NOISY RATIONAL EXPECTATIONS WITH STOCHASTIC FUNDAMENTALS

A dissertation submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY
in
INTERNATIONAL ECONOMICS

by

Carl Gaston Plat

December 1995

The dissertation of Carl Gaston Plat is approved:

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Dean of Graduate Studies and Research
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Chapter One derives a noisy rational expectations theoretical model of informed and uninformed trading where the price of a risky asset is based on a fundamental following a stochastic process. This work is based on Grossman & Stiglitz's original (1980) model with extensions by Blume, Easley, and O'Hara (1994). The innovation in the current work is the introduction of a stochastic fundamental. Informed and uninformed traders are given unique signals that are correlated with the movement of this underlying fundamental. The model shows that volume of trade is non degenerate only when prices are less than fully revealing.

In Chapter Two, a computerized double auction market with human traders is employed to examine the relation of price and volume in the presence of asymmetric information. In this market, the informed traders receive higher precision signals than the uninformed traders. The relation of price and volume has been suggested as an important factor in the process of information revelation whereby information held by informed traders is transferred to uninformed traders. While in contrast, the predictions of no-trade theorems suggest that trade should not occur at all between informed and uninformed traders. The results show trading volume within the informed group is positively correlated with signal precision. In situations of asymmetric information, uninformed trading activity as measured by volume/precision correlations declines significantly as the precision of the signals of informed traders increases. However, the presence of asymmetric information does not lead to a zero trade condition for either the informed or uninformed traders.

In Chapter Three, using the laboratory data set from Chapter Two under a zero intelligence (ZI) trader assumption, the mixture of distributions hypothesis is tested. It is shown how volume might reflect the number of price observations, and the trader’s ability to correctly identify the distributions from which prices are derived. It is concluded that for this data set, the application of the mixtures of distribution hypothesis along with the ZI assumption allows traders to better understand observed prices.
Acknowledgements

The assistance and great patience of my thesis advisor, Daniel Friedman, is gratefully acknowledged. The constant encouragement from my family and friends, especially my father, Richard Plat, throughout this project was a great help. The comments from my orals committee, Ken Kletzer, Carl Walsh, Michael Dooley, and Eli Silver, are gratefully acknowledged. Encouragement for this project also came from financial market colleagues, notably John Gourhan and Steve Koury, who taught me how real markets work. Tai Farmer provided programming assistance by modifying the program used for the laboratory sessions. The Board of Studies in Economics at UCSC and the US National Science Foundation (SES-9023945) provided funding for the experiments described in Chapter Two. Participants at the Fall 1995 Economic Science Association conference provided helpful comments on an earlier draft of Chapter Two. I retain responsibility for all errors.