How to Rig an Auction: the 'Ring' and the 'Knock'

Last week, the Australian Competition and Consumer Commission (ACCC) announced that it has chosen to conduct a market study of the cattle and beef sector. The study is in response to a number of issues raised in the last year by stakeholders in the industry. In its issues paper (available here), the ACCC raises concerns about the independence of buyers at saleyards, particularly in instances where saleyard attendees are bidding on behalf of multiple buyers. It flags that it will be exploring a number of aspects of bidding behaviour at saleyard auctions – including the potential existence of collusive behaviour.

These remarks brought to mind a matter that I worked on more than ten years ago – my first antitrust case as a consulting economist, in fact. I doubt many will have heard of it, but *ACCC v D M Faulkner Pty Ltd* [2004] FCA 1666 (30 December 2004) was a fascinating matter involving the machinations of a small group of scrap metal dealers in New South Wales (NSW). The case raised a number of economic issues that may well be relevant to the cattle and beef sector study – depending upon what the ACCC ultimately finds (and, to be clear, I'm not suggesting that it will find anything untoward) – including how 'buying groups' can affect prices at auctions and competition more generally.

The 'Ring' and the 'Knock'

The scrap metal dealers in question made a living acquiring scrap metal from various sources, chopping it into smaller pieces and then on-selling it to metal recyclers for reprocessing. A common means of obtaining scrap metal is at auctions, often held by or on behalf of firms disposing of redundant plant and equipment. Scrap metal auctions are held frequently throughout the greater NSW area (and throughout the rest of Australia) and are advertised in the Sydney Morning Herald every week on Saturdays. For many years prior to 2002, these small dealers had regularly been forming a 'buying ring' at these auctions.

The way the arrangement worked was that, prior to the auction, a number of dealers - usually 10 to 15 mid-sized[1] dealers - would nominate a person to bid on behalf of the ring members at the auction.[2] The various members of the ring would tell the nominated bidder which items they wished to buy, and how much they were willing to pay for them. At the auction, bids would then be made by the nominated bidder on behalf of all the members of the ring. Importantly, the other members would not bid against one another or the nominated bidder.

Following the auction, ring members would reconvene at another location, usually a local pub or club. A *second auction* known as 'the knock' would then be held among the members of the ring for the scrap metal purchased by the nominated bidder at the first auction. The 'reserve price' at the knock was the price paid by the nominated bidder at the first auction. The items of scrap metal were then auctioned as follows:
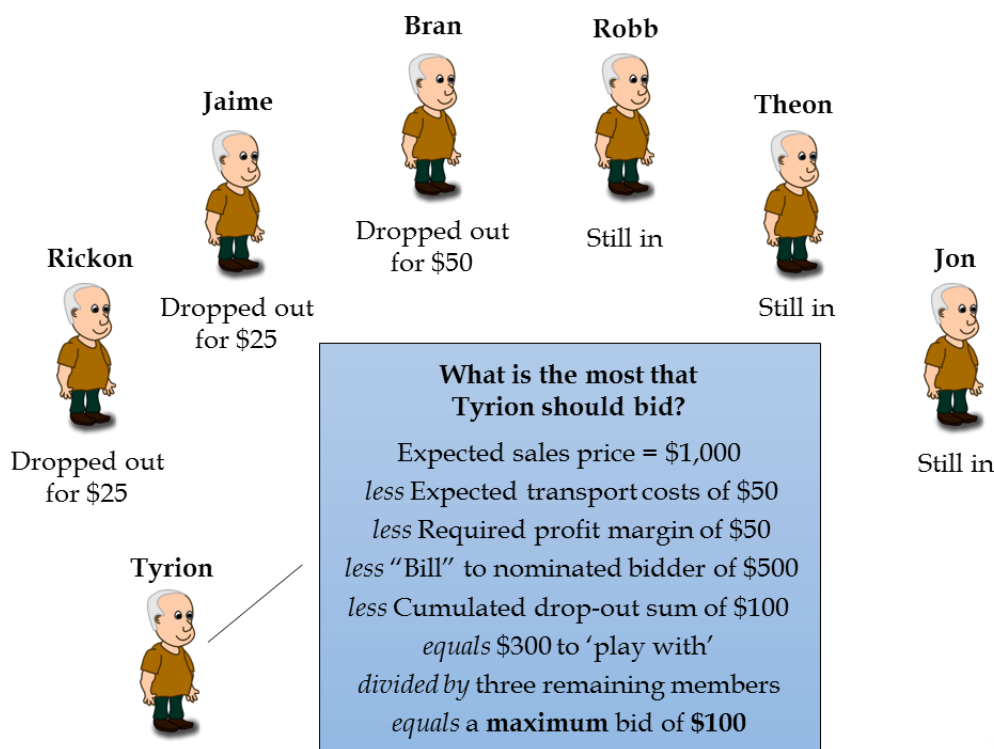
- the names of all ring members present at the knock would be written down – usually on beer coasters, apparently – and a name selected at random;

