

The Thomson Reuters Impact Factor: Critical Questions that Scientists Should be Asking

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ABSTRACT

The Thomson Reuters (TR) Impact Factor (IF) is most likely the most widely used measure to evaluate the impact of science, although this is erroneously equated with quality. The IF itself is an extremely simple quotient between two values, and the power of the IF lies not so much in the calculation, but on what is used to calculate it. Details of these variables are not publically available. Several other aspects are also not publically available, understandably since the IF is a marketing tool used in generating profits. The biggest error being made by the scientific community is an almost blind adherence to the IF. Worse yet, the IF is increasingly being used to evaluate scientists' value, scientific performance and other quality- or productivity-related parameters, which would lead to increased salaries, positions, research funding and other financial and power-related aspects. Although the latter batch of issues is (hopefully) beyond the decision-making of TR, it is certainly in the interests of TR and its share-holders, to have the IF being used by an increasingly wider audience, including main-stream and open access publishers. This paper does not focus on the deficiencies of the parent company TR or the IF. Rather, it aims to establish a set of 52 key questions that the scientific community should be asking TR. Naturally, after this paper has been published, a follow-up paper will be published with TR's responses to these questions. Should not TR, which takes credit from its intellectual base of scientists to make profit or to fortify its own profile, also be responsible to that base? This paper establishes a simple system to ensure that the process is open and transparent.

Keywords: Impact Factor, metrics, open vs veiled processes, transparency

Abbreviations: GSF, Global Science Factor; IF, Impact Factor; JCR, Journal Citation Reports®; PI, performance index; SCI, Science Citation Index

52 QUESTIONS FOR THOMSON REUTERS TO ANSWER ABOUT THE IMPACT FACTOR

The objective of this set of questions is to promote transparency and greater understanding to a process that is currently not transparent, with clear inefficiencies and abuses by third parties, and for which answers to the scientific public are not being provided. The Thomson Reuters (TR) Impact Factor (IF) is generally perceived to be a measure of how many times a paper or journal is cited, although the direct link between the IF and quality of a scientist, a journal or a publisher is far from being clear. Consequently, although the IF reflects the number of citations of a previous year, it reflects very simply a quotient between two numbers, an intellectual simplistic value.

52 key questions follow that I feel TR has the responsibility of responding to because it is a publically traded company. The word public refers to any member of public, including the scientific community.

- 1) Does TR charge universities or institutions to access JCR (Journal Citation Reports) and thus details about the IF of journals?
- 2) Assuming that TR charges for access to IF-related information, is the price different between countries, institutes and even between institutes within a single country?
- 3) Assuming that prices are not uniform, where can the public access current prices per institute on a country-by-country basis?
- 4) If a charge is levied, and the price is not fixed, why is that? Does TR consider this to be morally correct?
- 5) Thomson Reuters owns the IF, Science Citation Index (SCI), Journal Citation Reports® (JCR) and Web of Science® (<http://science.thomsonreuters.com/mjl/>) (with over 11,000 indexed journals), and some of the world's oldest and most respectable data-bases such as Biological Abstracts, Biosis, BCI, CCI, Current Contents. Is it free for the public to access these data-bases? If not, then what are the fees and where can access fees be publically observed?
- 6) If TR benefits from the IF through marketing and promotion of the company's strengths, then why are royalties not paid to scientists on whom the IF is fundamentally based? Alternatively, if the IF depends on scientists and their publishing efforts, then why is the IF and all information related to it not freely available (vs royalties), similar to an open access system?
- 7) Why are the selection panels that select a journal for inclusion in TR and thus candidate IF journals not open to the public? A peer-reviewed journal involves an editorial board whose members are open to the public for critique and scrutiny, but TR selection panels stay anonymous behind closed doors. Why is that?
- 8) The parameters and processes used to select journals for an IF have changed over time. Thus, parameters used in 2000, for example, are no longer in play now, in 2013. Does TR re-evaluate the IF of journals regularly, including older journals to which an IF was assigned years ago?
- 9) Does TR get paid in any way by publishers to have their journals placed on JCR or for any part of the process that leads up to the allocation of an IF? If yes, please provide details.
- 10) Does TR pay any official university staff, librarian, institute or ministry in any country around the world to promote the IF? If yes, please provide details.

