Almost Common Value: Evidence from the Singapore Pawnbrokers Auction

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Abstract

Before 2015, the Singapore Pawnbrokers Act required pawnbrokers to dispose of unredeemed pledges at a public auction and return any surplus to the borrower. The characteristics of the industry as at 2010 facilitate a comparison between almost common value and common value English auctions. In contrast to pawnbrokers that engaged in the sale of second-hand jewelry, Singapore Post did not bid on its unredeemed pledges. Hence, bidders on items pawned at Singapore Post did not have to confront the issue of asymmetric information that exacerbates the infamous curse of first-price auctions. I find that under a first-price ascending open bid system, the participation of an advantaged bidder could cause the price of a fungible commodity as gold to fall by up to 7% (even in the presence of a reserve price). The auction is popularly perceived to be a fair mechanism. However, the data presented here indicates that minutiae does matter.

1 Almost Common Value Auctions

You and I challenge for the monetary contents of our wallets. Presumably, both of us share similar valuations of the item under the hammer. If it were known that neither of us has any cash, the prize would not rate a cent. In contrast, a private value auction is a setting in which we retain our own personal judgments of the commodity being sold. The offer you make for a Monet does not suggest how the painting should be evaluated by me. The spectre of winner’s curse looms large in the former context. When I triumph in the contest for a bottle of Chateau Lafite, I may have forked out more than what was strictly necessary but the wine was subjectively worth its price. A builder who is awarded a contract after a tender process is in a more precarious position. The cost of a project is presumably not a question of taste and there is a real chance that he

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emerges as victor only because his estimations have gone awry.

The situation is grimmer when one party has even a slight informational or institutional edge. In almost common value auctions, the less advantaged party has to proceed with great caution. It would be suspicious for the favorite to cede the race. The argument may be presented more rigorously. Let \( t_1 \) and \( t_2 \) be the amount of currency carried by two players are equally situated with respect to each other in the game we had initially described. The actual value is therefore \( v = t_1 + t_2 \). It could be proved that \( B_i = 2t_i \) is the only symmetric Nash equilibrium in an ascending first-price auction\(^2\). We may assume that \( p \) is the final bid and it is entered by Player 1. The fact that Player 2 dropped out at \( p \) implies \( B_2 = 2t_2 = p \). Thus, \( v = t_1 + \frac{p}{2} < 2t_1 \leq p \) and Player 1 is saved from the curse. Suppose, however, that Player 2 has made a side-bet. If he is able to claim the trophy, his fellow punter would tip him a dollar. Then, the valuations of the two players diverge, i.e.

\[
\begin{align*}
v_1 &= t_1 + t_2 \\
v_2 &= t_1 + t_2 + 1.
\end{align*}
\]

Player 2 bids as if he had an extra dollar in his wallet. If it were common knowledge that the net worth of Player 2 is \( t_i \), it would never be a best response for Player 1 to offer anything above \( t_1 + \ell \). Player 2 knows this and if he did happen to be carrying a little over \( \ell - 1 \) in bills around town, he would be certain to see off his opponent since with the extra dollar \( t_1 + \ell - 1 + \epsilon + 1 > t_1 + \ell \). Now, Player 1 must take care not to venture above \( t_1 + \ell - 1 \) and Player 2 could thus prevail if he has more than \( \ell - 2 \) in his pocket. Applying iterated elimination of dominated strategies, we reach the conclusion that Player 2 will always come out on top. This is true even if \( t_2 < t_1 \).\(^3\) Player 1 would be well-advised not to participate, especially if he has to incur a cost to enter the auction. Player 2 thus walks away with a bargain.

Klempner relied on this interesting formal result to give a gloss on the allocation of an airwave license for Los Angeles. As Pacific Telephone had a foothold in the Californian market through its existing customer database in addition to its local brand recognition, it was in the shoes of an advantaged bidder. The license eventually sold for $26 per head of population as compared to $31 per head of population in Chicago.\(^4\) But strong empirical evidence for this phenomenon has unfortunately been scarce. An experimental study by Avery and Kagel of two-player, second-price common-value auctions concluded that the

\(^2\)This is also known as a standard English auction. Participants name an open price subject to the condition that it be higher than the last announced offer. The surviving bidder wins.


presence of asymmetries did not deter disadvantaged bidders to the extent that had been predicted. Recent work testing the hypothesis within the framework of a controlled laboratory environment reported the “continued failure” to find substantial effects in almost common value English auctions. The negative tenor of the literature was reaffirmed in a substantively related experiment that investigated corporate takeovers in which one side has already acquired a small stake in the target. This paper hopes to redeem the theoretical insight by exploiting a unique data set collected from the pawnbrokers auction in Singapore in 2010.

