THE SURVIVAL AND CONSEQUENCES OF NOISE TRADERS IN FINANCIAL MARKETS: A NUMERICAL MODELING APPROACH

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This dissertation investigates the long-run effects of noise traders in financial markets. "Noise traders" are defined as those trading on noise as if it were information. Some have argued that traders following seemingly irrational strategies – noise traders – can have little influence on financial markets. The traditional argument given by Friedman is that following these strategies will cause noise traders to buy high and sell low on average. Eventually, their wealth and market influence will be lost.

The contribution of this research is to examine this question from a new perspective, via numerical modeling. An empirical approach is not taken since it is virtually impossible to identify trader strategies and the proportion of various strategies in the market; moreover because of difficulties in risk adjustment, it is very difficult to determine relative performance rankings of alternative trading strategies. For this research question, numerical modeling is superior to analytical modeling for two reasons. Numerical modeling enables the analysis of more complicated models and enables the study of model behavior over time.

Long-term survival of irrational trading strategies is assessed in a model in which risky asset returns are exogenously determined. We find that the bankruptcy probability for any individual noise trader is high; nevertheless, the probability that noise traders in the aggregate become bankrupt is very low.

A model is also developed in which risky asset returns are endogenously determined. In contrast to noise traders, fundamental traders follow strategies based only upon relevant information. Complete noise trader elimination as hypothesized by Friedman is not found. Model analysis strongly suggests that noise traders can affect prices in the long run. If a sufficient proportion of the market has and maintains similar beliefs, they may be able to dominate the market and influence prices. When traders can short sell the risky asset, the wealth level necessary to influence prices. When traders can short sell the risky asset, the wealth level necessary to influence prices decreases. The affects of market configuration changes on various market characteristics (e.g., trading volume and risky asset returns) are also assessed. A curious result from our simulations is that increased volume is observed in our base (homogeneous) market when traders can buy/sell on margin.