- that member would then have to nominate a sum that they would be prepared to pay each member of the knock in order to obtain the item in question;

- each member of the knock was then given the opportunity to accept or reject that 'drop-out' sum – those members who accepted the offer would drop out of the knock;

- if the offer was rejected by at least one member of the knock, the process was repeated (i.e., with a name of one of the remaining bidders being selected at random) until only one member remained - this member then became entitled to the item; and

- that member was then obliged to pay: 1) the nominated bidder the amount he had paid to the auctioneer at the first auction (the 'bill'); and 2) each other member of the knock their respective 'drop out' sums.

So how would a member of the ring decide what to bid at the 'knock'? Provided that he was acting rationally (which I suspect would have been influenced by how many beers he'd consumed by that point), he would have weighed up the sum he expected to receive upon sale of the item, the costs he would incur doing so (e.g., transport costs), the profit margin he required, the sum he would have to pay the nominated bidder, the cumulative 'drop out' sums and the number of remaining bidders. The following example illustrates.

Example of the 'Knock'

Suppose that a member of the ring – let's call him Tyrion (in homage to the new series of Games of Thrones) – thought he could sell the item for $1,000. Suppose further that the bill to be paid to the nominated bidder was $500, and the cumulative drop-out payments (to Rickon, Jamie and Bran) currently stood at $100. Suppose finally that Tyrion required a margin of $50 and that he would incur transport costs of $50. In these circumstances, he wouldn't pay more than $900 to acquire the item, i.e., $1,000 *less* transport costs of $50 and a profit margin of $50. The picture below illustrates (note that there weren't any female members of the ring that I can recall – hence the exclusively male names).

Bran
Dropped out for $50

Robb
Still in

Jaime
Dropped out for $25

Theon
Still in

Rickon
Dropped out for $25

Jon
Still in

Tyrion

> **What is the most that Tyrion should bid?**
>
> Expected sales price = $1,000
> *less* Expected transport costs of $50
> *less* Required profit margin of $50
> *less* "Bill" to nominated bidder of $500
> *less* Cumulated drop-out sum of $100
> *equals* $300 to 'play with'
> *divided by* three remaining members
> *equals* a **maximum** bid of **$100**

After accounting for the $500 owed to the nominate bidder and the cumulative drop-out sum (the $100 in payments to Rickon, Jaime and Bran), Tyrion would have had $300 to 'play with'. If three bidders remained – Robb, Theon and Jon – Tyrion would have been prepared to pay no more than $100 to each of them in order to obtain the good. Of course, if he was acting rationally, his initial bid would probably have been much less than $100. He would not have wanted to pay any more than was necessary and some, if not all, of the other remaining bidders might have been prepared to accept less than $100 to drop out.

As in any open outcry auction Tyrion would, in all likelihood, have simply offered a sum slightly higher than the previous bid, e.g., he might have bid $55. Tyrion, Rob, Theon and Jon would have remained in the knock so long as their willingness to pay (hereafter: 'WTP') exceeded the sum of the bill and the cumulative drop-out payments. The last two bidders in the knock would be those prospective buyers prepared to pay the most. In order to obtain the item, the buyer who valued it the most would have needed to offer a figure that pushed the cumulative total marginally beyond the remaining bidder's WTP.

Effects of the 'Ring'

So what was the effect of the ring? Let's start with what the ring *didn't* change. Firstly, the ring *didn't change who got the item*. With or without the ring in place, that would be the person with the highest WTP. If that person was not in the ring, then he'd win the item at the first auction. If he was in the ring, he'd win it at the knock. Secondly, the ring *didn't change what the winner ultimately paid for the item*. That might seem a little counterintuitive and so, to see why, imagine first that the winning bidder was *not* a member of the ring:

- with the ring in place, he would pay a price equal to the maximum WTP of the second highest bidder, plus a small margin – assume for the sake of argument that the second highest bidder was the 'nominated bidder', acting on behalf of a member of the ring; and

- without the ring, he would have paid the same price, i.e., the maximum WTP of the second highest bidder, plus a small margin – the only difference is that this person would have been bidding on his own behalf, rather than via the nominated bidder.

