

Mainstreaming of Climate Risks and Opportunities in the Financial Sector

Financial Analysis and Investment Decision Tool

INTEGRATED BAYESIAN CLIMATE RISKS AND OPPORTUNITIES ASSESSMENT

Working Paper
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Integrated Bayesian Climate Risks and Opportunities Assessment

1. Objectives

- adequate consideration of climate aspects in financial analysis and investment decisions under uncertainty
- integration of Bayesian risk measures in valuation of industries and companies including value drivers and cash flows

2. Benefits / Practice-Oriented Output

- adequate consideration of opportunities and risks of climate change; in the short, medium and long term
- assessment of scenarios for selected value drivers
- quantification of selected value drivers and cash flows by using probability distributions of first and second order
- valuable tool for financial analysis, investment decisions, rating, risk and opportunity management, portfolio improvement and brokerage research

3. Financial services, industries and possible risks considered

	prototype	transfer possible to
business unit	stock analysis	<ul style="list-style-type: none"> • portfolio management • lending • fixed income securities • structured/project finance • alternative investments
industry	electric utilities	<ul style="list-style-type: none"> • airlines • car manufacturers • transport, logistics and other services • others
risks	regulative risks	<ul style="list-style-type: none"> • physical risks • reputational and litigation risks • others

4. Integrated Bayesian Climate Risks and Opportunities Assessment - the method

	module	process	result
I	selection of companies and discussion of existing company valuation	<ul style="list-style-type: none"> analysis of e.g. 2 German and 2 European companies (DAX/EuroStoxx) of the same industry ensuring the connectivity of Bayesian risk measures to approaches used by financial service providers 	<ul style="list-style-type: none"> selection of suitable industry and company valuations to be used in module II
II	generation of scenarios and Bayesian risk quantification	<ul style="list-style-type: none"> expert-based modelling of selected regulative scenarios (post 2012 ETS, automobiles, aviation etc.) aggregation by Bayesian risk quantification identification of useful modifications and revision of selected valuation studies (see above) 	<ul style="list-style-type: none"> probability distributions of 1st and 2nd order for selected variables (CO₂ price, emission restrictions, kerosene tax etc.)
III	integration of Bayesian risk measures	<ul style="list-style-type: none"> integration of Bayesian risk measures in selected industry and company valuations calculation of future value drivers and cash flows 	<ul style="list-style-type: none"> risk measures for the development of industry and company values
IV	optimisation and adjustment	<ul style="list-style-type: none"> feedback by investment professionals: enhancement of method and analysis 	<ul style="list-style-type: none"> optimised risk measures for the development of industry and company values
V	updating	<ul style="list-style-type: none"> regular updates of the scenarios and Bayesian risk measures (in fixed intervals or based on the political agenda) 	<ul style="list-style-type: none"> updated risk measures for the development of industry and company values
VI	transfer/expansion of the method	<ul style="list-style-type: none"> evaluation of the method transfer and application to other companies/industries/risks/investment forms 	<ul style="list-style-type: none"> risk measures for other companies/ industries/risks/investment forms



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