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The risk management perspective in climate change

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Economic models for costing climate change and determining the "social cost of carbon" are based on expected values; without proper uncertainty quantification. By comparison, Banks, insurance companies and other risk takers are, or are supposed to, operate on a different paradigm, namely capital sequestration based on value at risk. Such companies typically hold cash reserves to guarantee solvency in a 1-in-500 year loss event. The upper 5% value of climate sensitivity (the degree Celsius rise in global surface temperatures resulting from doubling atmospheric CO2) of the 22 peer reviewed studies cited in IPCC-AR4 (2007) is 7 degrees C, and some authors extract a 1% chance for values greater than 10 degrees C. At such levels, there are no arguments that society as we know it could persist. Adopting a risk management perspective would mean, (i) defensibly quantifying the uncertainty regarding future global temperatures out to a policy horizon at least equal to that currently employed by responsible risk takers (500 yrs), (ii) determining the costs of rapidly reversing the effects of CO_2 emissions, should the actual global temperature values fall in the upper tail of its distribution, (iii) formulating a plan to insure the availability of such reserves in the event they are needed. The costs of such capital requirements should - but currently are not - reflected in discussions of the social cost of carbon.