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On the survival of overconfident traders in a competitive securities market[☆]

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Abstract

Recent research has proposed several ways in which overconfident traders can persist in competition with rational traders. This paper offers an additional reason: overconfident traders do better than purely rational traders at exploiting mispricing caused by liquidity or noise traders. We examine both the static profitability of overconfident versus rational trading strategies, and the dynamic evolution of a population of overconfident, rational and noise traders. Replication of overconfident and rational types is assumed to be increasing in the recent profitability of their strategies. The main result is that the long-run steady-state equilibrium always involves overconfident traders as a substantial positive fraction of the population. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

Several recent papers have argued that investor overconfidence or shifts in confidence offer a possible explanation for a range of anomalous empirical

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patterns in securities markets.¹ An important general objection to such approaches is that rational traders ought to make profits at the expense of the irrational ones, so that irrationality should in the long run be eliminated as a significant factor in the market.²

This paper offers a new reason for the possible long-run survival of overconfident traders in competition with rational traders. The basic idea is that risk averse, overconfident traders trade more aggressively based on valid information than do rational traders. As a result, overconfident traders are better able to exploit risky profit opportunities created by the trades of liquidity-motivated traders or the mistakes of noise traders.³ Overconfident investors trade aggressively both because they underestimate risk and because they overestimate the conditional expected value from their trading strategies. Since the information they exploit is valid, their more aggressive use of it (either long or short on the risky asset) causes them to earn higher expected profits (though lower expected utility). Their expected profits are limited by the fact that if there are too many overconfident traders, or if their confidence is too extreme, their trading pushes price against them excessively. Rational traders then profit by trading in opposition to overconfident traders. If trader types replicate according to the profitability of their strategies, we show that overconfident traders survive in the long run, and can even drive out rational traders completely.

Several authors, beginning with De Long et al. (1990, 1991), have offered other distinct arguments as to why imperfectly rational traders, including overconfident ones, may survive in the long run.⁴ De Long et al. (1991) examine traders

¹ Odean (1998) examines investor overconfidence, overreactions, and the high volume of trade in securities markets. Daniel et al. (1998, 2001) examine the consistency of overconfidence and shifts in confidence with abnormal post-event returns in event studies, short horizon stock price momentum, long run reversal, short- versus long- horizon correlations between accounting performance and later stock price performance, and the relative ability of size, fundamental/price ratios, and risk measures to predict future returns. Odean (1998) and Daniel et al. (1998) also examine conditions under which there will be excess or insufficient volatility of security returns relative to a rational benchmark.

² Luo (1998) provides a model of natural selection in which irrational traders lose money and the market evolves toward long run efficiency. Also, Figlewski (1978, 1982) finds that owing to wealth shifts among traders with diverse information, informational efficiency may or may not be achievable depending on the correlation of signals received by the traders and depending on the degree of traders' risk aversion.

³ Apart from this informational benefit, overconfident investors who underestimate risk can potentially benefit from exploiting the risk premium on a positive net supply risky asset (i.e., investing heavily in the 'market portfolio'). This non-informational effect was noted previously in De Long et al. (1990), discussed below. We rule out this effect by assuming here that the risky security is in zero net supply.

⁴ For example, noise traders themselves create a risk in the price that discourages rational traders from betting against them. Noise traders bear a disproportionate amount of the risk that they themselves create, and therefore may earn a correspondingly higher risk premium. In this sense they can 'create their own space'. De Long et al. (1990) point out that, as a result, noise traders can earn higher expected profits than rational traders. Palomino (1996) shows that small market size can further enhance the survivorship of noise traders.

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