

What's in a name? Bias in peer review

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Der Wissenschaftsfonds.

ELSEVIER

Gender Equality and Diversity/URPP Equality of Opportunity

Network Diversity | University of Zurich | September 25, 2023

Motivation

- Fairness and impartiality crucial in research assessment
 - For careers of junior (and not so junior) researchers
 - For resource allocation
 - For scientific advancement
- Peer review a key method of research validation since at least 1731 (Spier, 2002)
- Cost of peer review: \$1,272 per researcher/year (LeBlanc et al., 2023)
- Human-led process, opening door for biases



Image source: Midjourney 5.2, prompt: "a group of researchers discussing a document, in the style of an 18th century painting --seed 1".

Literature on bias in peer review

– Gender

- Women publish fewer articles, in less prestigious journals, and are underrepresented in the peer-review process (Helmer et al., 2017, Squazzoni et al., 2021b)
- Mixed evidence regarding gender bias in peer review (Squazzoni et al., 2021a, Alexander et al., 2023)

Literature on bias in peer review

- Gender
- Country of origin/ethnicity/race
 - Worse review outcomes for authors whose native language is not English, authors from Asia, authors from countries with low Human Development Index (Smith et al., 2023)

Literature on bias in peer review

- Gender
- Country of origin/ethnicity/race
- Affiliation
 - More favorable evaluations for authors from top universities, companies (Okike et al., 2016, Tomkins, Zhang and Heavlin, 2017)

Literature on bias in peer review

- Gender
- Country of origin/ethnicity/race
- Affiliation
- Network
 - Less distant authors evaluated more positively (Teplitskiy et al., 2018)

Literature on bias in peer review

- Gender
- Country of origin/ethnicity/race
- Affiliation
- Network
- Prominence
 - More favorable evaluations for famous/prestigious authors (Okike et al., 2016, Tomkins, Zhang and Heavlin, 2017)
 - More prominent authors are cited more frequently (Card and DellaVigna, 2020)
 - Editors give more prominent reviewers' reports more weight (Card and DellaVigna, 2020)
 - *No prior study of bias in acceptance rate of invitations to review*
 - *Smaller sample size, less control*

*For whoever has, more will be given to him, and he will have more than enough;
but whoever does not have, even what he has will be taken away from him.*

Matthew, Chapter 25, Verse 29 (Christian Standard Bible)

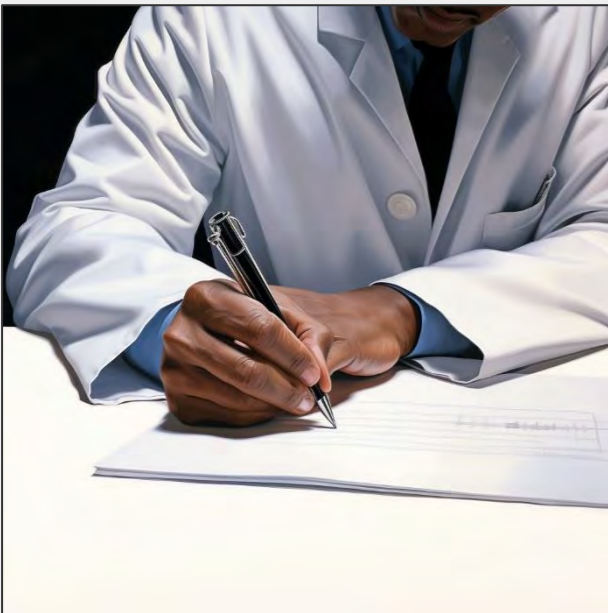
“[E]minent scientists get disproportionately great credit for their contributions to science while relatively unknown scientists tend to get disproportionately little credit for comparable contributions.”

Merton, R. K., 1968, “The Matthew Effect in Science: The reward and communication systems of science are considered”, *Science* 159 (3810), 57

Research questions

Status bias in accepting review invitation?

Is reviewers' likelihood of accepting a review invitation affected by author prominence?



Status bias in manuscript assessment?