2 The Pawnbroking Industry in Singapore

Pawnbroking is a form of financial activity in which the borrower surrenders possession of collateral to obtain a loan. The lender keeps the pledge and may sell it to recover any outstanding sums in the event of a default. The size of the industry in Singapore has increased steadily in the years leading up to 2010. It issued approximately S$2 billion in pawn tickets in 2009 with the corresponding figure for credit card billings coming in at S$26.0 billion. Though a naive glance at the Herfindal-Hirschman Index would leave the impression of a fairly competitive market, the scene had historically dominated by Chinese families that operated multiple outlets. In 2004, Singapore Post cautiously dipped its toes in the water by opening a solitary branch in Bedok. The rivalry intensified in 2008 and 2009 with the entry of two chains, MoneyMax and Maxi-Cash. Traditionally, pawnshops reserve space for the display of goods on offer to the general public. The new entrant, Maxi-Cash, was at that time a wholly-owned subsidiary of Aspial. The corporation managed as part of its portfolio two household names in the jewelry business, Lee Hwa and Goldheart. The counterpart to Maxi-Cash, MoneyMax, was itself founded by the famous Soo Kee Group. Singapore Post was one of the few that did not have a privileged chan-


8To the best of this author’s knowledge, Singapore Post no longer maintains this service.

9This was still true at the time of the July 2010 auction. Aspial Corporation divested its interest in an Initial Public Offering in 2012.

10MoneyMax had an Initial Public Offering of its own in 2013.
nel for the retail or disposal of collateral they had come to own. This feature will be crucial for identification.

The licensing and conduct of pawnbrokers is regulated by statute. Interest charged is capped at 18% per annum\textsuperscript{11} and barring any negotiated extension, the pawnee has six months\textsuperscript{12} to discharge the debt. At the end of the stipulated period, any unclaimed item that was pawned for a sum not exceeding S$50 becomes the pawnbroker’s absolute property. If the principal exceeds S$50, the good will have to be disposed of through a public auction\textsuperscript{13} with the reserve price being determined by the total amount due to the pawnbroker. If it is not met, the collateral passes into the ownership of the pawnbroker and the pawnee’s obligation is dissolved. In the event of a contest, the difference between the transacted and reserve prices is to be refunded to the pawnee, less the commission due to the auctioneer.\textsuperscript{14} It is extremely important for our purposes that the pawnbroker is permitted to bid on items in his care.\textsuperscript{15}

Though the law itself remained silent on the question of format, the practice of using the English auction is customary and had not been pre-empted by the Registrar of Pawnbrokers. The monthly affair\textsuperscript{16} is usually hosted in the ballroom of a hotel, with catalogues being made available on the day itself for a nominal fee.\textsuperscript{17} The items going under the hammer typically include an assortment of luxury watches\textsuperscript{18}, gems, and jewelry. A conscientious buyer may request to have an attractive prospect removed from the glass drawer for inspection but any physical contact is strictly prohibited. Establishing the accuracy of the catalogue description is therefore a veritable challenge. Only the pawnbroker who had the prior opportunity of examining the pledge would know if all that glittered was truly gold. Although the pawnbroker does have an economic incentive to be wary of the quality of the collateral he accepts, an attitude of suspicion was nevertheless recommended to me, perhaps self-servingly, by one of the seasoned hands I encountered in the course of research. This asymmetry renders the almost common value auctions framework especially salient.

3 Analysis of the Data

I attended the auction conducted at the Grand Copthorne Waterfront Hotel on the last weekend of July 2010. Gold prices had risen by roughly 2.8% over...

