than implicit, we propose that the mere fact that consumers are explicitly told to make particular comparisons induces more risk-averse, cautious choice and bidding behavior. This proposition was supported in a field experiment involving real online auctions, in which comparisons among listings either were done spontaneously by bidders or were encouraged using an explicit instruction to compare the focal auction with adjacent listings. Results showed that explicit reference points (1) diminished the influence of adjacent auction prices on the focal auction's price; (2) led participants to submit fewer, lower, and later bids; (3) increased the incidence of sniping; (4) decreased bidding frenzy; and (5) decreased the tendency to bid on multiple items simultaneously. The impact of explicit comparisons on risk-averse behavior was further tested in a very different context using a laboratory choice experiment. In that study, explicit instructions to compare option sets increased the tendency to choose the compromise, low-risk, and all-average alternatives. We discuss the theoretical and practical implications of this research.

Key words: explicit reference points; comparisons; consumer choice; online bidding behavior
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Thousands of promotional messages and persuasion attempts are aimed at consumers on a daily basis, and consequently, they pay attention to relatively few—making it very difficult for marketers to break through the clutter. Given these challenges in attracting attention and generating consumer involvement with marketers' persuasion attempts, subtle messages that require consumers to make the "right" comparisons and draw their own conclusions can often be ineffective. Thus, marketers typically sacrifice subtlety for the sake of getting through. In particular, instead of relying on the consumer to select the "right" reference points, marketers often provide explicit reference points that make their own offerings appear more attractive and invite consumers to make comparisons. For example, drugstore shelf signs often encourage consumers to compare the store brand's price with the corresponding leading national brand's price. However, what are the consequences of explicitly telling consumers to make certain comparisons, and how do such explicit reference points affect consumers' information processing and purchase behavior? We address this question in the present research.

We propose that explicit reference points (i.e., explicitly suggesting comparisons with specific reference points) make consumers more cautious—they often perform the suggested comparisons but become more risk averse and are careful to avoid making mistakes or falling into traps. Consequently, explicit reference points are expected, for example, to produce more controlled bidding strategies and less risky choices (e.g., a higher propensity to select compromise alternatives). We test these propositions using both a field experiment involving real online auctions and a laboratory choice experiment. The theoretical and practical implications of this research are discussed.

Implicit and Explicit Reference Points in Consumer Judgment and Choice

Consistent with existing theories of human judgment and decision making (e.g., Helson 1964, Kahneman and Tversky 1979, Mussweiler 2003), consumers' perceptions of attribute values and product preferences are determined largely by the reference points they use, rather than by absolute values alone (e.g., Chen and Rao 2002, Kahneman 1992, Kahneman and Tversky 1979, Nowlis and Simonson 1997). In particular, price perceptions are strongly influenced by reference prices, such as the prices of products

encountered previously or externally available store prices (e.g., Winer 1986). For example, when evaluating the price of king salmon or a toaster, the consumer is likely to spontaneously retrieve previously encountered prices for these products (Adaval and Monroe 2002).

Reference points that are spontaneously used by the consumer can be regarded as implicit, whereas reference points that are suggested, for example, by the seller or advertiser of the product are explicit reference points. Prior research has examined marketing tactics that involve explicit reference points. In particular, comparative advertising is essentially an attempt by marketers to provide reference points and frame the comparison in a way that is favorable to the evaluation of the advertised product (e.g., Shiv et al. 1997). There has also been a great deal of research about the effect of sale price presentation format on price perceptions. For example, prior research indicates that advertised offers presenting both the regular price and sale price are perceived as more believable (e.g., Barnes 1975).

These studies have provided useful insights regarding the conditions that moderate the particular effects of advertised prices and comparison brands on consumer perceptions and persuasion. In the present research, on the other hand, we focus on the more generic impact of explicit reference points on consumers' choices and willingness to pay for products. Specifically, the question we examine is whether the mere fact that consumers are told to compare an option with another option affects the manner in which they evaluate these options and their subsequent bidding and purchase decisions.

Prior research has examined the role and consequences of comparisons (e.g., Dhar et al. 1999). Brenner et al. (1999) proposed that comparisons tend to diminish the attractiveness of options. They explained this finding based on the property of comparative loss aversion (e.g., Tversky and Simonson 1993). Specifically, because comparative disadvantages tend to receive greater weight than advantages, the overall result of comparisons is to make the compared options less attractive. Consistent with this proposition, they demonstrated that consumers indicate a significantly higher willingness to pay when options are presented in isolation rather than together with other alternatives (see also Nowlis and Simonson 1997). These studies, however, have not examined the impact of explicitly instructing or suggesting to consumers to make particular comparisons.

One likely consequence of explicitly telling consumers to compare one option with a particular other option (or options) is simply that it causes consumers to make comparisons that they would not have otherwise made, which is usually the motivation for providing the explicit reference point in the first place. However, the resulting persuasive impact of explicit instructions to compare might be weaker than if these comparisons were made spontaneously by consumers. For example, consistent with the suggestion by Walster and Festinger (1962) that an influence agent is more persuasive when the intent to persuade is not obvious, Kardes (1988) showed that, under high involvement, advertisements with omitted conclusions are more persuasive. That is, the attitudes of involved consumers are more strongly influenced by the advertised message if they draw the conclusions on their own. In a similar fashion, Kivetz and Simonson (2003) recently proposed that promotional offers (e.g., loyalty programs) that fit the particular preferences of individual consumers are more effective if the consumers reveal the superior fit to their preferences on their own.