- 11) Does TR in any way fund any laboratory, institute or government agency anywhere around the world for promoting the IF or for any IF-related services?
- 12) Please list all the criteria that are required to select a journal for an IF. Please provide a weighting for the criteria assessed and a site where this information is available.
- 13) After how many years must a journal be published before an IF can be assigned?
- 14) The equation $A/B = C$ is the basis for calculating the IF where A and B are the number of cites for that journal. Please indicate the full list of cite sources from which the A and B components of the equation is derived.
- 15) Why does the IF not have an ISO (International Standards Organization) number even though it is supposedly an international measure of quality?
- 16) If a journal that has an IF publishes plagiarized manuscripts, can the public request the IF of that journal to be withdrawn if the publisher and/or journal refuse to retract that plagiarized text? Furthermore, a journal that does not yet have an IF but is seeking one, but that contains plagiarized texts, how is this taken into consideration by TR, and how is this factored in to the criteria requested in 12 above? Please indicate clear public policies and rules for such cases and how such issues are resolved.
- 17) If a self-plagiarised text is used to increase the IF of a journal, for whatever purpose, what action does TR take, if any, against that author, that journal and that publisher?
- 18) If a journal carrying an IF has false members of an editor board, what action will TR take against that journal and that publisher?
- 19) If a journal's editorial board is in any way unethical or fraudulent, or if that journal's publisher is in any way unethical or fraudulent, can the public request TR to withdraw that journal's IF? Please indicate clear public policies and rules for such cases. Fraud can be interpreted at any level and in the broadest possible way. In these cases please indicate what happens to all journals if a publisher is found to be fraudulent? If the editors or editor board of a single journal are found to be unethical or fraudulent, is punishment (e.g., retraction of an IF) extended to all of that publisher's journals by association? If yes, why, if no, why not?
- 20) If a journal's editorial board is not conducting proper or any peer review, can the public request the IF of that journal to be withdrawn? Please indicate clear public policies and rules for such cases.
- 21) If false information is being listed about a journal or a journal's editorial board, can the public request the IF of that journal to be withdrawn? Please indicate clear public policies and rules for such cases.
- 22) If a journal or a journal's editorial board are not conducting peer review even though the journal is listed as conducting peer review, can the public request the IF of that journal to be withdrawn? Please indicate clear public policies and rules for such cases.
- 23) Many journals consider themselves to be "international" and often use this self-characterization to gain an IF. Can TR please indicate what parameters it considers for a journal to be "international"? Please quantify all parameters.
- 24) Is it essential for a journal to have an ISSN number to apply for or obtain an IF?
- 25) If a journal's or publisher's ethics regulations are contradictory, i.e., invalid or if the copyright is invalid, can the public request the IF to be withdrawn? Please indicate clear public policies and rules for such cases separately.
- 26) Is it correct for an Editor in Chief of a journal that carries an IF indicates to an author that his/her paper can only be accepted if and when they self-cite more papers from that journal, with the objective of course of increasing its IF through self-citations? In such a case, can the public request the IF to be withdrawn on the basis that the EiC, journal and/or publisher are purposefully trying to manipulate the IF? Please indicate clear policies and rules for such cases, including the threshold number of times permissible by a journal to make such of self-citation requests.
- 27) Why is the number of issues or the speed with which journal copies are provided to TR important in selecting an IF? Please provide a full rationale. Does it mean that the quantity or the speed are measures of good science? How is the quantity or the publication speed related to the quality of science?
- 28) Would it be fair to say that an online, open access journal is more likely to receive an IF than a print journal simply because the processing is faster? Please provide concrete statistics that show the assignment of IFs to online and print journals over the past 10 years and to support or to deny this claim.
- 29) Are DOI or CrossRef important factors for calculating or considering an IF?
- 30) Is the inclusion of a journal on non-TR data-bases such as NIH's PubMed, Elsevier's Scopus, Springer's SpringerLink, or others, an influencing factor or a pre-requisite when assigning an IF?
- 31) Do you agree that the IF be used as an official method by different Ministries of Education, universities, companies and employers around the world to differentiate scientists, allocate funding, provide promotions, etc.?
- 32) How could Plant Biotechnology Reports (PBR), published by Springer, obtain an IF of 0.700 in its second year of publication (i.e., 2008) when only 34 papers were published in 2007?
- 33) Is it correct (or even logical) that Springer's PBR have an IF twice the value of The European Journal of Horticultural Science (2011 IF = 0.387), even though the EJHS has been published for already 77 years? Please explain your logic and reasoning in full.
- 34) Similarly, can you explain how a journal like *Biotechnology and Biotechnological Equipment*, which had an IF of 0.291 in 2010, but which published thousands of papers in its 24 volumes, had a lower IF than PBR?
- 35) Why have none of Global Science Books' (GSB) (www.globalsciencebooks.info) journals received an IF, even though most are in their 7th year of publication, and despite our application for 6 years? In February, 2011, Marie E. McVeigh (JCR Director) promised to expedite the process and to provide an explanation. Almost two years later, why is it that the publisher and all its authors are still waiting for a response?
- 36) What is the link, if any, between TR and Google, Yahoo and/or Amazon?
- 37) What is the link, if any, between TR and several "ethics" societies: CSE, COPE, WAME, ICMJE, or others?
- 38) Does TR have any agreements with Elsevier, Springer, Wiley-Blackwell, Taylor & Francis (Routledge), CRC Press, OUP, or any other major or large commercial publisher that would gain preferential treatment by TR, preferential treatment in the allocation of an IF, or any market advantage? Please explain any possible conflicts of interest in detail.
- 39) TR is the owner of Scholar One Manuscript Central. When submitting a manuscript through this online submission system, there are two choices. The first is "Classical" while the second is "Advanced". For the "Advanced" system, the author is required to download software for the programme to work. Please confirm that this programme does not contain any form of botware, spyware, malware or any other form of software programming that allows personal information of any sort to be retrieved from that author's personal or institutional computer.
- 40) As an extension of Q37, how is privately collected information about scientists or authors, either from TR-related software, or from Google or other data-bases

