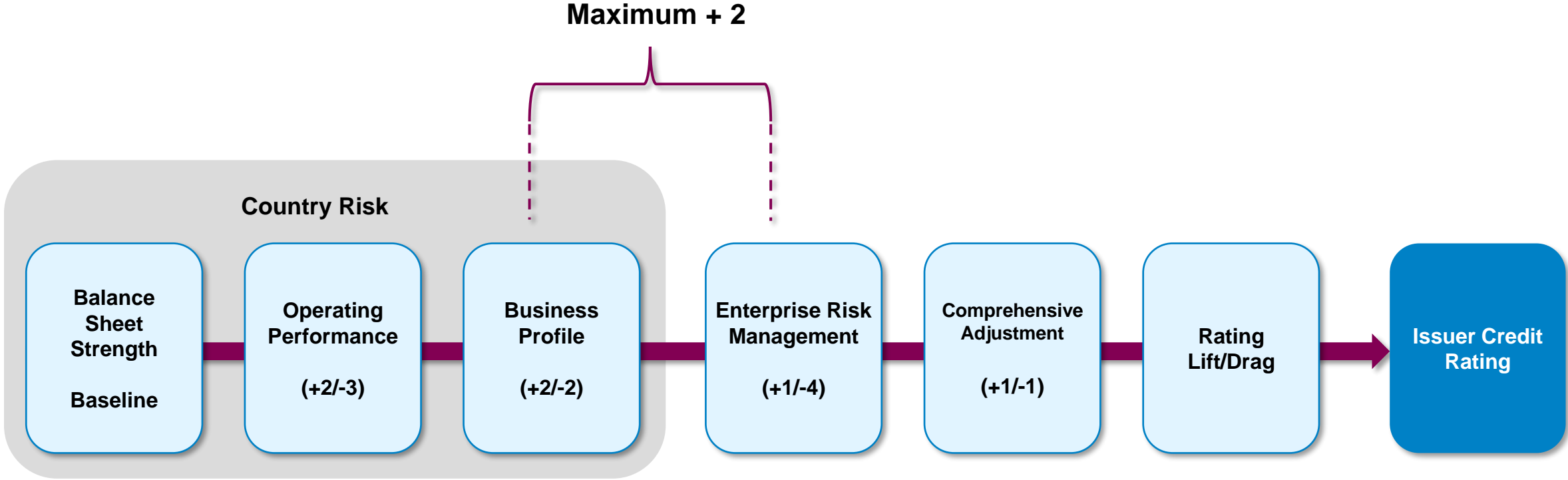


Incorporating Catastrophe Models into the Rating Analysis

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BCRM Building Block Approach



Why Is It Necessary?

AM Best views catastrophic loss as a severe threat to balance sheet strength

No single exposure can affect PHS or debt holder security more quickly than catastrophes

PML data received via AM Best's SRQ allows for the evaluation of an insurer's ability to effectively manage catastrophe risk

Catastrophe Modeling Impact on Building Blocks

- Balance Sheet Strength
 - BCAR calculates capital requirement for catastrophe risks
 - Measures impact through various return periods
 - Measures balance sheet strength against multiple events
 - Higher retentions and reinstatement premiums are impacting BCAR scores
- Operating Performance
 - Indication of impact on U/W and prospective operating performance
 - What-if scenario testing using hypothetical severe events
 - Overlaying historical storms on current portfolios
 - Higher retentions and reinstatement costs impacting operating results

Catastrophe Modeling Impact on Building Blocks

- Business Profile
 - Reveals concentration areas
 - Data quality – mapped locations, property attributes & values
 - Correlation of risks
- ERM
 - A component of ERM framework includes stress testing
 - Effective ERM includes accurate and comprehensive data but also understanding and accounting limitations of modeling tools

Models Used in the Rating Process

We do not advocate using any specific model. Models most frequently utilized include:

We Are Not Model Auditors, We ...

Develop understanding of inputs at a high level

Stress test model results to establish sensitivity

Track record matters (back-testing)

Professional skepticism: Why we are skeptical?

Skepticism Comes from ...

- In some instances, model results not consistent with actual results
- Opportunity costs (exogenous)
- Collateral (margin) requirements
- Cost of capital increasing

Importance of the SRQ Data

- Utilization of parameters/options are critical to successful catastrophe risk management
- Depth of the responses is an indication of management's overall feel for their risk management
- Fosters discussion during management meeting

Parameters

- Which model/models are being utilized
- AM Best uses the All Perils combined PMLs in the BCAR model
- Individual peril PMLs are reviewed to understand exposure and magnitude of losses that are contributing to All Perils
- Request to include material sources of all cat risk. For example:

**Exposed lines
of business**

LAE

**Assumed
reinsurance**

**Worldwide
exposures**

**Exposure to
pools or
assessments**

Parameters (Cont'd.)

Are you checking all the boxes?

- Fire following
- Storm surge
- Demand surge: particularly important considering supply chain issues and inflation
- LAE Included
- Secondary uncertainty
- Near-term Warm Sea Surface Temperature catalog
- Any change in vendor If so, why?

Data Quality

- Exposure Location: coded to what level of detail?
 - Exact street address
 - Zip code
 - City
 - County
- Characteristics:
 - Occupancy type: owner on property or rental
 - Year built: Updated building codes
 - Construction type

Model Output

- Estimated losses from catastrophe risk exposure:
 - Model output requested at 7 different confidence levels from the 1/20 to the 1/1000-year event. BCAR scores analyzed through the 1/500-year event (99.8 VaR)
 - Includes single and aggregate occurrence events on a gross and pre-tax net amount
 - Any deterministic modeling performed? Or overlay of actual events over a company's book of business?

Model Output

Description of events that produced modeled results:

Non-Traditional Protections: Cat Bonds & ILWs

- PML analysis conducted “net” of traditional reinsurance
- Non-traditional reinsurance: most contracts have basis risk
- We want to understand and evaluate any indemnity triggers
 - Parametric index such as wind speed, Richter scale
- Need to understand:
 - Perils and regions covered
 - Triggers
 - Attachment points, limits
 - Coverage period
- We request modeled credit to the PMLs
- Determine how much credit allowed for non-traditional reinsurance

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