Adverse Selection in Stock Sales: A Classroom Game for Chapter 9

This is a game modelling a financial market in which sellers of stock know the value of the stock better than buyers do, but buyers get more utility from a given stock than sellers do.

There are two kinds of people: buyers and sellers. Each buyer starts with a checking account with $200. Each seller starts with 4 stock certificates from 4 different companies. Stock par values are $90, $70, $30, and $10 in equal proportions.

Buyers value stocks more than cash, because they wish to save. Each buyer has the following payoff function, where payoff is measured in utils.

$$\pi(buyer) = cash + 1.5 * (stock\ value)$$

The initial payoff of a buyer is 200 utils from his $200 in cash, but it would rise to 300 utils if the buyer could convert his $200 in cash to $200 in stocks.

Sellers value cash more than stocks, because they wish to consume now. Each seller has payoff function

$$\pi(seller) = 1.5 * cash + (stock\ value)$$

In the game, buyers and sellers buy and sell stock. The buyers pay with checks registered on the blackboard. If buyer Smith buys a stock certificate for $40 from Smith, he writes "Smith" on the board, and under it writes "Owes $40 to Jones". If Smith then buy a certificate for $90 from Lee, he writes "Owes $90 to Lee" under the first entry.

The game is repeated with different features. Each time, sellers start with 4 new shares, and buyers start with $200. Players do *not* keep their earnings from previous rounds. Think of the movie *Groundhog Day*(http://www.imdb.com/title/tt0107048 viewed 22 March 2005).

1. Symmetric Information. The instructor writes the value of each company on the board.

2. Asymmetric Information–decentralized. The instructor tells the sellers, but not the buyers, the value of each company.

3. Asymmetric Information–centralized. The instructor tells the sellers, but not the buyers, the value of each company.

4. Asymmetric Information–centralized. Partial regulation: Sellers must disclose if their stock is worth less than 50. The instructor tells the sellers, but not the buyers, the value of each company.

5. Asymmetric Information–centralized. Truth regulation: Sellers *may* guarantee their stock value. The instructor tells the sellers, but not the buyers, the value of each company.

Mechanics

Each buyer and each seller is a team of students. This is a good idea even in a small class, so students can consult with each other and thus learn more.

Each buyer and seller should be identified by the last name of one member of the team.

Sellers sit on one side of the room. The instructor shows them a page with codes showing the value of each company.

At the end of each round, five minutes must be allowed for players to add up their scores.

To implement guarantees in round 6, write on the card: "Worth 30– Rasmusen". At the end of the game,the instructor could cross the guarantees out– or let them say there till he teaches the class again.

Your Names:

Your Firm's Name:

Buyer, or Seller?:

Round	Initial Cash	Initial Stocks	Initial Payoff	Final Cash	Final Stocks	Final Payoff
1						
2						
3						
4						
5						
Average						

TABLE 1: SCORESHEET

Instructor's Notes

Equipment: A deck of cards without the aces. Pieces of paper showing the values of stocks in different rounds.

Ideally, you would fix the number of sellers equal to the number of buyers in advance and set the par value of all stock to be exactly $200 times the number of sellers (though divided up unequally).

Printout of the company values.

Refer to the game of PIT.

Winners: Easy for buyers, round by round.

For seller, luck matters. So take an overall average.

FORCE a centralized market for a while.

For the first couple of rounds, I asked players to tell me their initial and ending payoffs, and I wrote those on the blackboard (without the names of the players).

One realization:

Sellers: 173, 221, 235, 248, 255, 263, 398

Buyers: 231, 241, 285, 287, 339, 355,

One of the buyers got 355 because he engaged in selling on margin, quite imaginatively. Another probably added numbers up wrong.

Lessons:

(1) Asymmetric info can bog down a market and stop gains from trade from being realized.

(2) Discloure regulation can help.

(3) Just requiring honesty in voluntary disclosure can do as well.

Private markets are good when reputaion matters. Centralized excalhgnes break down.

Otherwise, public markets are handy.