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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "On the role of building value models for flood risk analysis" *by* Veronika Röthlisberger et al.

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Authors' responses to reviewer #1

V. Röthlisberger et al. veronika.roethlisberger@giub.unibe.ch We would like to thank reviewer 1 for the constructive feedback to our manuscript. We much appreciate all comments and suggestions and will adopt most of them without reservation. Please find below all reviewer's comments and the authors' replies. RC1_1: In the introduction, a more general discussion about valuation methods and their application fields is missing. Commonly, approaches based on replacement values are distinguished from

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approaches that rely on depreciated values. Insurance values or market values can be used to approximate one or the other. A distinction of these approaches and their application fields (e.g. insurance claims, cost-benefit-analysis) should be added. This issue should also be reflected later in the discussion. In the current paper, this issue is only very briefly mentioned in section 2.4.1, which is late and not sufficient in depth.

ARto_ RC1_1: Based on your comment, we will explicitly mention our valuation method (replacement values) in the introduction and briefly reflect the transferability of our results to other valuation methods (depreciated values) in the discussion.

RC1_2: The five models are well explained, but the rationales/justifications behind these models remain unclear. Please add some more background and assumptions about all models. Tab. 1 provides a comprehensive overview, but needs in my view more explanation in the main text. The same holds for Fig. 1.

ARto_ RC1_2: We will strengthen the rationales of all models in section 2.1 (Models' set-up for value estimation) and add more references to Tab. 1. More explanation on Fig. 1 will be given in section 2.4 (Data).

RC1_3: The authors find big differences between the Swiss unit costs and other published unit costs and explain this by differences in building standards and higher construction costs in Switzerland. It would be helpful to add some additional (real) data or statistics that underpin this explanation.

ARto_ RC1_3: We will add information and the following reference: Diaz Muriel, C.: Wide spread in construction prices across Europe in 2007, Eurostat, statistics in focus, 114/2008, 2008.

RC1_4: An overview table with advantages and disadvantages of all five models and their suitable applications would be helpful to summarize the findings (as a kind of counterpart to Table 1).

ARto_ RC1_4: We will take up this idea and we will add a table in section 3.4 (overall

discussion of the five models) that summarizes the core features (advantages / disadvantages) and suitable application of the five models.

RC1_5: The conclusion should end with an outlook on future research perspectives. (The implications of the results are addressed sufficiently.)

ARto_ RC1_5: We will provide an outlook on further research perspective at the very end of section 4 (conclusion).

Minor comments

RC1_Min1: In the introduction, a few important papers in this field are missing from my point of view, e.g.: - Barredo, J. I. (2009): Normalised flood losses in Europe: 1970–2006. - Nat. Hazards Earth Syst. Sci. 9: 97-104. - Jongman, B., Koks, E. E., Husby, T. G., and Ward, P. J. (2014): Increasing flood exposure in the Netherlands: implications for risk financing. - Nat. Hazards Earth Syst. Sci. 14: 1245-1255. - Kleist, L., A.H. Thieken, P. Köhler, M. Müller, I. Seifert, D. Borst, U. Werner (2006): Estimation of the regional stock of residential buildings as a basis for comparative risk assessment for Germany. – Nat. Hazards Earth Syst. Sci. 6: 541-552. - Seifert, I., A.H. Thieken, M. Merz, D. Borst, U. Werner (2010): Estimation of industrial and commercial assets values for hazard risk assessment. – Natural Hazards 52: 453- 479.

ARto_ RC1_Min1: We will check and possible add Barredo (2009), Kleist et al. (2006) and Seifert et al.; Jongman et al. (2014) are already addressed in the introduction.

RC1_Min2: Instead of "annual expected loss" either "expected annual damage" (EAD) or "average annual loss" (AAL) should be used.

ARto_ RC1_Min2: We will use the term “expected annual damage”.

RC1_Min3: All abbreviations should be explained in the text once (e.g. AIC).

ARto_ RC1_Min3: We will check this point in the entire manuscript.

RC1_Min4: The hazard levels (high, medium, low) should be explained for readers

who are not familiar with the Swiss hazard zones.

ARto_ RC2_Min4: We will explain that briefly.

RC1_Min5: The correctness of the terms "global sums" or "global values" in section 3.4 should be checked. These sound a bit weird in this context.

ARto_ RC1_Min5: We will revise the manuscript accordingly.

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