In this research, we are examining the impact of explicit comparisons on buyers' bidding and choice behavior. Our main proposition is that, when told to make particular comparisons, consumers exhibit more risk-averse, cautious behavior. This prediction is consistent with the notion that explicit reference points make comparisons, and consequently loss aversion, more pronounced. Specifically, because explicit reference points make comparisons more salient, consumers are more likely to consider the possibility that the option they select will result in a gain or a loss, with the latter tending to have greater impact. Given the greater prominence of possible losses, explicit reference points are expected to generate more risk-averse and cautious consumer behavior. For example, because a "compromise" option is associated with smaller relative advantages (gains) and disadvantages (losses) than "extreme" options in the same set, an explicit instruction to compare options is expected to make loss aversion more pronounced and increase the share of the compromise (e.g., Simonson and Tversky 1992).

Although less parsimonious, the prediction that explicit reference points produce more risk-averse, cautious behavior can also be explained based on the buyer's interpretation of the intentions of the person suggesting the particular comparisons. That is, even when consumers cannot identify the intentions and possible ulterior motives behind the suggested reference points, the mere fact that a marketer or a marketing researcher with potentially greater information about the task and offer's attractiveness suggests certain comparisons is expected to trigger more cautious evaluation of the information and an error-prevention orientation (e.g., Friestad and Wright 1994). Next, we discuss the implications of the proposition that

explicit reference points lead to more risk-averse, cautious behavior in the context of online auctions. Later, we extend the analysis and test an alternative explanation for the results of the online auction field experiment using a laboratory choice study.

The Effect of Implicit and Explicit Reference Points on Online Bidding Behavior

Online auctions have emerged as an important and increasingly popular avenue for buying and selling products (see, e.g., Ariely and Simonson 2003; Dholakia et al. 2002; Dholakia and Soltysinski 2001; Häubl and Popkowski Leszczyc 2003, 2004). In the context of the present research, online auctions are particularly suitable for examining the impact of explicit reference points for a number of reasons. First, the online auction environment offers a great deal of information about the auctions and related items, the sellers, and so on. Furthermore, bidders often do not simultaneously search for alternatives to the auctioned items from other sources, including online retailers (Ariely and Simonson 2003). Thus, the most relevant reference points used to evaluate an auctioned item are typically other identical items contained within the auction environment itself. Second, because online auctions typically last several days, we can observe and examine the dynamic effects of reference points on bidders' behavior using measures such as the timing of bids and price changes over time, in addition to auction outcomes such as final prices and number of bids. Third, the online auctions setting allows us to conduct a controlled experiment involving real transactions.

The reference points in our study are the prices of adjacent auctions, i.e., auctions listed before ("preceding") and after ("succeeding") the focal auction. A large body of research on reference prices has shown that prices of the same and/or other products available to the consumer from advertisements, displays, labels, and so on, provide reference points that influence how products are evaluated (for a review, see Monroe 2003). In the context of online auctions, recent research has found that a listing's own starting price tends to positively influence its final price, because higher starting prices may signal quality and popularity to potential bidders (Ariely and Simonson 2003, Häubl and Popkowski Leszczyc 2003).

Recent research has also demonstrated that adjacent product prices encountered during product evaluation and purchase influence the consumer's willingness to pay for a given product (e.g., Adaval and Monroe 2002, Nunes and Boatwright 2001). Consistent with this research, we expect that prices of adjacent auctions serve as implicit reference points for bidders of a focal auction, influencing its final price. Specifically, when prices of adjacent auctions are higher/lower, the focal auction is likely to be evaluated more positively/negatively, and therefore become more/less likely to attract bids, leading to a higher/lower final price.

This prediction, however, might not hold when a seller relies on explicit reference points by encouraging bidders to compare the price of the focal item with the prices of identical adjacent items. As discussed above, such explicit instructions to compare prices are unlikely to be ignored, but they are expected to make bidders more risk averse and cautious in their bidding behavior. That is, explicit, easily accessible reference points make the possibility of a loss/gain (i.e., paying more/less than what someone else will pay for an identical item) more salient, with the possible loss looming larger. Similarly, prior research has shown that loss aversion can impact people's willingness to trade seemingly identical lottery tickets, due to uncertainty about the ultimate cost of such trades (Bar-Hillel and Neter 1996). It is noteworthy that standard theories of persuasion, such as the elaboration likelihood model (e.g., Petty et al. 1983), provide limited guidance regarding the impact of explicit reference points. For example, even if one were to assume that an explicit instruction to make particular comparisons increases consumers' involvement with the purchase/bidding task, it would provide no guidance regarding specific behavioral consequences (e.g., whether bids tend to be submitted later).

On the other hand, the proposition that consumers exhibit more risk-averse behavior in response to a selling tactic that encourages them to make particular comparisons leads to several predictions in the context of online bidding. Specifically, more risk-averse, cautious bidders are expected to try to avoid bidding frenzy (Häubl and Popkowski Leszczyc 2004) by taking their time and submitting bids later, so that they have better information about other bidders and the going price before making any irreversible commitments. For the same reason, risk-averse bidders are likely to submit fewer bids and exhibit more controlled, well-planned behavior. Furthermore, risk-averse bidding behavior could be reflected in a lower willingness to bid and thus generate lower final "winning" prices.

More cautious planning might also lead to greater incidence of "sniping," whereby bidders wait until the last phase of the auction to submit their bids. Such behavior is consistent with the finding that many bidders use sniping to avoid getting into bidding wars (Ockenfels and Roth 2002). In addition, because simultaneously participating in more than one auction for the same item (e.g., for the same CD) is risky and can lead to "winning" too many auctions, explicit

reference points should decrease the incidence of such behavior.

