

ASSIGNMENT 1

There are three equally weighted questions. Please submit your answers using Gradescope, one set of answers per group. You may submit a group assignment of up to 4 but no more than 4 in the group will be permitted. I have no problem with larger groups (for example 5) churning over ideas in the initial discussion of the assignment, but please turn in distinct assignment material (say one group of 2 and another group of 3). Please submit a pdf or a word document. Scanned handwritten diagrams are also fine providing they are neat.

Question 1

Explaining the bidding behavior of the banks

The figures in the first class show that roughly speaking banks make bidding forays at different times. If they have not previously bid (or are OUT), when they (re)enter the bidding, they raise the interest rate offer by small increments until they either stop altogether or hit ONM; then they jump and end their foray. Later in the auction, they might reenter if they are pushed OUT because the ONM rate has risen in the meantime:

1. Why do they creep up to ONM from OUT?
2. Why do they jump off the ONM to INM?
3. At the 15-minute mark suppose that after creeping upwards to the ONM rate, your value from winning a bid at the current ONM rate exceeds the current ONM rate. Should you bid now or wait for another possible bidding opportunity?
4. Alternatively suppose that as you creep up towards the ONM rate, your creeping bid is about to exceed your valuation before you cross the ONM rate. What should you do now?

Question 2

No time limit on the auction, and bankers give all their attention to how the auction proceeds.

Now let us consider a slightly different auction format and different conditions:

1. The auction ends when no further bids are received within a 5 second time elapse. In other words, if another bid is not received within 5 seconds of the most recent bid, the auction ends, and the CDs are allocated in the same way. This implies the auction might end before or after 30 minutes.
2. All the banks (bidders) pay scrupulous attention to how the auction proceeds. (Perhaps they employ a person or a computer to specialize in this task.) However, this takes up their valuable time; they return to some other task once the auction is over.

As a way of thinking about this new format and discussing it within your own group, you might want to pretend to play such an auction amongst yourselves. Then answer the following questions.

First suppose you are a bank.

1. Should you bid if your valuation is higher than the ONM?
2. How much higher than the ONM rate should you bid? Explain your reasoning.
3. Should you bid if your valuation is lower than the ONM rate?

Compared with the current setup, and explaining your reasoning, do you think:

4. more money or less money be left on the table if this new modified setup is implemented?
5. bankers with the highest valuations are more likely to win the auction?
6. the modified auction would be more efficient at allocating the CDs the highest-values-in-use than the setup?

Question 3

A two-stage auction

Consider the following mechanism for a two-stage auction: In the first stage each bidder indicates a minimum amount they are willing to pay for the auctioned item by submitting a minimum bid that only the auctioneer sees. The auctioneer then selects the top three bidders and announces the minimum bid of the fourth highest bidder. The bidders never see the bids

of their other rivals from the first stage. Each bidder knows how much they value the auction item. The three bidders are invited to submit a final bid in a sealed first price auction, in which they must bid an amount at least the minimum amount the auctioneer announced but do not have to bid higher than that. This means that each of the top three selected contenders can submit a lower amount final bid than his or her first bid providing the final bid meet the threshold the auctioneer has announced:

1. Is this auction strategically equivalent to a (single stage) first price sealed bid auction? Why or why not?

Another two-stage auction runs as follows. In the first stage the auctioneer gathers everyone in a room to bid and keeps raising the price until only three people are left. A bidder must leave the room as soon as s/he decides they are not willing to pay the current price. When only three people are left in the room, the auctioneer stops raising the price and invites the three remaining bidders to submit a final bid in a sealed first price auction, in which they can submit any bid above the price the auctioneer reached in the room. (As before each bidder knows how much they value the auction item.)

2. Is this two-stage auction strategically equivalent to the other two stage auction described at the top of this question? Why or why not?