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Internal Model Through the Lens of a Practitioner

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A member of MS&AD INSURANCE GROUP

Internal Model Quotes

IM.1 The Solvency Capital Requirement can be calculated using the standard formula or using an **internal model**. Undertakings that already use a full or partial **internal model** should calculate the SCR both with the standard formula and with the **internal model**.

QIS5 Technical Specifications

An insurer may use **internal models** to better assess the financial resources and calculation of regulatory capital requirements due to the range of risks and their scale and complexity.

MAS - ERM for insurers

Internal Model Quotes

The approach for determining ITCL under the ICAAP does not equate to an internal models framework. In an internal models framework, the capital requirements may be substituted with outputs of an approved **internal model**…..

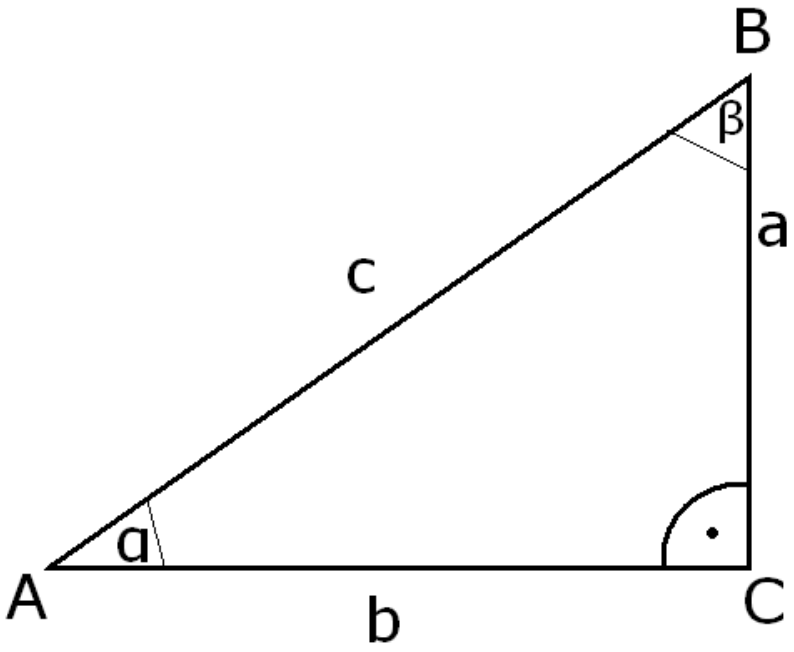
Bank Negara - ICAAP

….By assessing the output of both Standard & Poor's capital model and the insurer's own model, Standard & Poor's expects to derive an informed opinion of capital adequacy. Ultimately, we expect our capital adequacy analysis to quantitatively blend the results of our model with insurers' **internal models** (where they have strong or excellent ERM assessments and undergo economic capital model analysis).

Standard & Poor's -Analysis Of Insurer Capital Adequacy

The Realities

Who has built an internal model?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OPERATIONS