Finally, more risk-averse bidding behavior implies that auction participants should make sure that they are not overpaying for the items on which they bid. Thus, instead of comparing the price of the item on which they bid (the focal item) with only the adjacent similar items, cautious bidders are likely to consider other reference prices, including nonadjacent items. This, in turn, should diminish the impact of adjacent items' prices on the willingness to bid for the focal item. Conversely, without explicit reference points, the starting selling prices of adjacent listings are expected to impact the final price of the focal item, consistent with the research reviewed above.

Thus, when the adjacent reference prices are lower, explicit comparisons are expected to have two conflicting effects on bidding prices. On one hand, more risk-averse bidding behavior indicates that consumers will submit lower bids. On the other hand, because explicit reference points are expected to diminish the influence of (irrelevant) starting prices of adjacent items, consumers should be less affected by lower (and higher) reference prices. Because these two effects operate in opposite directions, it is impossible a priori to predict the effect of explicit reference points on final prices of the focal auction when the reference prices are lower.

In the pilot study described next, we examine the impact of adjacent items' prices on bidding behavior when bidders are not explicitly told to compare prices. Our goal here was to ascertain that adjacent prices do indeed serve as (implicit) reference points, influencing the focal listing's final price. Study 1, described below, examines the impact of explicit reference points.

Pilot Study

Method

Twenty-five music CDs that were current topsellers on eBay were chosen from the Billboard 200 list.[1] Each CD was listed on eBay in two experimental conditions by the same seller. The use of the same seller for all auctions controls for any potential differences in bidding patterns arising from effects of sellers' names and/or reputations.

In the first "single-auction" condition, a single (focal) CD was listed with a low starting price of $0.99. In this condition, we did not control the starting prices of CDs listed next to it. In a second "paired-auctions" condition, two identical CDs were listed adjacent to each other. Adjacency on eBay pertains to the order in which auctions are seen by bidders, which is based on the timing of listing.[2] The first CD had a high starting price of $6.99, while the focal CD had a low starting price of $0.99.[3] The same title format and detailed descriptions were used for all the listed CDs. The two experimental conditions were counterbalanced in the temporal order in which the single and paired auctions occurred, with a gap of at least one week.

Because our assumption was that adjacent auction prices serve as implicit reference points for the focal auction, our expectation was that the focal CD in the paired-auction condition would benefit from the higher reference price created by the auction preceding it. As a result, when compared to the single-auction CD, it should perform better and end with a higher final price. To ensure that the adjacent CD's starting price was indeed higher in the paired-auctions condition when compared to the single-auction condition in each individual case, we dropped four CD sets where the starting price of the CD preceding our single auction CD (which we did not control) was higher than $6.99, leaving a usable sample size of 21. The average starting price of the preceding CD in the single-auction condition was $2.67 (for the remaining 21 single CDs sold). The starting prices of the succeeding auctions (which we did not control in either condition) did not differ significantly between the two conditions.

Results and Discussion

A paired-sample t-test was carried out to compare the final prices for the single-listed CD and the focal CD in the paired-auctions condition. Results showed that the average final price of the focal listing in the paired-auctions condition ($M_{\text{Focal}} = \$9.53$; *Median* = $8.50) was significantly higher than the average final price of the single-auction CDs ($M_{\text{Single}} = \$8.80$; *Median* = $7.50; $t(20) = -2.39$, $p < 0.03$). This finding supports our assumption that adjacent auction prices serve as implicit reference prices and affect the willingness to bid and the resulting final prices. Next, in Study 1, we contrast the impact of implicit and explicit reference points.

[1] The Billboard 200 list, updated weekly, is based on CD sales over the previous week and is compiled from a national (USA) sample of retail store sales reports (prepared by Soundscan).

[2] Across the 25 paired auction sets, the 2 auctions were listed within 11 seconds of each other, on average. We also checked to make sure that no other seller had listed an auction between our auctions, in each individual case, so that our listings indeed appeared as adjacent to bidders.

[3] We chose $6.99 as the high starting price based on the observation that most starting prices of similar CDs were lower that $6.99 (the two most frequent starting prices were $0.01 and $0.99).

Study 1

The results of the pilot study confirm that the starting prices of adjacent listings serve as implicit reference points and influence the final ("winning") prices. Building on this finding, Study 1, which was also a field experiment involving auctions of identical sets of CDs, tested our predictions regarding the effects of explicit reference prices on bidding behavior. In the explicit comparison conditions, bidders were explicitly encouraged to compare the focal CD with the (identical) adjacent CDs, whereas no such instructions appeared in the implicit comparison conditions. Although such a tactic is unusual in the eBay environment, as our study shows, it can be implemented by sellers, and it has far-reaching influences on bidding behavior and the auctions' outcomes.

Method

Thirty sets of music CDs, which were the top 30 on the Billboard 200 list, were listed on eBay under five experimental conditions, with all CD sets offered by the same seller. In one condition, a single CD was listed without any explicit instructions (this is the "benchmark" condition) at a starting price of \$1.99. In each of the remaining four conditions, three CDs were offered for sale, including the focal CD and two adjacent CDs, listed within an average of eight seconds of one another. In each individual case, we also checked to make sure that no other seller had listed a CD in between our CDs, so that they were indeed adjacent throughout the duration of the auction.

Two factors were manipulated in these four conditions: low versus high (starting) reference price level and implicit versus explicit comparison of reference points. Each of the CD sets was sold in both the high and the low reference price level conditions. In this study, we controlled the starting prices of both the preceding and the succeeding CDs. In the low reference price condition, the focal auction started with a price of \$1.99 and was flanked by two (identical CD) auctions, each with a starting price of \$0.99. In the high reference price case, the focal auction again started at \$1.99 and was flanked by two auctions, each starting with a price of \$6.99.

