Lessons on Catastrophe: Modelling a Relationship between Credit Ratings and Cyber Insurance Risk

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1 Executive Summary

When addressing risk in Information Security one option is to transfer it, an example of which is the growing industry of Cyber Insurance. This risk transfer not only offers a valuable service to organisations with exposure to Information Security risks, but also can function as a bridge to capital markets.

This project will introduce cyber insurance as well as Credit Ratings, an existing bridge between an organisation and investors in the capital markets. It will then look at recent Cyber Insurance literature in more depth, particularly in relation to modelling approaches used, before introducing a cyber insurance model for further analysis.

The model will use a graph to represent individual systems on a network, which in turn incur costs due to incidents that compromise their Information Security. Compromise of these nodes may arise through different mechanisms and result in impacts based on available empirical statistics, leading to losses which may be covered through insurance.

The risk these profiles then transfer onto the Insurer will then be considered, including the application of Catastrophe Bonds, or Cat Bonds, for managing tail-risk, as well as how Credit Ratings may help in this regard going forward.