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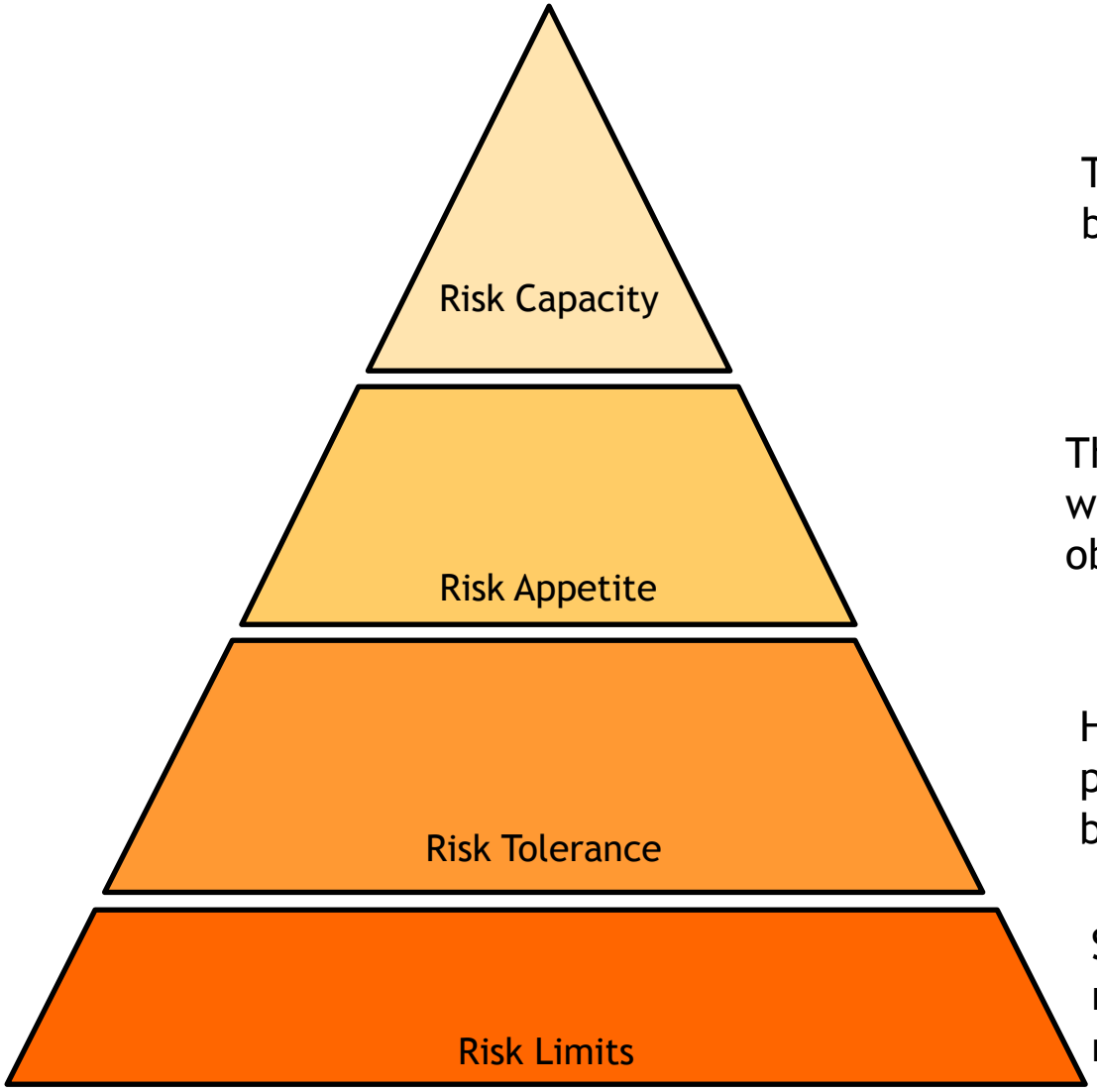
REINSURANCE

CORRELATIONS

Risk Appetite Framework



The limit of risk that can be taken by the organization.

The amount of risk that an organization is willing to accept in pursuit of its strategic objectives

How much risk the organization is prepared to take at a risk type and/or business unit level

Specific thresholds or targets for key risk metrics across risk dimensions and risk classifications

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What should an investment risk appetite statement look like?

Example statements

Risk and reward must be weighted in a manner that is appropriate for our existing strategic goals, risk bearing capacity and financial constraints. This forms the basis of our risk tolerance, which provides guidance and benchmarking on how our organization evaluates and accepts risks. Risk areas we track are generally a combination of insurance related risks (catastrophes mispricing, inadequate underwriting, adverse development), asset related risks (credit, investments, foreign exchange) and strategic (operations, governance)

Our corporate-wide risk tolerance is to limit the probable maximum loss of no more than XX% of available capital assuming a 1-in-XX year period at a 99.X% level of confidence. Ideally we want to limit the likelihood of losing XX% or more of capital to XX%, and to be 99.X% confident of that likelihood. To the extent that rating agency capital requirements for our target rating is suggesting available capital should be at a certain level post a 1-in-XX year period event, and that level is more stringent then what is described above, then rating agency capital will be the default constraint. Our modeling of projected probable maximum loss will consider AM Best and S&P modeled capital in addition to our internally modeled economic capital.