The titles and descriptions of all three CDs within each auction set were identical. The descriptions included the track titles on each CD, followed by details regarding shipping procedures. The following is an example of the CD descriptions provided in the auctions:

> "Pink Floyd's most classic release. 9 songs, including the classic "Money." Recorded at Abbey Road Studios, London, between June 1972 and January 1973.
>
> Songs include: (1a) Speak to Me, (1b) Breathe, (2) On The Run, (3) Time, (4) The Great Gig In The Sky, (5) Money, (6) Us And Them, (7) Any Colour You Like, (8) Brain Damage, (9) Eclipse.
>
> Factory sealed. Just bought/brand new and unopened. Winner pays \$2 shipping. I will ship US Post First Class."

In the explicit comparison condition, the following additional sentence was added to the focal (middle of the three) CD auction description, in bold large-font-size letters: "DON'T MISS A BARGAIN! COMPARE THE PRICE OF THIS CD WITH THE PRICES OF SIMILAR CDs LISTED NEXT TO THIS ONE." This instruction was omitted from the focal CD's description in the implicit comparison condition.

Given the length of the study (more than four months), we recalibrated the CD list after two months to ensure that the most popular CDs continued to be included in the experiment. We again selected the top 30 CDs from the Billboard list using the same random ordering approach as before. There were insignificant differences between the first and updated sets of 30 CDs in terms of average final prices ($M_{\text{first}} = \$9.87$ vs. $M_{\text{updated}} = \$9.55$, NS) and average number of bids ($M_{\text{first}} = 6.98$ vs. $M_{\text{updated}} = 7.00$, NS). In the final analysis, only CD sets wherein all three CDs received at least one bid were retained. A total of 115 sets across all five experimental conditions were retained using this criterion. After the auctions ended, we printed out the final-status Web page for each auction, recording the value and time of each bid and the identity of the bidder.

Results

We proposed that making the reference prices of adjacent auctions explicit would lead to more risk-averse bidding behavior. Specifically, we predicted that explicit instructions to compare the focal with adjacent listings will (1) diminish the effect of adjacent listings' prices on the focal CD's final price, (2) decrease the number of bids placed, (3) lead to submitting bids later by the auction participants, (4) increase the incidence of sniping, (5) decrease the maximum number of bids placed by any single bidder, and (6) decrease the tendency to bid on both the focal CD and the adjacent CDs simultaneously. Tests of these predictions are reported next.

Influence of Adjacent Auction Prices on the Focal Auction's Price. We expected a weaker influence of the initial reference prices in the explicit compared to the implicit comparison condition. A two-comparison (implicit, explicit) X three-reference price level (high, low, control) ANOVA was conducted with the focal auction's final price as the dependent variable. Results showed that, whereas the main effect of comparison was not significant ($F(1,116) = 0.11$, $p > 0.70$), the effect of reference price level was significant ($F(2,116) = 5.34$, $p < 0.01$). More importantly,

the two-way interaction was statistically significant ($F(1,116) = 4.91$, $p < 0.05$).

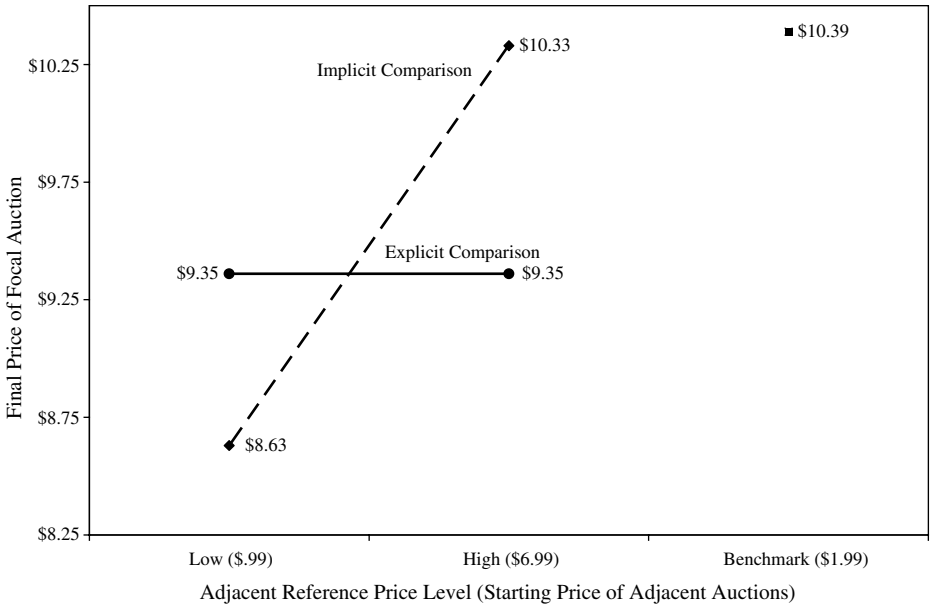
We used planned contrasts to examine the results separately in the high and low reference price level conditions. In the high reference price level condition, as predicted, focal auctions in the implicit comparison condition had higher final prices ($M = \$10.33$) compared to the explicit comparisons task ($M = \$9.35$, $p < 0.05$). With respect to the low reference price level condition, as explained above, we had no a priori prediction due to two conflicting effects; specifically, explicit instructions to compare were expected both to diminish the impact of (irrelevant) reference points, which suggests that final prices will be higher, and also to lead to more risk-averse behavior, which implies lower bidding prices. The results showed that the average final prices in the implicit (low) reference price group were marginally significantly lower ($M = \$8.63$) when compared to the explicit comparison condition ($M = \$9.35$, $p < 0.10$). Comparing final prices within comparison conditions, we found in the implicit comparison condition a significant effect of adjacent prices on final prices of the focal auction ($M_{\text{high-reference-price}} = \$10.33$ vs. $M_{\text{low-reference-price}} = \$8.63$; $p < 0.001$), whereas there was no effect in the explicit comparison condition ($M = \$9.35$ with both low and high reference prices). These results are consistent with the prediction that the explicit instruction to compare the focal with the adjacent listings would diminish the impact of the adjacent listings' starting prices. Figure 1 summarizes these results.

