

Climate Related Financial Risk on Automobile Industry and the Impact to the Financial Institutions

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Abstract : As per the recent changes happening in the global policies, climate-related changes and the impact it causes across every sector are viewed as green swan events - in essence, climate-related changes can often happen and lead to risk and a lot of uncertainty, but needs to be mitigated instead of considering them as black swan events. This brings about a question on how this risk can be computed so that the financial institutions can plan to mitigate it. Climate-related changes impact all risk types - credit risk, market risk, operational risk, liquidity risk, reputational risk and other risk types. And the models required to compute this has to consider the different industrial needs of the counterparty, as well as the factors that are contributing to this - be it in the form of different risk drivers, or the different transmission channels or the different approaches and the granular form of data availability. This brings out the suggestion that the climate-related changes, though it affects Pillar I risks, will be a Pillar II risk. This has to be modeled specifically based on the financial institution's actual exposure to different industries instead of generalizing the risk charge. And this will have to be considered as the additional capital to be met by the financial institution in addition to their Pillar I risks, as well as the existing Pillar II risks. In this paper, the author presents a risk assessment framework to model and assess climate change risks - for both credit and market risks. This framework helps in assessing the different scenarios and how the different transition risks affect the risk associated with the different parties. This research paper delves into the topic of the increase in the concentration of greenhouse gases that in turn cause global warming. It then considers the various scenarios of having the different risk drivers impacting the Credit and market risk of an institution by understanding the transmission channels and also considering the transition risk. The paper then focuses on the industry that's fast seeing a disruption: the automobile industry. The paper uses the framework to show how the climate changes and the change to the relevant policies have impacted the entire financial institution. Appropriate statistical models for forecasting, anomaly detection and scenario modeling are built to demonstrate how the framework can be used by the relevant agencies to understand their financial risks. The paper also focuses on the climate risk calculation for the Pillar II Capital calculations and how it will make sense for the bank to maintain this in addition to their regular Pillar I and Pillar II capital.

Keywords : capital calculation, climate risk, credit risk, pillar ii risk, scenario modeling

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