

Review of manuscript 401 "Efficiency and stability in complex financial markets"

The contribution of this paper is potentially significant. It is an intriguing hypothesis that the closer markets come to information efficiency (which is a condition they cannot ever reach completely), the more they become susceptible to be driven into instability by uninformed traders. The analysis is mostly correct, though it is not always straightforward to follow, and the authors should dedicate more effort in the presentation. A book on scientific writing by J. Peat I browsed this week starts with the quote "What is written without effort is in general read without pleasure" (Samuel Johnson, 1709–1784). Sloppy writing is a frequent characteristic of econophysics papers that contributes to lower the reputation of the subject and should be avoided. Now this paper is not really so bad, but it has some issues.

1.) At the beginning of Section 2, the authors introduce N informed traders and 1 uninformed trader, but in other parts of the paper, e.g. in the conclusions, they speak of uninformed traders (plural) trading massively and dominating the market. This contradiction should be eliminated, and I believe it makes more sense to start from the beginning with arbitrary numbers of informed and uninformed traders, unless a good reason is given for setting the latter to 1. Another contradictory statement in the conclusions is that, when non-informed traders dominate, their activity does not spoil information efficiency: how is this possible, if their dominance leads to bubbles and inefficiencies, as stated just one sentence later? Where fundamentalists and trend-followers are mentioned for the first time in the introduction with just the reference Hommes 2006, e.g. Lux and Marchesi's Nature paper of 1999 might be cited too. The adjective "complex" in the title could be dropped, unless the authors explain the difference between complex and simple financial markets.

2.) The equations do not seem to contain obvious errors, except for using the same symbol R introduced for the returns to indicate also the real numbers, where usually \mathbb{R} is chosen, see two lines before Eq. (3). However the layout can be improved: number all the equations, align properly multiline equations as e.g. the two unnumbered ones between Eqs. (9) and (10) where \times should be on the right of the equal sign rather than below it, eliminate the empty Eq. (21), refer to equation numbers as e.g. "Eq. (17)" rather than just "(17)", do not use square braces where round ones are sufficient, do not switch back and forth the order of the indices of the Kronecker delta in Eqs. (1-5), do not use \equiv where $=$ is appropriate, etc.

3.) Here the text and especially the references received less attention by the authors than the equations. The format of the references is completely random, with some names before the surname, some after, some in full, some abbreviated, some journal names in full, some abbreviated, an inconsistent position of the year, an inconsistent use of field separators (and, & and commas) and of ed./eds. for edited volumes, etc. The text suffers from minor English and interpunction errors, and as a stylistic recommendation I suggest to work the footnotes into the main text to avoid interrupting the flow of reading, but I will not go into further details, since the instructions for the referees say they are NOT expected to rewrite the paper, and it should be the responsibility of the authors to present their manuscript in an appropriate form for a scientific journal.

After these improvements are made, the paper can be accepted.