We also examined separately the prediction that explicit instructions to compare would decrease the willingness to bid and thereby lead to lower final prices of the focal CD. Specifically, we examined the final prices in the explicit and implicit comparison conditions, pooled across reference price levels. Results showed that the final price in the explicit comparison condition ($M = \$9.35$) was directionally lower than the final price in the implicit comparison condition ($M = \$9.85$), but that difference was not statistically significant.

Average Number of Bids by the Winner and Runner-Up. We predicted that the winner of the focal auction would submit fewer bids in the explicit comparison conditions. The results of a two-comparison (implicit, explicit) X three-reference price level (high, low, benchmark) ANOVA showed that the main effect of comparison was significant ($F(1, 18) = 4.34$, $p < 0.05$), but neither that of reference price level ($F(2,118) = 0.06$, NS) nor the two-way interaction was significant ($F(1,118) = 1.09$, NS). Winners in the explicit comparison condition placed significantly fewer bids ($M = 1.48$) compared to those in the implicit comparison conditions ($M = 1.91$). The results for the auctions' runners-up followed a similar pattern. Pooled across reference price levels, runner-up of the focal auctions in the explicit comparison condition made significantly fewer bids ($M = 1.5$) compared to those in the implicit comparison conditions ($M = 2.0$, $p < 0.05$).

Time of First and Last Bid Placed by Winner, Runner-Up, and Other Auction Participants. We predicted that more risk-averse bidders in the explicit comparison condition would enter the auction later and wait patiently with submission of their final bids. Examining first the time of first bid by the (focal)

Figure 1 Final Focal Auction Price by Reference Price Level and Comparison Condition: Study 1



auction winner, the results of a two-comparison (implicit, explicit) X three-reference price level (high, low, benchmark) ANOVA supported our prediction, showing that the main effect of comparison was statistically significant ($F(1,113) = 4.57$, $p < 0.05$). Neither the main effect of reference price level ($F(2,113) = 0.52$, NS) nor the two-way interaction ($F(1,113) = 0.01$, NS) was significant. Winners in the explicit comparison conditions waited longer to place their first bid on the focal auction ($M = 128.9$ hours) relative to those in the implicit comparison conditions ($M = 108.5$ hours). Table 1 summarizes these results as well as the results for auction runners-up and all other auction participants. As expected, all auction participants (i.e., winners, runners-up, as well as the remaining bidders) waited longer to bid for the first as well as the last time in the explicit comparison conditions relative to the implicit comparison conditions. These results support our proposition that bidders exhibit more cautious, risk-averse behavior when given explicit reference points.

Incidence of Sniping. As indicated earlier, sniping refers to cases where bidders placed their first bids on the listing within the last hour of the auction (e.g., Ockenfels and Roth 2002). Because explicit instructions to compare are expected to induce more cautious behavior, bidders were expected to take their time and wait patiently until the last hour of the auction. Accordingly, we predicted that there would be greater incidence of sniping when reference points were made explicit. We tested this prediction in two ways.

In the first analysis, our dependent variable was whether or not the focal auction had at least one snipe. A categorical logit model of this binary sniping-incidence variable as a function of (1) comparison (implicit, explicit), (2) reference price level (high, low, benchmark), and (3) the interaction between the two revealed a significant effect of comparison ($\beta = 2.37$, *Wald-Statistic* $= 9.58$, $p < 0.01$). Neither the coefficient of reference price level nor that of the interaction term was significant. When compared to the explicit comparison condition in which 53.8% of auctions had sniping, only 18.2% of auctions in the implicit comparison condition had sniping ($\chi^2_{(1)} = 16.51$, $p < 0.001$).

The second analysis used as a dependent variable the proportion of bids that were snipes, i.e., the percentage of the total number of bids that were placed by bidders who first entered the auction in the last hour. A two-comparison (implicit, explicit) X three-reference price level (high, low, benchmark) ANOVA showed that the main effect of comparison was statistically significant ($F(1,118) = 10.31$, $p < 0.001$). Again, neither the main effect of reference price level ($F(1,118) = 0.16$, NS) nor the two-way interaction ($F(1,118) = 1.72$, NS) was significant. Whereas 14.6% of the total bids in the explicit comparison condition were snipes, only 4.7% of bids in the implicit comparison condition were snipes. These results show that the incidence of sniping increases significantly when adjacent reference prices are made explicit, consistent with the notion that risk-averse bidders attempt to avoid potentially costly bidding wars.

Table 1 Time of First and Last Bids in Focal Auction for Various Auction Participants, by Comparison Condition, Study 1

	Comparison condition	
Auction participant	Implicit (hr)	Explicit (hr)
Winner		
Time of first bid	108.5	128.9**
Time of last bid	119.2	140.4**
Runner-up		
Time of first bid	101.0	123.2**
Time of last bid	111.3	133.9*
All other auction participants		
Time of first bid	23.9	31.3
Time of last bid	95.9	106.1**

Note. Difference between implicit and explicit comparison conditions is denoted by $p < 0.10^*$ and $p < 0.05^{**}$.