Are reviewers' assessments of manuscript quality affected by author prominence?

Source of the image of two hands: Midjourney 5.2, prompt: "a close-up of an arm in a white lab coat being handed an envelope, photorealistic, high detail, high resolution, pure white background".
Source of the image of a scientist writing: Midjourney 5.2, prompt: "a close-up of black hands writing on a scientific paper with a white lab coat, photorealistic, high detail, high resolution, pure white background".

Status bias

- Positive status bias (“eminent scientists get disproportionately great credit”)
 - Vernon L. Smith
 - 2002 laureate, Nobel Memorial Prize in Economic Sciences
 - 54,000 Google Scholar citations (12/2021)
- Negative status bias (“unknown scientists tend to get disproportionately little credit”)
 - Sabiou Inoua
 - Early-career research associate, formerly Vernon Smith’s PhD student
 - 42 Google Scholar citations (12/2021)
- Both affiliated with Chapman University

Design

Experimental design

- Sabiou and Vernon jointly wrote a research paper⁷ (original work)
- Submitted to *Journal of Behavioral and Experimental Finance* (Elsevier)
 - Edited by Michael Dowling and Stefan Palan
 - CiteScore: 3.0 (9.0 in 2022)
 - Impact factor: N/A (6.6 in 2022, ranked 8/111 in FINANCE)



Reviewer selection

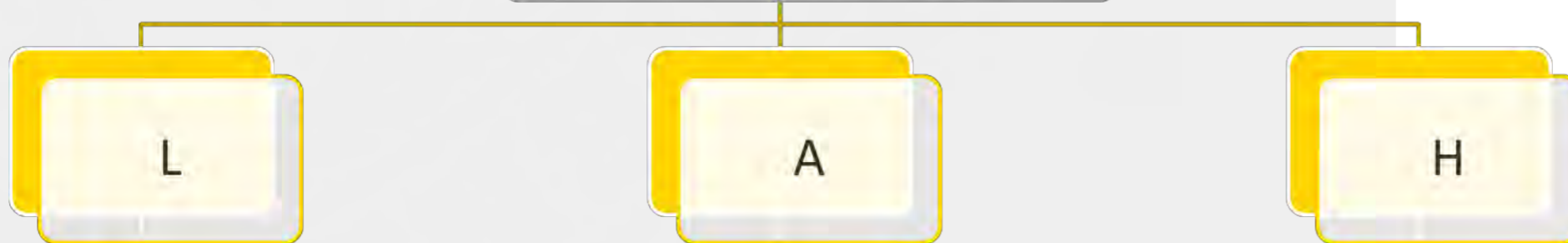
- Top 100 journals from “BUSINESS, FINANCE” of Journal Citation Report 2019
- Eliminated journals with insufficient fit, added JBEF → 29 journals
- Extracted authors with email addresses and Google Scholar profiles, 2018-2020
- ⋮
- >5500 researchers at >1500 institutions

Review process

- Invited >3300 reviewers starting in August 2021
- Reviewers receive \$50 for completed reports (common in finance)

Treatments

Submission
"Corresponding Author"



L ... low prominence
A ... anonymized
H ... high prominence

Invitation mail

Invitation email

Manuscript Number: 21-00864

Title: Re-tradable Assets, Speculation, and Economic Instability
Corresponding author: {{ author_name }}

Dear {{ first_name }} {{ last_name }},

I would like to invite you to review the above referenced manuscript, as I believe it falls within your expertise and interest. The abstract for this manuscript is included below.

You should treat this invitation, the manuscript and your review as confidential. You must not share your review or information about the review process with anyone without the agreement of the editors and authors involved, even after publication.

Please respond to this invitation at your earliest opportunity.

If you would like to review this paper, please click this link:
{{ accept_link }}

If you have a conflict of interest or do not wish to review this paper, please click this link:
{{ decline_link }}

Since timely reviews are of utmost importance to authors, I would appreciate receiving your review within 30 days of accepting this invitation.

