



Model Risk Management: First Line of Defense

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First Line of Defense

- Business units and support functions
- Responsibilities include
 - Identifying
 - Controlling
 - Assessing
 - Monitoring model risks



Examples of Model

- Auto pricing model with no underwriter's judgment
- WC risk score model to determine eligibility and tiering
- Nat Cat model, e.g. RMS, to estimate AAL, PML, and aggregation of risks
- Reinsurance scenario model to determine a reinsurance solution to protect the overall capital
- High layer excess liability pricing model with lots of underwriter's judgment
- Actuarial rate level indication model
- Reserve review model
- Various adhoc models used for business decisions



Identifying and Controlling Model Risks

Development Phase:

- Data and methodologies used in the model: Back testing, sensitivity testing, stress testing, train vs. validation data sets, etc.
- Tech check / Peer review / manager's review
- Clear understanding of use cases
- Clear labels for input fields
- Flow of input / output screens
- Inclusion of diagnostics
- Standardization
- Robust documentation
- Robust UAT



Identifying and Controlling Model Risks

Implementation Phase:

- Proper use and interpretation of results: User training and education
- Intended users vs. not: Protection and authorization of a model
- Understanding of # of users and the levels of users
- Inclusion of diagnostics



Identifying and Controlling Model Risks

Post Implementation Phase:

- Monitoring and feedback loop
- Parameter update plan and governance
- Recalibration and recast plan



Assessing Model Risks and Prioritizing Validation

Assessment criteria examples:

- Business impact (premium size, # of customers, potential loss ...)
- Fit for purpose?
- Easily fixable?

Validation

- Challenges with resources (both amount and skills)
- Fast track validation based on agreed practices and metrics?
- Waiver and risk acceptance process
- Partnership with second line of defense?



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