Operational risk measurement: At the crossroads

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The seeds of the AMA’s destruction were present at the start

A brief history of the AMA

1. 99.9th percentile set as standard
2. Differences in implementation
3. Banks grapple with stability issues
4. Use test de-emphasized
5. Financial crisis “broke” LDA models
6. Complexity and lack of comparability

Standardized Approach

Moral of the story:
OpRisk measurement needs:
- An attainable measurement standard
- A practical connection to management
Will stress testing ultimately meet the same fate? Let’s make sure we don’t repeat the same mistakes

The promise of stress testing …

- Different view of op risk measurement
- Based on a more forward-looking view
- Greater ability to respond to management
- Scenarios assessments more concrete

... and its challenges

- Not all banks see correlation w/ economy
- Thin data: only one financial crisis to date
- Hard to assess likelihood of scenarios
How do operational risk stress tests typically work?

"Systemic"

- Historical Losses
- Historical Macro Factors

Regression Model

Scenario Macro Projections

Stress Loss Predictions

"Idiosyncratic"

Idiosyncratic Losses

Baseline Macro Projections

Baseline Loss Predictions
Systemic and idiosyncratic losses are typically evaluated in fundamentally different ways

<table>
<thead>
<tr>
<th>Systemic Losses</th>
<th>Idiosyncratic Losses</th>
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<tbody>
<tr>
<td>Fractional frequency predictions</td>
<td>Discrete 0 / 1 frequencies</td>
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<tr>
<td>Number and size of events determined by quantitative model</td>
<td>Number and size of events determined by standard of “adequate” stress</td>
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<tr>
<td>Can cover the full OpRisk taxonomy</td>
<td>Only cover selected event types</td>
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<tr>
<td>Used for “everyday” losses</td>
<td>Only for large, material losses</td>
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Are these elements compatible?
Today, idiosyncratic losses play the role of a capital measure, without a model or a measurement standard

- Idiosyncratic losses reduce comparability
- Idiosyncratic losses are not risk sensitive
- Idiosyncratic losses are not responsive to management
How can we reconcile systemic and idiosyncratic elements?

**Annual Loss Distribution:** Baseline

- Baseline: Expected Loss
- Baseline: Higher Quantile

**Baseline: Expected Loss**

**Baseline: Higher Quantile**

**Annual Loss Distribution:** Stress

- Systemic Stress Loss: Expected Loss
- Systemic + Idiosyncratic Stress Loss

**Total Stress Impact**

**Idiosyncratic Material Losses**
As we move from a Pillar 1 to a Pillar 2 world, we need to better connect models with managers

Both capital and stress test models are indispensable

- High quantiles under baseline conditions
- Conditional expected impacts under “what-if” scenarios

Models must provide useful information for managers

- Identify & prioritize top operational risks
- Develop exposure-based models for top operational risks
- Derive insight into key risk drivers
- Risk mitigants such as insurance should be included
Banks cannot build models on the basis of internal data alone. More industry-wide research is needed

Better understand links with systemic factors

Need to react more quickly to emerging risks

Pool insight into risk drivers as exposure models are developed

Fundamental research into capital models still needed
Let’s get rid of the bathwater, but keep the baby

Quantitative models are still fundamental to operational risk management

Qualitative inputs are needed to be forward-looking and connect with management

OpRisk models could not survive with unattainable measurement standards. They also cannot survive without standards.
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