Now imagine that the winning bidder *was* a member of the ring. Without the ring in place, at the first auction, he would have paid a price equal to the maximum WTP of the second highest bidder, plus a small margin. With the ring in place, the dynamics of the knock would depend upon whether the person with the second highest WTP was *also* in the ring:

- if he wasn't, then the person with the highest WTP would only have to pay at the knock what the nominated bidder had paid for the item at the first auction, since no other members of the ring would have been prepared to pay even that much, i.e., the price would have been pushed beyond that level by the person with the second highest WTP at the first auction; and

- if he was, then during the knock, the person with the highest WTP would have to bid up the price for the item until it exceeded marginally the maximum WTP of that second highest bidder (as explained in the example involving the male cast members of Game of Thrones, above).

In every scenario, the price that the winning bidder would end up paying – irrespective of whether he was in the ring – is *the same*. It is always equal to the maximum WTP of the second highest bidder, plus a small margin. Moreover, the ring didn't always change the price that the seller at the first auction ended up *receiving*. If either the winning bidder, or the person with the second highest WTP, wasn't in the ring, then the price at the first auction wouldn't be affected – it would still get driven up to where it would otherwise have been.

The only circumstances in which there was any influence on the outcome at the first auction at all was when (at least) the two people prepared to pay the most for an item were in the ring. So what would happen then? Who were the winners and losers? The clear loser would be the seller at the first auction, since he would receive a lower price because of the ring. That's because the competitive rivalry between those two bidders prepared to pay the most was removed from the first auction and transplanted to the second auction – the knock. This is illustrated in the figure below.
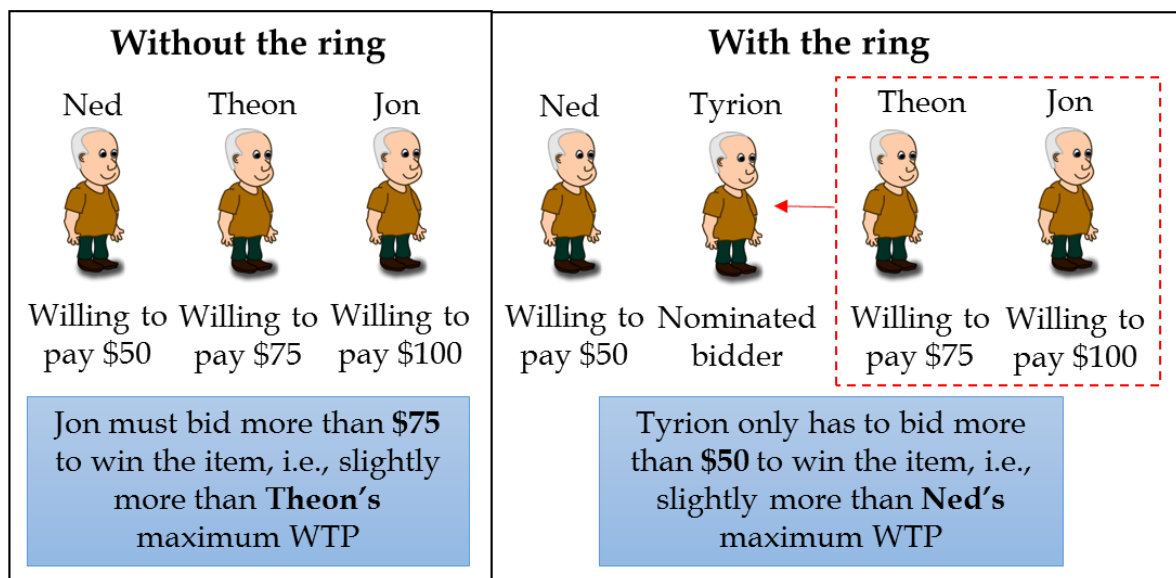
Without the ring, the person with the highest WTP (Jon) would have had to pay a price at the first auction equal to the maximum WTP of the *second highest bidder* (Theon), plus a margin. But if both Jon and Theon were in the ring, the nominated bidder (Tyrion) would then only have to pay a price at the first auction equal to the maximum amount that a *non-ring member* (Tywin) was prepared to pay, plus a small margin. If the two persons prepared to pay the most were in the ring then, by definition, that would be a lower sum (e.g., $51 versus $76). This was the basic idea of the ring – to stop ring members from bidding against each other at the first auction, driving the price up.