ADDITIONAL RESOURCES

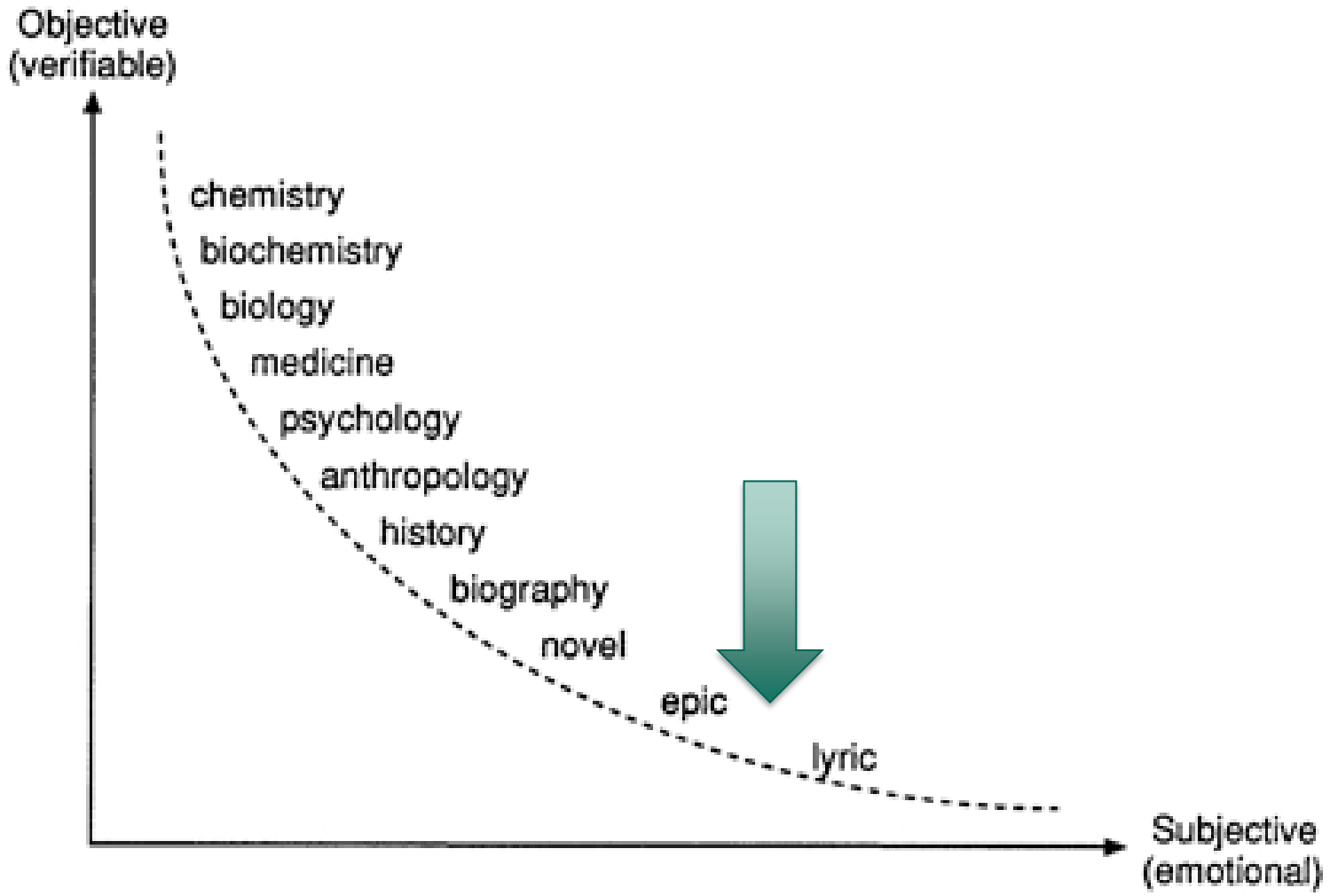
CONSULTANTS

TIME

SOFTWARE

APRIL 16, 1984
$1.25
TIME
MONDALE'S BIG MOMENT
How He Conquered New York
COMPUTER SOFTWARE
The Magic Inside the Machine
Microsoft
Boss
Bill Gates

STAGES OF OBJECTIVITY AND SUBJECTIVITY



1 subjectivity

[suhb-jek-tiv-i-tee]

LOST
CONFUSED
UNSURE
UNCLEAR
PERPLEXED
DISORIENTED
BEWILDERED

solution to world hunger - Gc | FFL Solution to World Hunger « F | World Hunger Facts | Freedc | Hunger | Solutions to World
www.ffl.org/emergency-relief/world-hunger/
VPN atrium AMEX cnbc DBS smh straittimes Facebook LinkedIn Blackboard Booth Chicago Booth: Caree... Movescount OneMap prope

Food for Life Global

Uniting the World Through Pure Food

World's Largest Food Relief Network

Up to 2 Million Meals Daily!

