An equilibrium model of insider trading

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Abstract

We study a Bayesian-Nash equilibrium model of insider trading in continuous time. Supply of the risky asset is assumed to be stochastic. This can be interpreted as noise from non rational traders (noise traders). A rational informed investor (the insider) holds private information on the growth rate of the dividend flow rewarded by the risky asset. She is risk averse and maximizes her inter-temporal utility rate over an infinite time-horizon. Market is cleared by a risk neutral market maker who sets the price of the risky asset competitively as the conditional present value of future dividends, given the information supplied by the dividend history and the cumulative order flow. Due to the presence of noise traders, the market demand does not fully reveal the insider’s private information, which becomes incorporated in prices slowly. The key result of the paper consists in solving a non standard filtering procedure which gives an a priori form for the equilibrium strategy to be postulated. We show the existence of a stationary linear equilibrium where the insider acts strategically by taking advantages of the camouflage provided by the noise which
affects the market maker’s estimates in inferring private information. In this equilibrium, we find that the presence of noise traders increases the instantaneous variance of the price while its unconditional variance is lower than with respect perfect information. Finally, we show that the insider’s stock returns are uncorrelated over long horizons.