INSIDER TRADING WITH A RANDOM DEADLINE

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We consider a model of strategic trading with asymmetric information of an asset whose value follows a Brownian motion. An insider continuously observes a signal that tracks the evolution of the asset’s fundamental value. The value of the asset is publicly revealed at a random time. The equilibrium has two regimes separated by an endogenously determined time $T$. In $[0, T)$, the insider gradually transfers her information to the market. By time $T$, all her information has been transferred and the price agrees with the market value of the asset. In the interval $[T, \infty)$, the insider trades large volumes and reveals her information immediately, so market prices track the market value perfectly. Despite this market efficiency, the insider is able to collect strictly positive rents after $T$.

KEYWORDS: Insider trading, Kyle model, market microstructure, asset pricing.

1. INTRODUCTION

This paper studies a model of strategic trading with asymmetric information of an asset whose value follows a Brownian motion. An insider receives a flow of (noisy) signals that tracks the evolution of the asset value. Other traders receive no signals and can only observe the total volume of trade. Since there is uncertainty about the value of the asset before the game starts, the first signal generates a lumpy informational asymmetry between the insider and the rest of the market participants. Subsequently, the insider receives a sequence of updates regarding the fundamental valuation of the asset. At an unpredictable time, a public announcement reveals the current value of the asset to all the traders. In equilibrium, the insider releases all her private information by a finite time $T$ and keeps the market fully informed thereafter. Thus, she does not find it profitable to maintain informational asymmetry indefinitely.

Kyle (1985) introduced a dynamic model of insider trading where an insider receives only one signal and the fundamental asset value does not change over time. Through trade, the insider progressively releases her private information to the market as she exploits her informational advantage. The market is also populated by many liquidity traders who are uninformed and trade randomly. At time 0, the insider observes the value of an asset. The same information is publicly released later, at time 1, to all market participants. In each trading period in the time interval $[0, 1]$, traders submit order quantities to a risk-neutral market maker who sets prices competitively and trades in his own account to clear the market. The market maker cannot observe individual trades, but can

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Glosten and Milgrom (1985) proposed an alternative formalization of Bagehot’s (1971) informal model.