As a mark of appreciation for your timely review, we would be pleased to send you a reviewer reward amounting to \$50. Please note that the reward is on a personal title and not transferable to an organization. Those reviewers that are not able to receive the reward on a personal level are kindly requested to waive it. The transfer will be made through the payment platform WISE.

I hope you will be able to review this manuscript.
Thank you in advance for your contribution and time.

Kind regards,
Stefan Palan
Editor-in-Chief
Journal of Behavioral and Experimental Finance

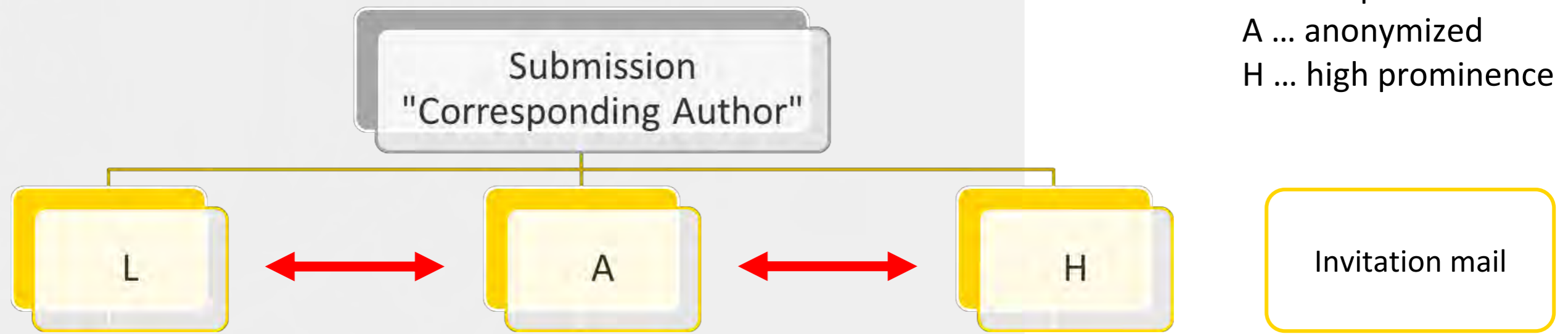
Title: Re-tradable Assets, Speculation, and Economic Instability
Corresponding author: {{ author_name }}

Abstract:

This paper examines asset markets in which the key distinguishing characteristic of the goods is that they can be purchased for resale. Although the distinction between consumption durables and non-durables is clear and [...]

Identification strategy

Willingness to review



L ... low prominence
A ... anonymized
H ... high prominence

Results

Willingness to review

Willingness to review

	Low	Anonymized	High	Total
Invitations sent	781	2011	507	3299
Responses received	610	1591	410	2611
Invitations accepted	174	489	158	821
Acceptance rate	28.5%	30.7%	38.5%	31.4%
Two-sided Fisher's exact tests				
Low vs. Anon.		p = 0.324		
Anon. vs. High		p = 0.003		
Low vs. High		p = 0.001		

Interim conclusions

- Evidence for positive status bias in the acceptance rate of review invitations, but no significant evidence for negative status bias
- Possible pathways:
 - Expectation of more interesting paper when written by prominent author
 - Expectation of less work for reviewer when written by prominent author
 - Reviewer feeling “honored” to be invited to review paper by prominent author
 - ...

Procedure after agreeing to review

- After accepting review invitation, directed to consent website
- Give active consent to provide review in light of new information (81.2% consented; no significant treatment differences)
- Proceed to manuscript download

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Login

Additional Review Information

Manuscript: "Re-tradable Assets, Speculation, and Economic Instability"

Thank you for agreeing to review the above mentioned manuscript for the *Journal of Behavioral and Experimental Finance*.

In addition to being part of the usual submission and review process, this review invitation is also part of a study (joint work of researchers from the University of Graz, the University of Innsbruck, and Elsevier) aiming to improve the peer-review process at scientific journals. A similar invitation has been sent to more than the usual number of reviewers. While your report will, as usual, be communicated to the authors and will help the editor make his decision regarding whether or not to accept the paper for publication, an anonymized version of your review report will at the same time be included in this research study. [Elsevier](#) and the [University of Innsbruck](#) confirm the collaboration with the University of Graz on their websites.