used?

- 41) Using Scholar One Manuscript Central, during manuscript submission, authors are forcefully required to provide the names of a number of reviewers who would provide commentary on the manuscript. This number depends on the journal. In essence, TR is building up a mega-data-base of scientists without their prior approval. Please comment on whether you think this process of amassing data on scientists is legal or morally correct. How is this data-base being used?
- 42) Please comment on the increasing fortification between ScholarOne, CrossRef and iThenticate (iParadigms). Please indicate if TR is on the Board of directors of the latter two companies, or if and how it influences decision-making, financially, or otherwise of these companies.
- 43) Please provide a full disclosure on the position that TR has on the following laws, by-laws, motions, etc. that passed (or not) through the US senate and congress: SOPA, PIPA, ACTA, RWA, NDAA, CISPA and any other bills that threaten the privacy and security of scientists. Please comment on each separately.
- 44) It is publically known that TR openly funds US Government political candidates. Does TR consider funding of US political candidates, either through PACs, Super-PACs, campaign contributions, or other, to be correct (morally and ethically)? If yes, please explain your reasoning in detail. Please provide detailed information about which political candidates and parties TR has been financially supporting in the US.
- 45) As an extension of Q42, how does TR financially support or aid any foreign government or government-associated institute? If yes, please provide a list with an open disclosure of the amounts and the reasons why.
- 46) What is the link between TR and the NIH, if any?
- 47) Fraudulent and predatory open access publishing is increasing exponentially. See www.scholarlyoa.com, for example, for some background. Does TR consider predatory publishing to be a problem and what does it think about and how does it define this issue within the context of assigning an IF?
- 48) If a journal or publisher are considered by the scientific community to be predatory, can the public request that the IF of that journal be retracted?
- 49) If the IF, as a simple quotient between two numbers, is clearly insufficient in representing the quality of a scientist, manuscript or journal, then why has TR not made any effort over the past decade or longer (at least), to improve the equation to reduce the possibility of manipulation and to establish a real measure of quality?
- 50) Why are books not assigned an IF, especially considering the fact that they contain highly relevant academic information for the scientific community?
- 51) A corollary to Q50, why can journals that publish abstracts or proceedings of local meetings or symposia be attributed an IF, even if they are supplementary issues, if in many cases, the peer review is weak, or non-existent? Several journals publish the abstracts of meetings, and authors then take advantage of the IF score even though only an abstract has been published, reflecting the weakness of the selection and inclusion processes, yet nonetheless supported by an IF.
- 52) To whom can queries by the public regarding the IF be directed? Please provide a contact person, title and e-mail contact, preferably of more than one individual with a sufficiently high enough position to respond to the academic community's queries.

For all questions, please provide the maximum amount of detail possible and wherever available, a publically visible site with the information requested and responses to the queries made

CONCLUSIONS

It is evident from the questions that there are great gaps in the scientific public's knowledge about many aspects related to the IF. Moreover, the fact that answers to such questions do not exist on TR's web-page, despite decades of existence, nor the fact that questions are not being responded to (yet) reflects a serious gap in transparency and a failure to address the concerns and critiques of the scientific community about the IF and TR. It is the hope of the author that this list of publically available questions will spur TR to be more transparent about the answers and that scientists will continue to apply pressure to systems of evaluation that are pseudo-markers of quality, but that in fact only reflect marketing tools for gaining market advantage, at the expense of science and scientists.

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WEB-SITE

JCR (Journal Citation Reports) web-site:

http://thomsonreuters.com/products_services/science/science_products/az/journal_citation_reports/