\textsuperscript{11}Pawnbrokers Act, Second Schedule. 
\textsuperscript{12}Pawnbrokers Act, s. 17. 
\textsuperscript{13}Pawnbrokers Act, s. 19 and 20. 
\textsuperscript{14}Pawnbrokers Act, s. 24. 
\textsuperscript{15}Pawnbrokers Act, s. 20 (2). 
\textsuperscript{16}This was true at the time of data collection. 
\textsuperscript{17}At the time of data collection, the fee was S$1 for the catalogue from a single pawnbroker. 
\textsuperscript{18}Rolexes and Longines were especially popular.
the preceding seven months.\textsuperscript{19} This is a critical condition for the observational study to be meaningful. If the price of gold had declined over the period, market valuation of many pieces would fall below the reserve price and the auction would be a farce.\textsuperscript{20}

33 pawnbrokers were represented.\textsuperscript{21} Attention was limited to listings on their catalogues that were 1) advertised as gold and 2) did not contain precious stones. These are items for which the common value paradigm is likely to be valid. I then recorded for each entry 1) the identity of the pawnbroker, 2) the carat\textsuperscript{22} as declared on the catalogue, 3) the weight as declared on the catalogue, 4) if there was a bid, 5) if the pawnbroker eventually won the auction, and 6) the final price. 2925 datapoints were recorded. Including pledges that changed hands at the reserve price, total revenue was tallied at S$2,488,926.

Singapore Post will function as the “treatment”. For the reasons alluded to earlier, it had no interest in retaining ownership of unredeemed pledges and was therefore a passive participant in the proceedings. In fact, as we shall see, Singapore Post did not make a single counteroffer in the auction we examined. Bidders on its catalogue were therefore competing on an equal informational footing. It is also helpful to distinguish the old-timers from the new boys in town. The pawnshop chains were backed by parents who had ready avenues for retailing or recycling second-hand jewelry. In addition, there were rumors circulating in the industry that several incumbents, unhappy with the recent intruders on their turf, were purposefully bidding on their modern rivals’ catalogues to prevent them from turning an easy profit. This was purportedly done even at some cost to themselves. In the auction studied, I observed one bidder who arrived minutes before the MoneyMax auction started, bid exclusively on the MoneyMax catalogue, and left the moment the MoneyMax auction was over.

Given these facts, I classed observations into one of three groups, namely “Singapore Post”, “Traditional”, and “Chains”.

\textsuperscript{19}The major exchanges close on Fridays. There was no significant movement in gold prices between 24 and 25 July 2010.

\textsuperscript{20}Pawnbrokers typically loan a fraction of the value of the pledge. See M Skully, “The Development of the Pawnshop Industry in East Asia,” in Financial Landscapes Reconstructed: The Fine Art of Mapping Development, ed. F.J.A. Baumann and O. Hospes (Boulder: Westview Press, 1994) estimating the ratio at 80\% to 85\%. Our conversations with veterans in the industry indicate a figure closer to 90\%. Thus, the price drop has to be non-negligible for a wash-out to be on the cards.

\textsuperscript{21}They were Cash Box, Cash Box Retail, Marsiling, Thye Joo, Thye Eik, Bedok, Thai Hong, Chye Hin, Chye Fatt, Chye Soon, Kwong Hin, Lian Thye, Min Seng, Hang Seng, Heng Soon, Loong Shing, MoneyMax Yishun, MoneyMax Tampines, MoneyMax Bedok, MoneyMax Clementi, MoneyMax Yew Tee, MoneyMax Woodlands, MoneyMax Bukit Merah, MoneyMax Orchard, Maxi-Cash Bugis, Maxi-Cash Marine Parade, Maxi-Cash Yishun, Maxi-Cash Clementi, Fook Cheong, Fook Hin, Fook Yuan, Wan Keong and Singapore Post.

\textsuperscript{22}24 carat is the highest rating.
The contest and win rates are calculated for each category. The former is the percentage of listings in the catalogue that received a bid. The latter is the percentage of pledges that were eventually sold to the original pawnbroker, conditional on a bid being received.

100% of the items on the catalogue of Singapore Post were sold to an outside party. In contrast, the traditional pawnshops faced a challenger for 30.5% of the identified listings on their catalogue and won 52.1% of the time. The numbers for chain pawnshops came in at 12.9% and 54.6% respectively. An explanation for Singapore Post’s anomalous figures has already been given. Commercial practices could conceivably furnish a second account. If Singapore Post was consistently less generous than its peers in issuing loans, the reserve prices of its items would be depressed. We should therefore expect to see high levels of contest. This assertion, while plausible, is not statistically supported.