If you do not wish an anonymized version of your report to be included in this study, please do not accept the review invitation.

I consent to the processing of my personal data (first and last name, affiliation, email address, research interests, year of publication and citations of articles in scientific journals) for use in the peer review process of a scientific paper and in a study on the peer review process by the University of Graz and the University of Innsbruck. This consent can be withdrawn at any time without explanation by emailing jbef@uni-graz.at. Withdrawing consent does not affect the legality of earlier processing.

I also give permission for processing my personal data (first and last name, email address) for the purpose of making a one-time payment. For this purpose, your personal data will be transmitted to *TransferWise Europe SA*. You will find more information about this in the data protection declaration. If you do not consent or withdraw this consent before your payment is processed, you can still participate in the review process and study, but your payment cannot be processed.

You can find our data protection declaration [here](#).

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Manuscript title page

Re-tradable Assets, Speculation, and Economic Instability

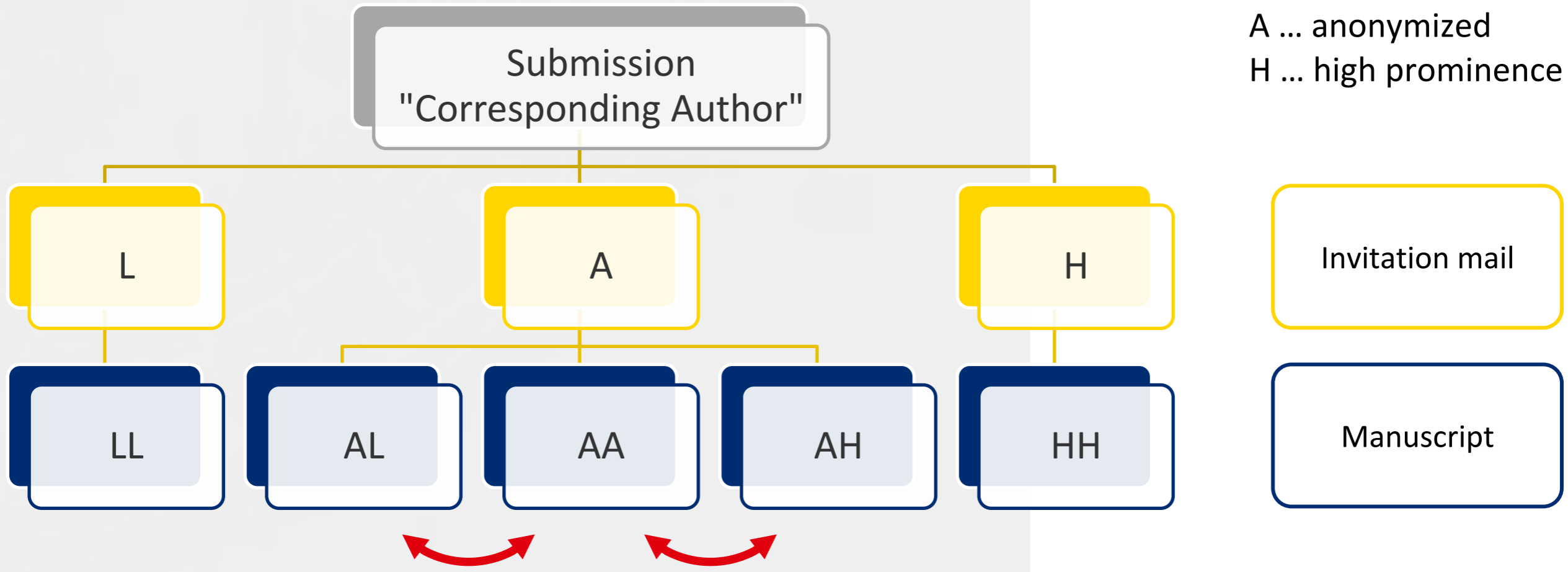
Corresponding author: Sabiou M. Inoua, Chapman University