DONATE

Join the $10/month CLUB

Sponsor a Child

Solution to World Hunger

+1 4

Our Human Responsibility – Practical Solutions to World Hunger

By Paul Turner, Director of Food for Life
(Orignally published January 1999. Updated March 2012)

According to the World Health Organization (WHO), more than one billion people in the world live in poverty today. Jeremy Rifkin, author of Beyond Beef: The Rise and Fall of the Cattle Industry, comments:

> Increased poverty has meant increased malnutrition. On the African continent, nearly one in every four human beings is

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www.ffl.org/emergency-relief/world-hunger/

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has in Calcutta: it's not hard finding someone to swear they are saints."

These volunteers showed tolerance and compassion above and beyond the call of duty, demonstrating true equanimity and a deep understanding of their human responsibility. The jewel of India's spiritual wisdom, the Bhagavad-gita describes equanimity as a natural expression of one's spiritual wisdom. The Sankrit term *Sama darshinah* is used, which translates as "equal vision", and the Gita describes it as that which separates the truly wise person from the fool.

Food for Life believes that food, so central to the survival of every culture on earth, holds the key to real peace and prosperity. What better way to express that understanding than by educating people on the value of spiritual equality and the selfless sharing of karma-free pure food?

....embrace this concept of spiritual equality as a permanent solution to world hunger.

children every year. This position, long held by many le…med by the United Nations 1989 Convention on the Rights of …od for Life has been committed to the practical response of establish… in more than 60 countries throughout the world. However, our resou…ed; sadly, we are losing the race against world hunger. We therefore call out …the vegan and vegetarian communities around the world to accept this human …ility. Stop philosophizing and pointing fingers. Be brave—take practical action toda…tablish feeding programs in your area, and make concerted efforts to educate the pu…c about the global benefits of a plant-based diet an more importantly, ***embrace this concept of spiritual equality as a permanent solution to world hunger.*** The children of the developing world are depending on you.

Purchase a copy of HOW TO BUILD A GREAT FOOD RELIEF

Purchase a copy of FOOD YOGA – Nourishing the Soul

Buy Now

Share and Enjoy:

