

A Case Study of Operational Risk Measurement based on Loss Distribution Approach

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NAKAGAWA Hidetoshi
(nakagawa@mttec-institute.co.jp)

MTB Investment Technology Institute Co., Ltd.

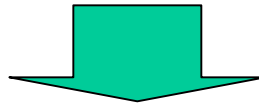
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What is OpRisk?

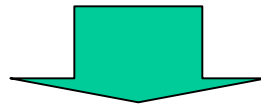
- ◆ Risk of loss resulting from inadequate or failed internal process, people and systems or from external events”(Basel, Sep. 2001)
- ◆ Hard to ...
 - Specify the Type
 - Estimate the Loss Amount
 - Control & Quantify Oprisk!

What is LDA?

Internal / External Data
on Operational Loss



Frequency Distribution
Severity Distribution



VaR for Aggregated Loss Distribution

Basic Model

Frequency \longrightarrow Poisson

Severity $\cdots \longrightarrow$ LogNormal, Weibull
Gamma, GPD

×

TRIAL!

Estimation $\cdots \longrightarrow$ LSM, MLM, MOM
(GPD for MOPWM)

Hybrid Model

- ◆ Low frequency & Large severity
 - Peak-over-Threshold(POT) Approach
- ◆ Consistence for External Data
 - Stress Scenario
 - Estimation by
Probability-Weighted Moments

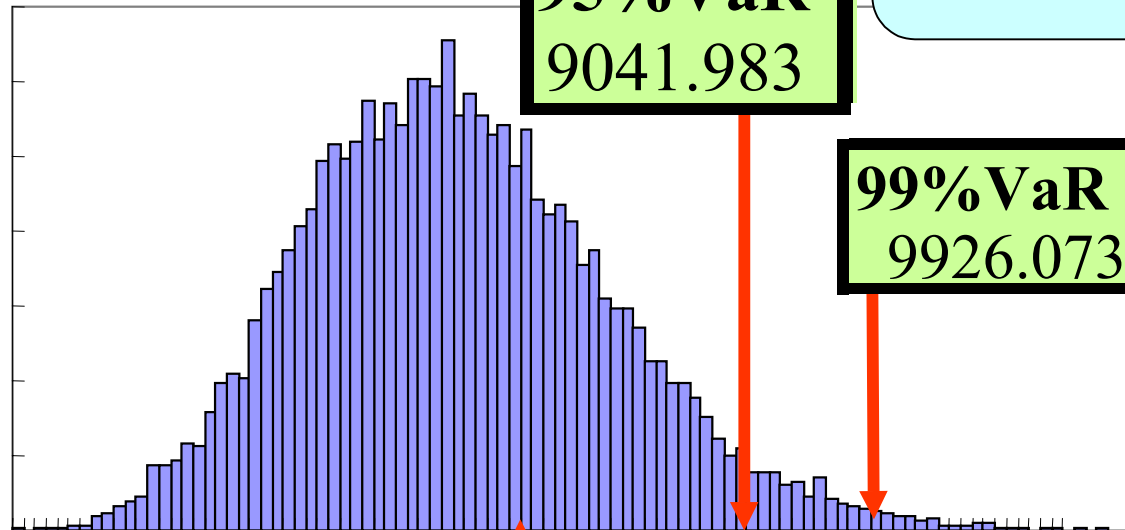
Case Study

- ♣ Data collected for QIS1
(Illustration for a Business Line)
- ♣ Loss Amounts into Ratio to EI
- ♣ Use Basic Model

Results

Simulation

Ave. of Freq. 400
Trial: 10,000



95% VaR
9041.983

99% VaR
9926.073

Actual Cumulative Loss
7778.63

Future...

- ◆ Insurance
 - Promising Method
 - Counterpart Risk, Specification of events
- ◆ ART
 - Risk Theory & Financial Engineering
- ◆ Data Consortium
 - Problem of the whole Financial Industry