Risk Scoring for Cat Risk

(a guide to two types of scoring)

Written by Ivan Maddox

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Introduction

Assessing cat risk for underwriting is complex. For all of the cat perils there are models to estimate the likelihood of something happening at a specific property, and the severity of that something. These models and datasets are imperfect, so underwriting results can be improved by using multiple models and datasets on each risk assessment.

With all these different pieces included, assessing cat risk can become confusing and messy. How can underwriters use the needed collection of models and datasets while keeping business rules, acceptance/rejection decisions, and risk segmentation simple?

Risk Scoring is a way to combine multiple datasets with business logic into a simple result that is easy to interpret and act upon. **This guide will introduce two typical and useful types of scores that are used for underwriting: rating and action.**

Type 1 – Rating Scores

Output: Typically 1 – 100, but can use any alpha-numerical scale.
Key characteristic: Every risk gets a score on the scale.

Main uses:

1 **Risk Segmentation:** By assigning a scaled value to each risk, it is easy to compare relative risks (i.e. this one is higher risk than that one). Risks then can be bundled into brackets, or segments, of similar risk. This helps underwriters quickly understand how the risk matches up to all the other risks they have worked with, and how it will fit into a portfolio. Relative risk using a robust rating score, with multiple models and datasets, is very dependable because it is internally calibrated.

2 **Risk Estimation:** A rating score can produce results that are a measure of risk (frequency, intensity, or both). To do this requires calibration, which uses independent data (such as loss history, historical events, or established portfolios) to tune the rating scores to levels of established risk. This is a very subjective type of scoring, and the accuracy of the risk / score calibration depends on the type and amount of data used to calibrate, and an appetite bias (conservative – aggressive).

3 **Standardization:** Insurance ecosystems (Lloyd's® syndicates and their coverholders, a broker with the carriers they work with) can improve efficiency by using a standard score to communicate risks. Instead of big reports or columns of data for each risk, a score that is universally understood can convey all the necessary risk information into a single number for the day-to-day transmission of risk information.

4 **Accumulation:** Portfolio management is enhanced by rating scores because it improves the quality of data being evaluated on a volume basis. Most accumulation work is done with a single model, letting the Law of Big Numbers smooth out the imperfections. Scores bring more and diverse data to the calculations.

Type 2 - Action Scores

Output: An action, such as accept, reject, review further, send to someone, notify someone, etc.
Key characteristic: Risks are tagged for an action based on a combination of models/data and business rules/logic.

Main uses:

1 **Acceptance/Rejection:** By using business rules or guidelines, an acceptance score replicates the thought process an underwriter would work through on each risk. This is particularly useful on high-volume risks (residential) where maximum automation is needed and where the rating is uniform. MGAs use acceptance scores to efficiently approve risks that meet the guidelines established by their carrier/syndicate.

2 **Someone Do Something:** If a risk fits a certain level of risk, and matches other criteria, it can be tagged for an action by someone in the workflow. A typical example is “Further Review”, for risks that are in a grey area of the scoring, or that don’t quite match the needed business criteria. By limiting human interaction to very specific types of risk, efficiency is improved.

Conclusion

Robust risk scores improve efficiency within an organization through automation while improving underwriting results by leveraging diverse models and datasets.

High quality and efficient cat risk underwriting is a direct path to profitability in a market where underwriting profit is both more important and more difficult to achieve.

With risk scoring, more opportunity can be reached, including markets where the competition is either over-rating or under-rating risk, or where there is no competition.

About The Author

Ivan Maddox is the InsitePro™ Product Manager at Intermap Technologies® and has over 20 years of experience in the Product Management and Operations fields, specializing in the delivery of SaaS solutions and platforms.

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