The transacted price per gram of gold may be calculated from the available data. Histograms are presented below.

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Recall that Singapore Post did not enter any bids in the July 2010 auction.

In Rose and Levin, "An Experimental Investigation of the Explosive Effect in Almost Common Value Auctions," 1012, the authors report that advantaged bidders win only 27% of the time as compared to the baseline of 25% that would have been predicted by chance factors.

Indicator coefficients were not significant for a regression of log reserve price on log carat, log weight, and pawnshop type indicators.

The gold content in a piece of jewelry may be calculated by multiplying its carat by its weight and dividing the product by 24.
The one-sided t-test (assuming unequal variances) comparing the difference in means between “Singapore Post” and “Traditional” returned a p-value of $2.2 \times 10^{-16}$ and a 95% confidence interval of $(3.569969, \infty)$. The one-sided two-sample Wilcoxon test similarly yields a p-value of $1.357 \times 10^{-6}$. These results tell against the hypothesis that the mean transacted prices per gram of gold in the two classes are equal.\textsuperscript{27}

It would also be interesting to estimate magnitudes. To answer this question, I fit by maximum likelihood the equation

$$\log(price_i) = \log(carat_i) + \log(weight_i) + I_{Traditional,i} + I_{Chains,i} + \epsilon_i.$$ \textsuperscript{27}

It is perhaps no surprise that the model explains almost all of the variation in prices. Gold accessories are more easily valued than oil fields and timber tracts.\textsuperscript{28} The coefficient of the indicator function for traditional pawnshops is

\textsuperscript{27}I have explained that intra-industry competition led to unusual bids on items listed in the catalogues of chain pawnshops. It might therefore be more appropriate to compare Singapore Post pledges against pledges held by traditional pawnshops. But the qualitative results do not seem to depend much on this choice. See Appendix A.

Table 1: Pawnbrokers Auction of July 2010

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>(S.E.)</th>
</tr>
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<tbody>
<tr>
<td>(Intercept)</td>
<td>-0.133</td>
<td>(0.158)</td>
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<tr>
<td>log(Carat)</td>
<td>1.298***</td>
<td>(0.051)</td>
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<tr>
<td>log(Weight)</td>
<td>0.992***</td>
<td>(0.003)</td>
</tr>
<tr>
<td>I(Traditional)</td>
<td>-0.093***</td>
<td>(0.021)</td>
</tr>
<tr>
<td>I(Chains)</td>
<td>0.013</td>
<td>(0.021)</td>
</tr>
<tr>
<td>N</td>
<td>2925</td>
<td></td>
</tr>
<tr>
<td>RMSE</td>
<td>0.155</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.977</td>
<td></td>
</tr>
<tr>
<td>adj $R^2$</td>
<td>0.977</td>
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*p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

Table 2: Linear Regression with Squared Term

<table>
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<th>(S.E.)</th>
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<td>(Intercept)</td>
<td>-0.054</td>
<td>(0.159)</td>
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<tr>
<td>log(Carat)</td>
<td>1.286***</td>
<td>(0.051)</td>
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<tr>
<td>log(Weight)</td>
<td>0.952***</td>
<td>(0.012)</td>
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<tr>
<td>log(Weight)^2</td>
<td>0.008***</td>
<td>(0.002)</td>
</tr>
<tr>
<td>I(Traditional)</td>
<td>-0.094***</td>
<td>(0.021)</td>
</tr>
<tr>
<td>I(Chains)</td>
<td>0.011</td>
<td>(0.021)</td>
</tr>
<tr>
<td>N</td>
<td>2925</td>
<td></td>
</tr>
<tr>
<td>RMSE</td>
<td>0.155</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.977</td>
<td></td>
</tr>
<tr>
<td>adj $R^2$</td>
<td>0.977</td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

negative and significant.

