

# Making sense of uncertainty in macroeconomic model

Citation for published version (APA):

Poonpakdee, P. (2024). *Making sense of uncertainty in macroeconomic model*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20240325pp>

## Document status and date:

Published: 01/01/2024

## DOI:

[10.26481/dis.20240325pp](https://doi.org/10.26481/dis.20240325pp)

## Document Version:

Publisher's PDF, also known as Version of record

## Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

## General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

[www.umlib.nl/taverne-license](http://www.umlib.nl/taverne-license)

## Take down policy

If you believe that this document breaches copyright please contact us at:

[repository@maastrichtuniversity.nl](mailto:repository@maastrichtuniversity.nl)

providing details and we will investigate your claim.

## Making Sense of Uncertainty in Macroeconomic Models

Poramapa Poonpakdee

1. Data is the new driving force in economics. From macroeconomic variables to individual transactions, using data is essential for the field to flourish in the digital era.
2. Conventional macroeconomic models fall flat since their assumptions often conflict with data. Survey data show that as macroeconomic uncertainty rises, people become more pessimistic, but their subjective uncertainty can either increase or decrease. Models must account for this complex and non-linear relation. (Chapter 2).
3. Uncertainty is not just limited to risks with known probabilities, but also includes ambiguity, adding a new layer of complexity. The smooth ambiguity model, which incorporates ambiguity in its framework, is able to capture the non-linear relation between individuals' subjective uncertainty and macroeconomic uncertainty (Chapter 3).
4. Including ambiguity in macroeconomic models improves output growth predictions, especially during economic downturns. In fact, the smooth ambiguity model outperforms the benchmark model without ambiguity in both in-sample and out-of-sample testing (Chapter 4).
5. The Global Financial Crisis (GFC) was not only a catastrophic economic event, but it also triggered a significant rise in ambiguity aversion with long-lasting consequences. On the other hand, the impact of the dot-com crisis on ambiguity aversion was minor compared to that of the GFC. This critical difference sheds light on the prolonged recovery from the GFC (Chapter 4).
6. Uncertainty plays a crucial role in shaping individual expectations and understanding its impact leads to better economic predictions and better policy decisions.
7. Intraday stock growth can be used to distinguish between a firm's level of risk (variance of outcomes) and ambiguity (variance of outcome probabilities). Risk results in increased spending on the firm's R&D, while ambiguity decreases it. (Coiculescu, Izhakian, & Ravid, 2023).
8. Survey data shows that hybrid work boosts productivity, but fully remote work has mixed results. Requiring a full office return decreases employee satisfaction and does not improve performance (Bloom; 2023).
9. A textual analysis of published papers in economic-related journals indicates that female authors tend to use more uncertain language in their works compared to male authors. However, this difference is not as pronounced in their initial drafts as it is in their final published versions (Costello, Fedrova, Jin & Mihalcea, 2023).
10. "Uncertainty is an uncomfortable position. But certainty is an absurd one." (Voltaire; 1767)