Multistage Bidding Model with Elements of Bargaining. Extension for a Countable State Space*

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We consider a simplified model of a financial market with two players bidding for one unit of a risky asset (a share) for $n \leq \infty$ consecutive stages. Player 1 (an insider) is informed about the liquidation price of the asset while Player 2 knows only its probability distribution. At each stage players place integral bids. The higher bid wins and a share is transacted to the winning player. Each player aims to maximize the value of her final portfolio.

A model where the price takes only two values is considered in [1]. It is reduced to a zero-sum game with incomplete information on one side as in Aumann, Maschler [2]. It is shown that in this model uninformed Player 2 should use the history of Player 1's moves to update the posterior probabilities over the liquidation price of the asset via Bayes rule. Thus Player 1's objective is to find such a strategy that allows him to strike a balance between taking advantage of his private information and concealing it from Player 2.

References

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