1060-91-23 **Suneal K. Chaudhary*** (schaudha@monmouth.edu), Mathematics Department, 400 Cedar Av, West Long Branch, NJ 07764. *A Boom Model: Trader Herding and Autocorrelation from Communication.*

In this paper we study noise traders that communicate and trade with each other in a market. We begin by computing a statistic which identifies a boom, and use it on the NASDAQ-100 dot-com "bubble." We next generalize the classical geometric Brownian motion stock model accordingly. We represent individual traders that observe each others' past n daily returns using a nonlinear vector autoregressive NLVAR(n) process. We model traders endogenously creating a market price. We measure autocorrelation and herding as functions of traders' communication level (α) and number of past daily returns (n) that the traders rely on. We find that autocorrelation and herding increase with communication level α, and they decrease with n. Under this model, we can specify α and n leading to traders forming spontaneous herds without specific leaders and thus to price booms. Finally we see that our model replicates the statistical property we examined of the NASDAQ-100 boom. (Received January 25, 2010)