Food … Japan happy
1:09
Volunt… and Ar… about…

Food … Japan veget…
3:30
Food f… ISKCO… 800…

META

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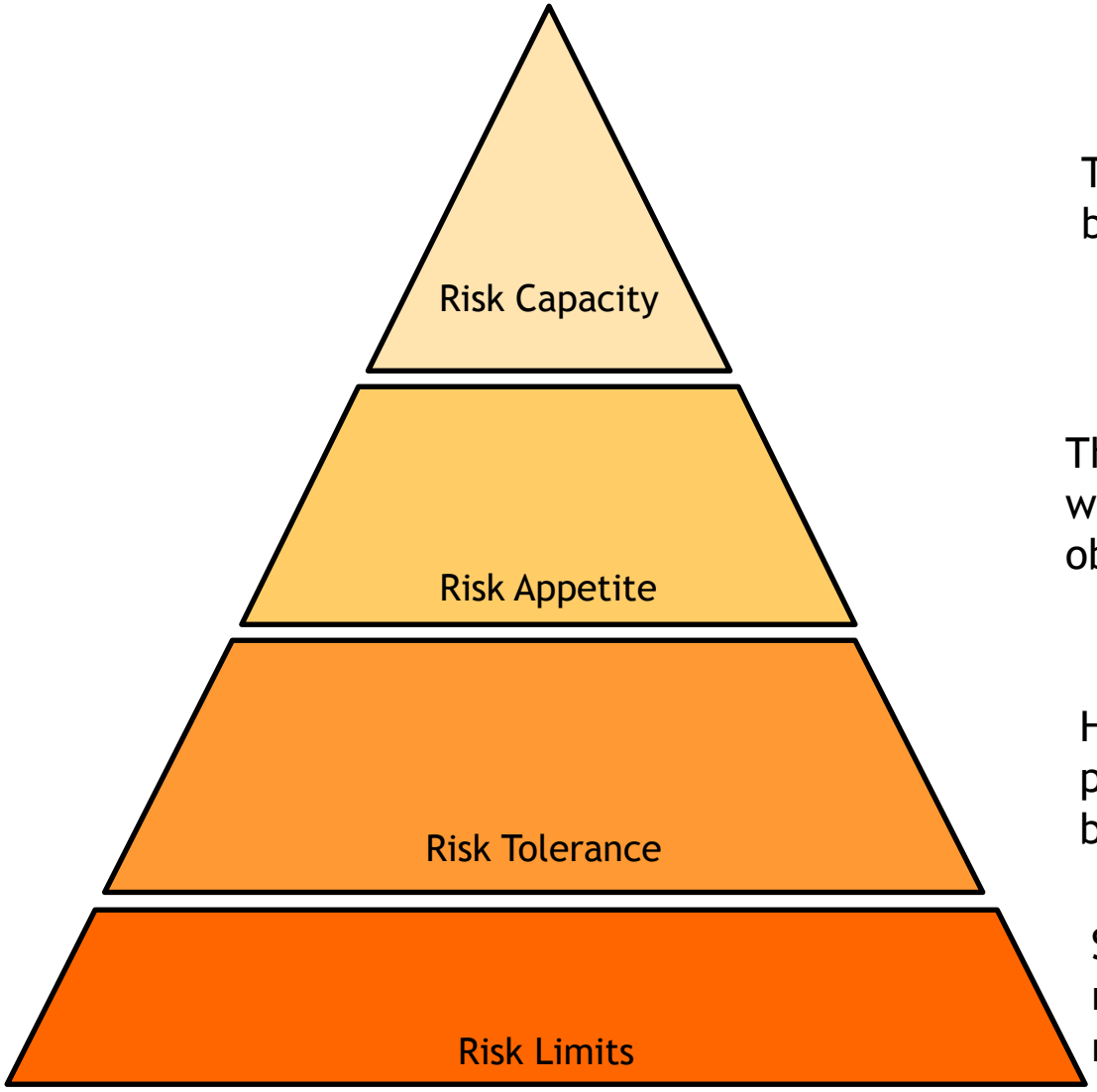
- WordPress.org

Start 2 Microsoft Office … 2 Microsoft Office P… Solution to World Hu… untitled - Paint EN