It could also be the case that price per gram of gold falls for larger items. To accommodate this possibility, I include an additional variable, the squared log of weight. The quadratic term is indeed significant though not in the direction surmised (see Table 2). This is the specification I will adopt in what follows. In a counter-factual world where all pawnbrokers abstained from bidding on pledges previously in their possession, we should expect an increase in total revenue of 3.97% or S$98,695.73 in absolute terms. If traditional pawnshops refrain from participating in the process, the surge in their auction proceeds is predicted to be 7.74% or S$109,705 in absolute terms.\footnote{The actual revenue generated from the sale of collateral retained by traditional pawnshops was S$1,416,601.}
it has to be highlighted that the presence of a floor in the form of a reserve price mitigates any explosive effect.\textsuperscript{30} That significant discrepancies could arise in the traded price of a commodity as fungible as gold urges review of the judgment handed down on almost common value first-price ascending auctions.

4 Conclusion

In \textit{Revlon, Inc. v. MacAndrews \& Forbes Holdings, Inc.}, the Delaware Supreme Court articulated the duty of the board when a corporate action is proposed that would alter control of the company. Under such circumstances, directors morph from “defenders of the corporate bastion” to “auctioneers charged with getting the best price for the stockholders.”\textsuperscript{31} The philosopher Ronald Dworkin, expounding a conception of equality, invites us to imagine a desert-island auction that “proposes what the envy test in fact assumes, that the true measure of the social resources devoted to the life of one person is fixed by asking how important, in fact, that resource is for others.”\textsuperscript{32} A pair of chopsticks may be auctioned as a set of utensils or as two separate pieces of wood.\textsuperscript{33} Even if immigrants do not “[struggle] ashore with different amounts of money in their pocket,” implementational decisions have repercussions for efficiency and welfare.\textsuperscript{34} This paper while begging to defer from what has gradually been emerging as the conventional wisdom in the experimental literature, reprises a theme long familiar to economists, to wit, that \textit{minutiae} are of the essence in designing auctions.

References


\textsuperscript{30}For one possible mechanism, see Octavian Carare, “Reserve Prices in Repeated Auctions,” Review of Industrial Organization 40, no.3 (2012): 225-247.

\textsuperscript{31}506 A.2d 173 (Del. 1986)


\textsuperscript{33}Dworkin would seem to endorse the latter option. See Dworkin, “What is Equality? Part 2: Equality of Resources,” 286.

\textsuperscript{34}See e.g. Mark Armstrong, "Optimal Multi-Object Auctions," \textit{The Review of Economic Studies} 67, no. 3 (2000): 455-481.
Appendix A

These are the results obtained by comparing auction outcomes for Singapore Post pledges against those from chain and traditional pawnshops, taken as a group, “Others.” The mean price per gram of gold for items pawned at Singapore Post is $51.81621; the corresponding statistic for items pawned at other pawnshops is $49.43729. The one sided t-test (unequal variances) yields a p-value of $2.2 \times 10^{-16}$ and a 95% confidence interval of (1.993934, $\infty$). The one-sided two-sample Wilcoxon test comparing Singapore Post items to the others yielded a p-value of 0.05731. I also estimated

$$\log(price_i) = \log(carat_i) + \log(weight_i) + I_{Others,i} + \epsilon_i$$

obtaining
Table 3: Pawnbrokers Auction of July 2010

<table>
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<th>Estimate</th>
<th>(S.E.)</th>
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<tr>
<td>(Intercept)</td>
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<td>(0.166)</td>
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<tr>
<td>log(Carat)</td>
<td>1.285***</td>
<td>(0.053)</td>
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<tr>
<td>log(Weight)</td>
<td>0.995***</td>
<td>(0.003)</td>
</tr>
<tr>
<td>I(Traditional)</td>
<td>-0.055**</td>
<td>(0.022)</td>
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</table>

N 2925  
RMSE 0.163  
$R^2$ 0.974  
adj $R^2$ 0.974

*p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

Table 4: Linear Regression with Squared Term

<table>
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<th>Estimate</th>
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<td>log(Carat)</td>
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<td>log(Weight)</td>
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<tr>
<td>log(Weight)^2</td>
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<td>(0.002)</td>
</tr>
<tr>
<td>I(Traditional)</td>
<td>-0.056***</td>
<td>(0.021)</td>
</tr>
</tbody>
</table>

N 2925  
RMSE 0.163  
$R^2$ 0.974  
adj $R^2$ 0.974

*p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001