

The Spectrum Auction

In August 1993, the U.S. Federal Communications Commission (FCC) decided to auction off wireless communications rights. Two licences would be issued for each of 51 zones around the U.S.A.; no bidder could acquire more than one licence in any zone. The usual procedure in such auctions is to call for sealed bids and to award the contract to the highest bidders. This time, acting on the advice of Paul Milgrom, a Stanford professor, the FCC chose to conduct the auction according to game theory, calling it a “Spectrum Auction”.

1. All bids would be open, so that each contestant would always know what all the others were doing.
2. There would be successive rounds of bidding until no contestant wanted to raise its bid any higher.
3. Between rounds, contestants could switch their bid from one zone to another or could bid simultaneously for licences in adjoining zones; since there is an economic advantage in having licences in adjoining zones, a particular licence might be worth more to one party than it would be to another. In short, each decision would be based on the known decisions of the other players.

Case Discussion

The contestants found that making decisions was no easy matter. Each of them had to guess about the intentions of the others, studying their reputation for aggressiveness, their financial capacity, and their existing licence structures. On occasion, a properly placed bid by one contestant would clearly signal its intentions to the others,¹ thereby preventing a cycle of competitive bidding for some particular licence. Some contestants took out full-page ads to signal their intentions; others joined together to prevent costly bidding for the same licence.

The auction went on for 112 rounds over three months and fetched US\$7.7 billion. Although some argued that the government could have raised more money if the FCC had prohibited the alliances, the allocation of licences in the end probably turned out to be more efficient in terms of the economies of building franchises than it would have been under the traditional procedure.

1. See the three readings from The Economist in the Folder.

The motivation to avoid destructive bidding competitions is motivated by a desire to avoid the Winner's Curse—overpaying out of a determination to win. The Winner's Curse does not need a fancy auction—the same curse may be visited on an investor in a hurry to buy a stock on which someone has provided a hot tip, or on a company choosing between internal investment opportunities—it might choose the project with the highest “bid” made on its behalf (see BHP and Magma Copper).

To avoid the Curse, share trading sometimes takes place in a manner that closely resembles the spectrum auction: the players are anonymous, but all bids and offers are displayed on the screen together with reservation prices above which the investor will not buy and below which the seller will not sell.

Trading Stocks to Avoid the Winner's Curse

In January 1995 an investment management company in Chicago introduced a strategy explicitly designed to avoid the Winner's Curse. The chief investment officer, saying he had based the strategy on the Nash Equilibrium, claimed that the Winner's Curse is usually associated with stocks that have abnormally wide price ranges, which "means there is a lot of uncertainty about how the company will do". A wide price range also indicates limited liquidity, which means that a relatively small volume of buying or selling will have a significant impact on the price of the stock. He accordingly planned to select his portfolio from stocks with narrow trading ranges, an indication that they are priced around consensus views, with sellers and buyers more or less evenly matched. The assumption is that such stocks can be bought for little more than their consensus valuation.