So who won from the arrangement? As we have already seen, the person that ultimately bought the item didn't, since he would end up paying the same amount that he would have otherwise. The winners were those members of the ring that *didn't* end up purchasing the item. When the ring was able to obtain an item at a lower price, participants were able to distribute the money that would have otherwise accrued to the seller at the first auction, amongst themselves. To illustrate this, consider a simple model of the bidding process.
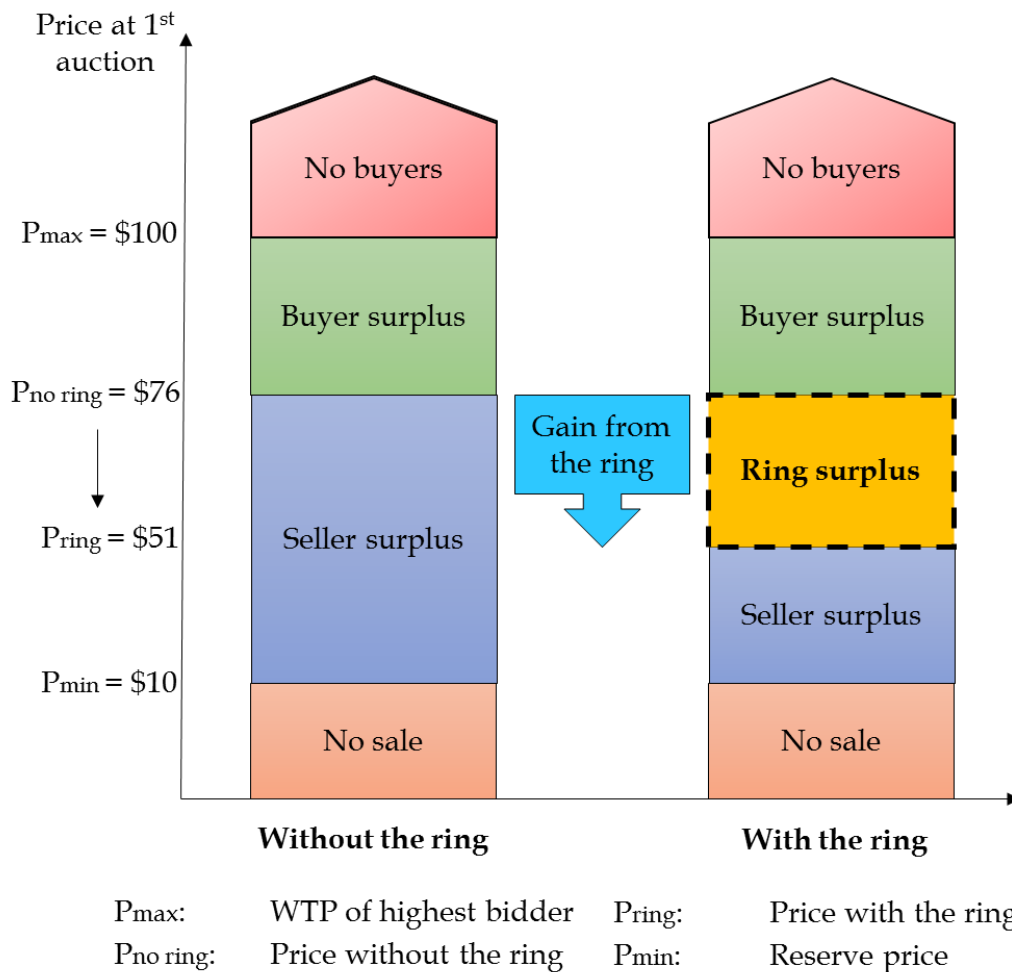
Creation of 'Ring Surplus'

The figure below depicts the outcome of the bidding process for a single item of scrap metal both with and without the ring. It shows the same situation as the previous figure above, i.e., where the *two buyers prepared to pay the most* for an individual item were *members of the ring*. Recall that Robb was *not* a member of the ring and was prepared to pay $50. However, Theon and Jon *were* members of the ring and were prepared to pay $75 and $100 for the item, respectively. Suppose finally that the minimum price that the seller was prepared to accept (the 'reserve price') was $10. In that instance:

- Until the reserve price ($10) is reached, the seller would refuse to dispose of the item. Thereafter the seller would be happy to accept any price.

- There would be no demand for the item until a price was reached that at least one bidder was prepared to pay (in this case, the maximum $100 price that Jon was prepared to pay). Thereafter one or more buyers was prepared to pay the asking price.