Maximum Number of Bids Placed by Any Single Bidder. We also expected that the maximum number of bids by any single bidder in the auction would be lower among the more cautious bidders in the explicit comparison condition. A two-comparison (implicit, explicit) X three-reference price level (high, low, benchmark) ANOVA showed that the main effect of comparison was marginally statistically significant ($F(1,118) = 2.80$, $p = 0.08$), but neither the main effect of reference price level nor the two-way interaction was significant. Relative to the implicit comparison condition ($M = 2.97$), the maximum number of bids placed by any bidder in the explicit comparison condition was marginally significantly smaller ($M = 2.38$). This is yet another indication that bidders in the explicit comparison condition tended to become more risk averse and less likely to exhibit bidding frenzy.

Percentage of Overlapping Bidders Across the Auction Set. We argued that explicit reference points would decrease the likelihood of simultaneously participating in more than one auction for the same item, which is an indicator of less cautious, more adventurous behavior (see also Häubl and Popkowski Leszczyc 2004). This prediction is consistent with the effect of explicit reference points on sniping, because waiting until the end of one auction to submit a winning bid makes a strategy of simultaneously bidding on multiple (identical) items less viable. The results of a two-comparison (implicit, explicit) X two-reference price level (high, low) ANOVA on the percentage

of overlapping bidders weighted by total number of bidders in the auction set (see Burdick 1983) supported our prediction, showing that the main effect of comparison ($F(1,91) = 3.76$, $p = 0.05$) was statistically significant. The effects of reference price level ($F(1,91) = 2.44$, NS) and the two-way interaction ($F(1,91) = 1.52$, NS) were not significant. Consistent with the proposition that explicit reference prices generate more cautious bidding behavior, pooled across reference price levels, the percentage of overlapping bidders dropped from 15.64% in the implicit comparison condition to 11.53% in the explicit comparison condition.

Discussion

The pattern of results consistently demonstrated that, compared to implicit reference points, explicit reference points produced more risk-averse, cautious bidding behavior. As expected, when the seller encouraged bidders to compare prices, the starting prices of adjacent listings no longer affected final prices of the focal options. Furthermore, the winners in auctions with explicit reference points tended to bid later, submit fewer bids, postpone bidding until the end of the auction (i.e., snipe), and avoid multiple simultaneous auctions. Other auction participants exhibited similarly cautious behaviors. Overall, these findings demonstrate that a seemingly simple manipulation of using explicit rather than implicit reference points has a profound and wide-ranging impact on bidding behavior.

Despite the consistent set of results obtained across the dependent measures, some shortcomings of this experiment must be noted. First, although we have shown that explicitly encouraging bidders to make specific comparisons is a viable (and influential) tactic, it is atypical of tactics currently employed by eBay sellers. We are unaware of any research suggesting that atypicality leads to the pattern of behavior that was observed in this study. Still, one might argue that the novelty of the explicit comparison instructions played a role in inducing the more risk-averse bidding behavior we observed. It is therefore important to test our prediction in a different context, where the novelty/atypicality account clearly cannot explain the results. Second, using the same seller to list all the items in a set might have contributed to the risk-averse behavior to bidders.[4] Finally, our proposition that explicit comparisons induce more risk-averse behavior is general and is not limited to online auctions, and it is therefore important to examine whether it holds in a different domain of consumer decision making. Thus, the study described briefly next employed a more traditional choice task to test the effect of explicit comparisons on risk aversion.

[4] It is noteworthy that only bidders who clicked on all listings in the search index and checked the items' descriptions could recognize the fact that the same seller listed the three adjacent items.

Study 2

Following the objectives outlined above, Study 2 was designed to address possible alternative explanations for the results of Study 1 and, in the spirit of triangulation, test the impact of explicit instructions to compare on risk aversion using a very different methodology and task. We will describe the methodology and findings rather briefly; more detailed information is available from the authors.

In this study, we used a laboratory choice experiment, where each choice set included an option that was safer, less risky than the others. Specifically, respondents made choices from three types of choice sets: (a) a set with a compromise alternative, (b) a set with an option that is average on all attributes and a "mixed" option that has both advantages and disadvantages (e.g., Shafir 1993), and (c) a set with a risky gamble and a safer gamble, with the safer options offering a higher probability of a smaller gain/loss (e.g., Kivetz 2003). Prior research (e.g., Simonson 1989, Simonson and Nowlis 2000) indicates that compromise and all-average options are perceived as safer and less susceptible to criticism. Consistent with our earlier analysis and the results of Study 1, we expected that explicit instructions to compare would increase the choice share of compromise, all-average, and safer options. Figure 2 presents an example of each problem type.

Respondents were 365 students, who received course credit or a small monetary compensation for their participation. They were randomly assigned to one of six conditions in a three (comparison: implicit, explicit, or control) X two (task: choice vs. ratings) between-subjects design. Because the results were similar in the choice and ratings tasks, we focus on the former. In each problem, participants in the implicit and explicit comparison conditions considered two choice sets sequentially and were either told or not told explicitly to compare the two. For example, in the camera (compromise) problem in Figure 2, participants were told: "Imagine you are looking to buy a new digital camera. You go to Store 1, where you find the two options below. Please evaluate these options carefully." Next, respondents were told: "Assume that, because you are not sure which of these cameras to buy in Store 1, you go to Store 2, where you find the following three digital cameras" (the camera choice set of Store 2 is presented in Figure 2). We designed the two sets (in all nine problems) such that the two options in the first set (e.g., in Store 1) had more extreme values than those in the second set.

