

Journal : *Economics*
Referee's report on
MS 162 entitled
"Random Matrix Theory and the Evolution of Business Cycle Synchronisation 1886-2006"

With the single word "Author" I mean the author or authors of this work. The paper deals with a quite interesting issue, the application of the Random Matrix Theory. However, it suffers from several problems regarding the presentation and discussion of empirical results. To be more specific, my comments are given as follows:

1. Page 2: The abstract is extremely large. It should be diminished and focused on the main output of this work.
2. Page 3: While the abstract describes analytically the entire paper, the introduction is poor. I mean that the Author does not explain where the originality of the work is found, why this methodology is employed or alternatively how the technique improves the Bordo and Helbing findings.
3. Page 3, 2nd paragraph: It is a very vague sentence. The Author makes reference to 3 methodologies without providing a rapid description of them (for example in a footnote). This could help the reader to follow, since the text is quite technical.
4. Page 3, 3rd paragraph: further argumentation regarding the problem of noise and the series properties is needed. I could mention Wikox and Gebbie (2007, *Physica A*) reporting that in the case of small time series the calculated covariance may be dominated by measurement noise.
5. Page 4, section 2: The Author would be more concentrated on the major advantages and disadvantages of the Random Matrix Theory. See for example Martins (2007, *Physica A*). In papers focusing on such mathematical methods, it is more interesting for the reader to know their "good" and "bad" points in order to evaluate whether the application gave results deserving of further investigation.
6. Page 7, 3rd paragraph, 1st sentence: In the way that it is written, it seems that the graphical representation is suggested by Kaufman and Rousseeuw.
7. Page 13: The discussion section of an article relies on the empirical findings. However, when reading this part of the present paper we rapidly understand that contains arguments

already figured out in previous sections. For example, the first lines of the 3rd paragraph in page 3 are repeated more than 3 times in the text.

8. Page 15: The Authors has to enrich references, especially with recent papers including economic applications of the suggested methodology. I gave some examples in previous items.

On the basis of the above remarks unfortunately I cannot recommend publication.