Abstract. This paper examines asset markets in which the key distinguishing characteristic of the goods is that they can be purchased for resale. Although the distinction between consumption durables and non-durables is clear and universally recognized, less evident is whether asset re-tradability accounts for economic instability. Market instability is strongly associated with goods that can be re-traded; stability with those that are bought for consumptive use. We emphasize

Identification strategy

Manuscript evaluation

L ... low prominence
A ... anonymized
H ... high prominence



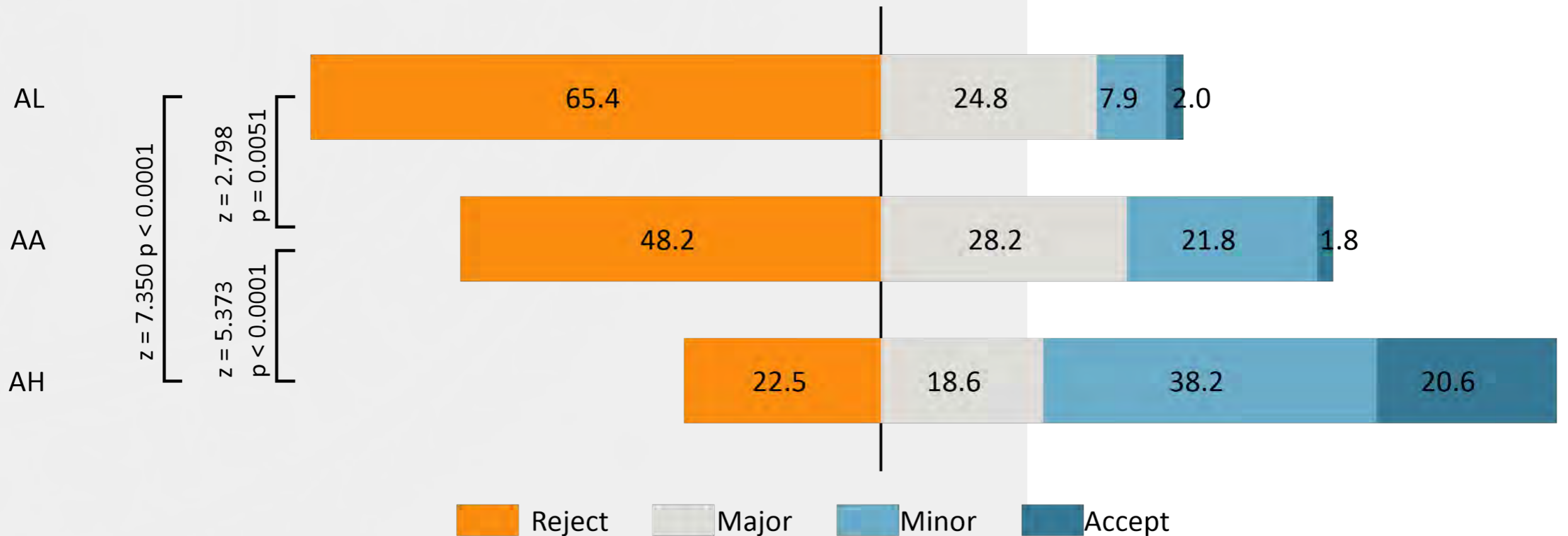
Important design elements

- Authors from the same institution
 - Single journal, single manuscript
 - No draft or working paper version circulated
 - Paid reviewers
 - Standard review process (except for disclaimer/consent)
- Large sample size: 534 reports with ~220,000 words

Results

Manuscript Assessment

Manuscript assessment



Recommendation percentages by condition. Tests are pairwise, two-sided Mann-Whitney U tests.