Figure 2 Examples of Choice Problems in Study 2

Example of extreme vs. compromise options problem:

	Digital Camera C	Digital Camera D	Digital Camera E
Features:	• Zoom: **2X**	• Zoom: **3X**	• Zoom: **4X**
	• Picture Quality: **70**(on 0-100 scale)	• Picture Quality: **79** (on 0-100 scale)	• Picture Quality: **88** (on 0-100 scale)
	• Flash range: **10 ft.**	• Flash range: **14 ft.**	• Flash range: **18 ft.**
	• Battery Life: **75 shots**	• Battery Life: **125 shots**	• Battery Life: **200 shots**
	• Next Shot Delay: **6 seconds**	• Next Shot Delay: **4 seconds**	• Next Shot Delay: **2 seconds**
Price:	• **$250**	• **$ 500**	• **$800**

Example of mixed vs. all-average options problem:

	Restaurant C	Restaurant D
Features:	• Food Quality: **Five Stars**	• Food Quality: **Three Stars** ***(Average)***
	• Atmosphere: **Four Stars**	• Atmosphere: **Three Stars** ***(Average)***
	• Service: **Two Stars**	• Service: **Three Stars** ***(Average)***
Price:	• **$60 per person**	• **$50 per person** ***(Average)***

Example of risky vs. safe options problem:

As compensation for participation in the study,
Option 1: You may choose to enter a **lottery** in which you have **50% chance** to receive **$8** and **50% chance** to receive **nothing**
OR
Option 2: You may choose to enter a **lottery** in which you have **75% chance** to receive **$5** and **25% chance** to receive **nothing**

Those in the implicit comparison condition were then asked to indicate which of the three cameras in the second set they would choose. In the explicit comparison task, before indicating their choice from the second set, respondents were told (in the camera problem): "*please be sure to consider how these cameras compare with the cameras you saw earlier in store 1 (see page flagged with "Store 1 cameras")*." Respondents in the control group did not see the first set and simply made choices from the focal (e.g., Store 2) sets. A similar manipulation of implicit and explicit comparisons was used in the other problems as well. For example, in the "study participation" risky-safe problem (see Figure 2), respondents were first shown two types of compensation that had been given to participants in a prior study (0.25 to win $15 or $2 for sure), followed by the two compensation options that they would receive.

Results

Table 2 provides the percentage of participants choosing the less risky option by problem type and comparison condition. As shown, respondents in the explicit comparison task were consistently more likely to select the less risky option (i.e., the compromise, all-average, and safer options). Furthermore, a logistic regression analysis with lower-risk choice as the dependent variable showed that the effect of comparison condition on choices of the low-risk option was statistically significant (Wald-Statistic ($df = 2$) $= 19.57$, $p < 0.001$). Pooled across problem types, participants in the explicit comparison condition ($M = 62.7\%$) were significantly more likely to choose the less risky option than either the implicit comparison group ($M = 51.3\%$, $\chi^2(1) = 14.34$, $p < 0.001$) or the control group ($M = 50.8\%$, $\chi^2(1) = 15.35$, $p < 0.001$). This pattern of results was found for each of the three problem types.

The results of Study 2 cannot be explained based on the alternative accounts outlined above for the findings of Study 1, such as the notion that atypicality underlies the impact of explicit comparisons on risk aversion. Furthermore, Study 2 demonstrates that the proposition that explicit instructions to compare

Table 2 Choice of Less Risky Option by Problem Type and Comparison Condition, Study 2

Problem type	Total sample size	Number of problems in which results were in expected direction ($\%_{explicit} > \%_{control}$)	Percentage choosing less risky option: Control group (%)	Explicit comparison (%)	Implicit comparison (%)
Extreme vs. compromise	540	3/3	58.2	71.6	56.1
Mixed vs. all-average	540	3/3	42.9	52.5	42.8
Risky vs. safe	540	3/3	51.4	63.9	55.0
Total	1,620	9/9	50.8	62.7	51.3

produce more cautious, risk-averse behavior generalizes to other domains of consumer decision making and is not limited to online auctions. Indeed, the fact that the same basic pattern of effects was observed using such a different methodology and task offers triangulation and provides strong evidence that explicit reference points generally tend to lead to more risk-averse consumer behavior.

General Discussion

Explicit instructions to compare represent one of the most basic and commonly used promotional and persuasion tactics. However, while the role of implicit or self-generated reference points and spontaneous comparisons has received a great deal of attention from both marketing and decision researchers (e.g., Brenner et al. 1999, Dhar et al. 1999, Kahneman 1992, Kahneman and Tversky 1979, Puto 1986, Dhar and Simonson 1992, Winer 1986), there has not been much work that examined the impact of explicit reference points on consumer behavior. We proposed that the mere fact that consumers are explicitly encouraged to rely on particular comparisons stimulates more risk-averse, cautious purchase and bidding behavior. In this section, we review the findings and discuss the theoretical and practical implications.

Summary of Findings and Theoretical Implications

Comparisons and, relatedly, reference points play a crucial role in most choices and judgments people make. For example, research suggests that consumers are so drawn to contextual comparisons that they often fail to consider the absolute values of options they consider (e.g., Bettman et al. 1998, Gourville 1999, Huber et al. 1982, Simonson and Tversky 1992). However, generalizations about spontaneous comparisons and implicit reference points may not apply to common situations in which specific comparisons and reference points are explicitly suggested, for example, by a marketer or a market researcher.

