



Optimal dealer pricing under transactions and return uncertainty

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Abstract

The paper examines the optimal behavior of a single dealer who is faced with a stochastic demand to trade (modeled by a continuous time Poisson jump process) and facing return risk on his stock and on the rest of his portfolio (modeled by diffusion processes). Using stochastic dynamic programming, we derive the optimal bid and ask prices that maximize the dealer's expected utility of terminal wealth as a function of the state in which he finds himself. The relationship of the bid and ask prices to inventory of the dealer, instantaneous variance of return, stochastic arrival of transactions and other variables is examined.

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