Interim conclusions

- Clear evidence of positive and negative status bias in manuscript evaluation
- Reviewers' reputation concerns unlikely to be drivers (single-anonymized process)

Robustness checks 1/2

- Bonferroni-Holm correction for analyses that were not preregistered
- No treatment differences in (1) time to accept review invitation, (2) time to provide consent, (3) time until report submitted. No effect of removing the top and bottom 5% of reports in terms of review time.
- More experienced reviewers (Google Scholar citations, h-index, i10 index, academic age) less likely to accept invitation to review; relatively more likely to accept invitation in case of HH (interaction effect experience \times HH)

Robustness checks 2/2

- Compare answers of reviewers on six questions about the paper → similar results as when comparing their recommendations
 - Subject worthy of investigation? Journal Fit?
 - Information new? Organization appropriate?
 - Conclusions supported by data? Figures, tables, supplementary data appropriate?
- Instead of comparing AL vs. AA vs. AH, why not compare (LL + AL) vs. AA vs. (AH + HH)?
 - Possible selection effect on outcomes of LL and HH
 - No difference in reviewer assessments between HH and AH
 - Reviewers' assessments "milder" in LL than in AL. Nevertheless, assessment in AA still more favorable (although not significantly so) → double anonymization still seems preferable to single anonymization

Limitations

- Informed consent may have affected results
 - Selection effect
 - Altered behavior during review
- Observe only reviewer assessments, not editor decisions
- Ethnicity:



Sabiou Inoua



Vernon L. Smith

Photo sources: Sabiou Inoua: <https://www.chapman.edu/research/institutes-and-centers/economic-science-institute/about-us/faculty-and-staff.aspx>, accessed: 20.05.2022, Vernon Smith: Dstringer71, 29.01.2011, Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Vernon_L._Smith_2011.jpg, Creative Commons Attribution-ShareAlike 3.0 Unported, accessed: 20.05.2022.

Summary

- Most direct study of status bias in peer review to date (sample, control)
- Clear evidence of status bias in peer review
- Follow-up paper to study contents of the review reports

The tongue-in-cheek conclusion

To paraphrase Churchill:

“...it has been said that *peer-review* is the worst form of *validation of scientific contribution* except for all those other forms that have been tried from time to time.”*

* Churchill, W., House of Commons, 11 November 1947: “...it has been said that democracy is the worst form of Government except for all those other forms that have been tried from time to time.”



Photo source: Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Churchill_portrait_NYP_45063.jpg, public domain, accessed: 03.08.2022.

Double anonymization

- May help low-prestige authors, hurts high-prestige authors (Smirnova, Romero and Teplitskiy, 2022, Sun, Barry Danfa and Teplitskiy, 2022, Fox, Meyer and Aimé, 2023)
- Hard to police
- Voluntary anonymization risks creating separating equilibrium (Fox, Meyer and Aimé, 2023)
- More transparency may allow more research into peer review process (Horbach, Ross-Hellauer and Waltman, 2022)
- Many more proposals for improving the peer review process:
https://severinetoussaert.com/wp-content/uploads/2023/07/Peer_Review_Article.pdf