In particular, based on the assumption that explicit instructions to compare make comparisons more salient combined with the property of loss aversion, we predicted that explicit reference points would produce more risk-averse consumer behavior. That is, because relative disadvantages tend to loom larger than advantages, a condition such as explicit comparisons that makes the possibility of losses and gains more salient is expected to lead to greater risk aversion, due to loss aversion (e.g., Bar-Hillel and Neter 1996, Brenner et al. 1999, Tversky and Simonson 1993). Encouraging consumers to make particular comparisons might also trigger more cautious, risk-averse behavior if buyers believe that the person suggesting the comparisons has ulterior motives and/or private information. Indeed, a growing literature on persuasion knowledge (e.g., Campbell and Kirmani 2000, Friestad and Wright 1994) and the effect of suspicion (e.g., Fein 1996) suggests that consumers tend to pay close attention and adjust the manner in which they process information and make purchase decisions when they suspect that persuasion and marketing tactics have ulterior motives.

We examined the impact of explicit comparisons on risk aversion in two very different contexts: online auctions and a choice experiment. Because online auctions involve a dynamic, multiphase decision-making process, they offer a particularly attractive, rich setting for examining the effects of explicit reference points. Thus, we were able to test our proposition on multiple dimensions, including the impact of adjacent listing prices on the final prices the timing and number of bids, sniping, and the tendency to bid on multiple auctions simultaneously.

The pattern of results consistently demonstrated that, compared to implicit reference points, explicit reference points produced cautious, risk-averse bidding behavior. In particular, the starting prices of adjacent listings no longer affected final prices of the focal options when the seller encouraged bidders to compare the focal with the adjacent options. Also, auction participants tended to bid later, submit fewer bids, postpone bidding until the end of the auction (i.e., snipe), and avoid multiple simultaneous auctions.

Although the results of the online auction study were consistent with our proposition that explicit comparisons stimulate more risk-averse behavior, the idiosyncratic characteristics of this field study left some unanswered questions regarding the underlying process and the generalizability of the findings. Accordingly, Study 2 employed a more traditional choice experiment, where the rival account for the results of Study 1 (i.e., the atypicality of explicit comparisons in the context of online auctions) did not apply. Although a choice experiment does not have the dynamic characteristics and complexity of an online auction, it offers the opportunity to design choice problems in which one option is known a priori to represent a more risk-averse choice. Consistent with our analysis, respondents who were told to compare the focal set with a choice set encountered previously were significantly more likely to select the risk-averse alternative. Specifically, explicit instructions to compare increased the share of compromise options, options that have average values on all attributes, and low-risk alternatives. Thus, in two different contexts, one involving real auctions and the other using a choice study, we found support for the proposition that explicit reference points lead to more cautious, risk-averse behavior.

The combination of the online auction field study and the choice experiment follows Winer's (1999)

call for conducting both field experiments involving real decisions and laboratory experiments that provide greater control. Specifically, in this research, we tested our predictions and obtained consistent findings using both a field experiment and lab experiments. In this case, the field experiment on eBay did not require a significant compromise in terms of internal validity, despite the reliance on real transactions.

Future research might further examine the processing and resulting choice differences between implicit and explicit comparisons. For example, the impact of implicit and explicit comparisons on consumer judgment and choice might differ in the short and long term. Most prior research has examined the immediate impact of comparisons on judgment and decision making (e.g., Brenner et al. 1999, Dhar et al. 1999, Nowlis and Simonson 1997). However, these differences might not hold over time. On one hand, if explicit reference points receive more attention, they may have a more enduring effect. On the other hand, self-generated comparisons might have longer-lasting impact due to their greater credibility (e.g., Kardes 1988, Kivetz and Simonson 2003). Future research might also investigate (a) the specific memory and learning processes that underlie the immediate and continued effects of making reference points explicit, and (b) individual differences and context characteristics that enhance or attenuate the effects of explicit reference points.

Practical Implications

It appears that marketers often use explicit reference points without fully understanding the consequences of such tactics. For example, marketers who encourage consumers to compare their and competing offerings may unintentionally undermine their own sales efforts by engendering more cautious purchase behavior. Indeed, marketers need to consider carefully the conditions under which it is more effective to rely on the consumer to compare their product with (implicit) reference products, as opposed to providing explicit reference points. For example, a store could either use an explicit shelf talker that tells consumers to compare the store brand with the leading national brand, or it might simply place the two brands side by side and let consumers make the comparisons on their own. The present research suggests that the latter technique, assuming the probability of implicit comparisons is high, can often be more effective. On the other hand, if the seller's product represents the more prudent alternative, an explicit instruction to compare can be more effective.

Our findings also have specific implications for sellers in online auctions and to bidders participating in such auctions. The results of this research provide evidence of a particular context effect in online auctions—the effects of the starting prices of adjacent listings, which is eliminated when the comparisons to adjacent listings are explicitly encouraged. Participants in online auctions can be educated about the existence of such influences on their bidding behavior, which might allow them to avoid these effects and, perhaps, take advantage of them. These findings can also be used by sellers for strategically listing their items in online auctions and provide them a way to control certain contextual influences, such as those caused by other auctions (e.g., Dholakia and Soltysinski 2001) and the auction's own starting price (Ariely and Simonson 2003).

In conclusion, this research suggests that making reference points explicit can have a profound effect on how consumers process information and the decisions they make based on the presented information. Specifically, explicit reference points appear to have strong and far-reaching impact, leading to more risk-averse, cautious behavior. However, the impact of making comparisons explicit is likely to extend to many other aspects of consumer decision making and might moderate framing, task, and context effects on consumer preferences.

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