- The impact of the ring was that the price the nominated bidder paid at the first auction (P_{ring} = $51) was not as high as it would otherwise have been absent the ring ($P_{no\ ring}$= $76). As a result, some of the seller's surplus was carved away.

- This reduced seller surplus was transferred to the ring and divided amongst those members who do not ultimately acquire the item at the knock[1] – it might therefore be termed 'ring surplus'.

- The ring surplus was the difference between what the nominated bidder paid for an item at the first auction, and what the ultimate purchaser subsequently paid for the same item at the knock ($P_{no\ ring}$ *less* P_{ring}, i.e., $76 *less* $51 = $25).

The transfer between the seller at the first auction and the ring – identified as 'ring surplus' in the figure below – was equal to the cumulative sums paid to non-purchasing ring members at the knock (the aggregated 'drop out' sums) – this represented the gains from the ring. Provided that all of the items purchased by the nominated bidder at the first auction weren't bought by a sole buyer at the knock, all members benefited from the ring's existence.[3] In other words, every member would get a slice of the 'ring surplus'.

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[1] Recall that the buyer ultimately pays the same price equal to the maximum willingness to pay of the second-highest bidder plus a small margin.

	Without the ring		With the ring
Pmax:	WTP of highest bidder	Pring:	Price with the ring
Pno ring:	Price without the ring	Pmin:	Reserve price

Therefore, in those instances where the ring affected the outcome of the bidding process, a transfer of economic rent took place between the seller and the members of the ring. A particularly interesting feature of the arrangement is that there were no obvious inefficiencies associated with it. That's because the seller would still receive a price with which he was happy.[4] To be sure, that price would be lower than what he would otherwise have received, but the ring still had no obvious effect on the amount of scrap metal that was offered for sale[5] – or ultimately purchased – at auctions.

The consequences

The relatively modest effects of the ring on competition was perhaps one of the reasons[6] why the ACCC chose not to prosecute the ring members for entering into a contract arrangement or understanding that substantially lessened competition in a market when the conduct came to its attention in 2002. There arguably was no such lessening in this instance. However, this would prove to be little consolation, since the ACCC brought a Federal Court action, alleging that ring participants had still:

- fixed, controlled or maintained the price for scrap metal at auctions or in a NSW-wide market for scrap metal;

- made a contract or arrangement, or arrived at an understanding containing an exclusionary provision; and

- engaged in misleading and deceptive conduct.

The ring participants were ultimately ordered to pay more than $485,000 in pecuniary penalties. This penalty was more than *six times* greater than the $78,120 gain that the members derived from the ring (the cumulative 'ring surplus', described above).[7] This serves to illustrate the very dim view that the ACCC has historically had – and continues to have – towards this type of conduct, even when it is on a relatively small-scale. It therefore stands to reason that if similar arrangements are uncovered during the course of its study of the cattle and beef sector that it will be very swift to act.

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[1]   These dealers had around $1m to $10m in sales per annum compared with, say, the $2.1b that Smorgon Steel's Australian operation was turning over at the time.

[2]   This nominated bidder was often switched during the course of an auction to 'avoid suspicion'.

[3]   If one person purchased *all* the items at the knock, then all the other members of the alleged ring would benefit, but he would not. The buyer would be no better off in these circumstances than if he had purchased the items at the first auction rather than participating in the ring and the knock.

[4]   For example, the Department of Defence stated that the items auctioned at one of the auctions in question had 'no economic benefit'. *See: ACCC v D M Faulkner Pty Ltd* [2004] FCA 1666 (30 December 2004) [78].

[5]   If the reserve price was not met, that did not impose any great inconvenience on the seller. If it so wished, a seller could approach the highest bidder after the auction to attempt to negotiate a more suitable arrangement. If that proved unfruitful, there were ample opportunities to dispose of the item at another auction, or by alternative means.

[6]   Other potentially relevant factors included the fact that the alleged ring was relatively small when compared to some of its larger rivals (such as Smorgon Steel), and was consequently incapable of controlling all potential sources of scrap metal if a broader NSW or Australia-wide market was considered. For example, it would be counterintuitive to suggest that a small group of colluding bidders that had managed to purchase five properties throughout NSW for deflated values had consequently lessened substantially competition the NSW or Australia-wide residential property market.

[7]   As explained above, this benefit equalled the 'ring surplus' described above, which could be calculated with an uncommon degree of precision in this instance, since the court had records of the cheques that ring members had written to one another at the various 'knocks' (totalling $78,170).