Acknowledgments

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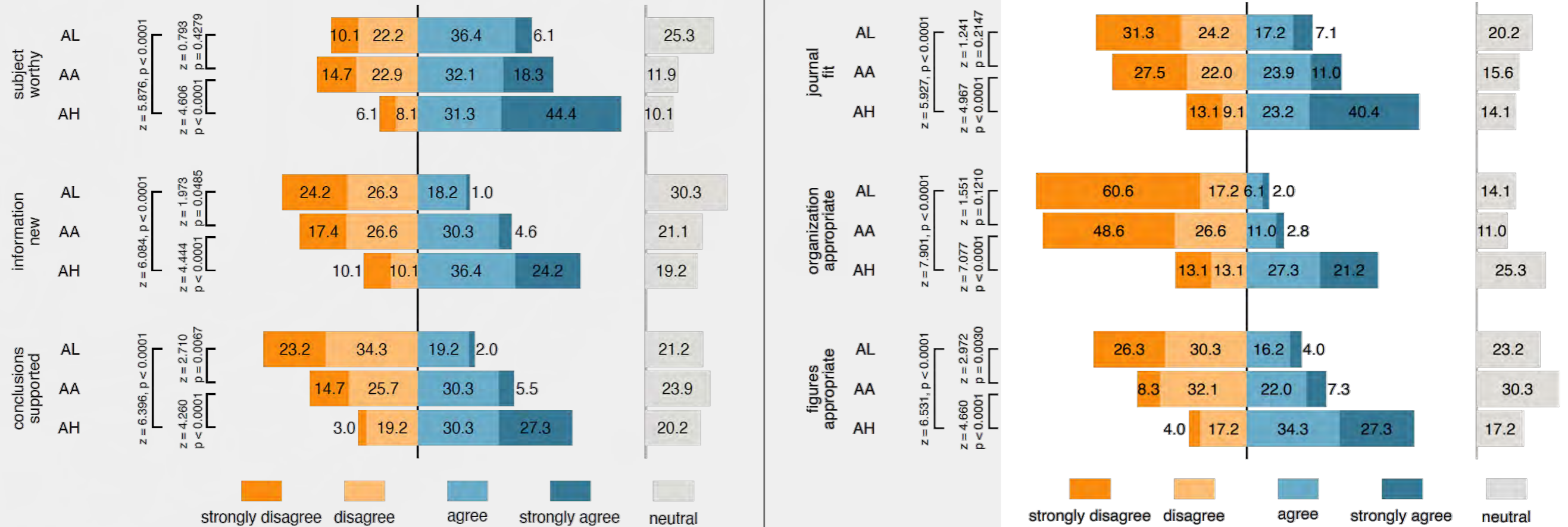
This project was funded by the Austrian Science Fund – FWF, SFB F63.

This project was logistically and intellectually supported by Elsevier.

Link to the paper: <https://doi.org/10.1073/pnas.2205779119>



Reviewer questionnaire



Responses to reviewer questionnaire items. We plot the percentage of neutral responses on the right-hand border of the figure. For each item, we conduct pairwise, two-sided Mann-Whitney U tests across conditions.

Manuscript

- Original work, written by Sabiou and Vernon
- Topic: Asset markets for re-tradable assets
- Substantial, 54 pages: Literature review, some theory, simulations, empirical analyses of stock market and experimental data
- A little unorthodox in nature and structure → unlikely to get ceiling or floor effects in evaluations, suitable for a diverse set of reviewers
- Link to published version: <https://doi.org/10.1016/j.jbef.2022.100780>

Data Handling: Privacy and Data Protection

- Only one member of the study team handled all email requests
- A different member handled all payments
- A student assistant anonymized all referee reports
- Reviewer characteristics (citation numbers, etc.) replaced by “class” information, ensuring at least 20 individuals fell into each category
- All names, email addresses, affiliations were deleted after data collection was complete
- Analysis conducted on fully anonymized dataset and fully anonymized reports

Journals reviewers were sourced from

Name	Rank in category	Impact factor (2019)
Journal of Finance	2	6.813
Journal of Financial Economics	3	5.731
Review of Financial Studies	4	4.649
Finance Research Letters	9	3.527
Review of Finance	16	2.885
Journal of Financial and Quantitative Analysis	18	2.707
International Review of Financial Analysis	23	2.497
Pacific-Basin Finance Journal	25	2.382
Journal of Banking and Finance	30	2.269
Mathematical Finance	31	2.250
Borsa Istanbul Review	33	2.130
Finance and Stochastics	38	2.048
Journal of International Money and Finance	40	2.014
Abacus	41	1.975
International Review of Economics & Finance	48	1.818
Research in International Business and Finance	49	1.801
Journal of Risk and Uncertainty	51	1.756
Journal of Financial Markets	55	1.677
Journal of Empirical Finance	61	1.566
North American Journal of Economics and Finance	62	1.535
Quantitative Finance	64	1.491
Journal of Financial Research	74	1.263
European Journal of Finance	76	1.217
International Review of Finance	78	1.177
International Journal of Finance & Economics	87	0.943
Journal of Behavioral Finance	88	0.930
International Finance	91	0.848
Mathematics and Financial Economics	92	0.792
Journal of Behavioral and Experimental Finance ^a	n/a	n/a

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