

Mainstreaming of climate risks and opportunities in the financial sector

Financial Analysis and Investment Decision Tool

INTEGRATED BAYESIAN CLIMATE RISKS AND OPPORTUNITIES ASSESSMENT

Comment on the Working Paper
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>> Financial Analysis and Investment Decision Tool << Integrated Bayesian Climate Risks and Opportunities Assessment

The objective of our mainstreaming project is to support financial service providers in coping with the risks and opportunities of climate change concerning financial analysis and investment decisions.

The focus will be on investment decisions which have to be made despite the uncertainties due to direct and indirect risks and opportunities of climate change. The innovation of our approach can be seen in the adjustment of Bayesian risk management tools to the quantification and monetary assessment of climate aspects. These can then, together with financial service providers be integrated into existing methods.

Consultations with our partners from the financial sector led to the conviction that the first focus of an analysis should be on regulative risks. Furthermore, it was agreed on developing and illustrating a prototypical approach aiming at stock analysis and big European electricity grid companies. Thus we do not propose an independent tool, but rather an integration of the Bayesian climate risks and opportunities assessment into industry- and corporate valuations as used by financial service providers. Consequently we developed a method which allows the use of Bayesian risk management under regulative risks. These risks are especially challenging because they are not, in contrast to physical risks, related to directly measurable realisations of stochastic processes. We meet this challenge by including an expert-based quantification of the risk of selected value drivers that is based on qualified regulation scenarios.

The procedure is divided into six modules.

Module I

First of all a choice has to be made in agreement with the financial service providers about which companies and valuations should be taken into consideration. Therefore the support of the practice partners is crucial for coming to an understanding about how to display the value drivers and to derive the company value in the selected corporate valuations.

Module II

Following the reflections in module I, the focus of module II is on the identification of those value drivers which reflect climate risks and opportunities and which are supposed to have main influence on the result of the corporate valuation, for example future CO₂-prices, emission caps or kerosene taxes. In order to quantify these reflected risks, we have to create regulation scenarios based on expert consultations followed by a derivation of Bayesian risk measures. According to Bayesian risk management these risk measures reflect the uncertainty of a decision maker regarding future developments. Underlying probabilities are not limited to previously observed frequencies. That makes the findings especially valuable in situations in which a decision maker is not sure whether it is possible to draw conclusions from past events about future ones.

Module III

In the third module the determined Bayesian risk measures are integrated in the corporate valuations and the selected value drivers are quantified by probabilities. The results of the corporate valuation will be a probability distribution of the company value.

In contrast to traditional approaches this method provides not only one expectation value and furthermore presents a transparent risk structure from which the decision maker can draw conclusions. One can use its complexity as basis for decisions, for example, by using the risks as input for a value-at-risk-approach or in case of a traditional approach, one can aggregate the risks to expectation value and variance of the company value.

Module IV

Module IV is intended for evaluating the approach and the results and to improve the method together with financial service providers. This is supposed to contribute to an easy integration into the methods of previous financial analysis.

Module V

The fifth module includes a regular updating of the scenarios and the derived Bayesian risk measures. The updating can be done either according to fixed time frames or to need, for example regarding the political agenda. The revised Bayesian risk measures for value drivers can then be included in the valuation model and deliver updated risk measures for the company value.

Module VI

Module VI finally covers the joint evaluation of our approach and the decision about which further companies, industries, risks and investment form should be analysed according to Bayesian climate risk and opportunities assessment in a succeeding sequence.



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