Risk Appetite Framework



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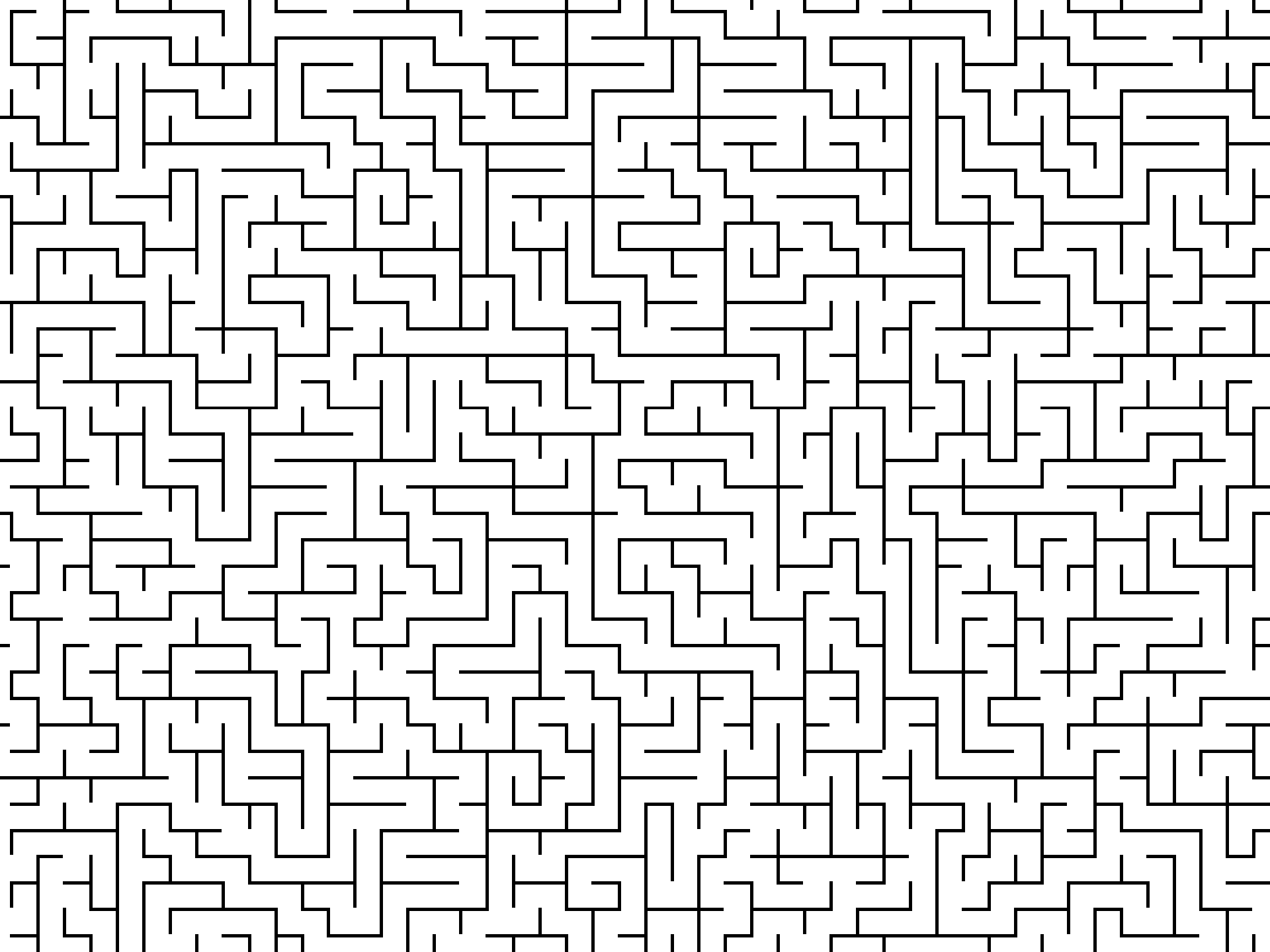


Challenges in Building Internal Model

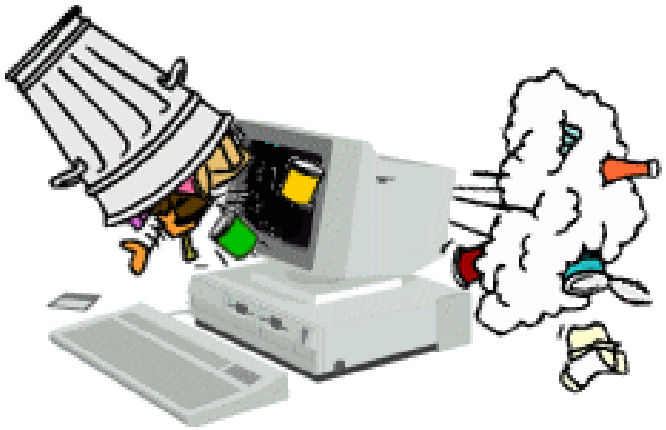
Modeling Framework

Risk Definition

Risk Measure and Allocation

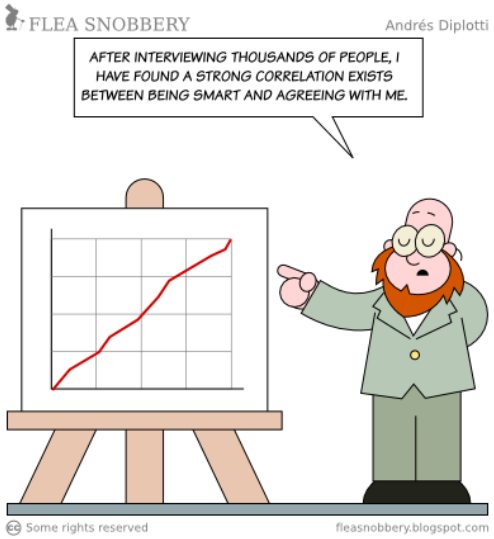
Accounting Basis

Assumptions and model Inputs

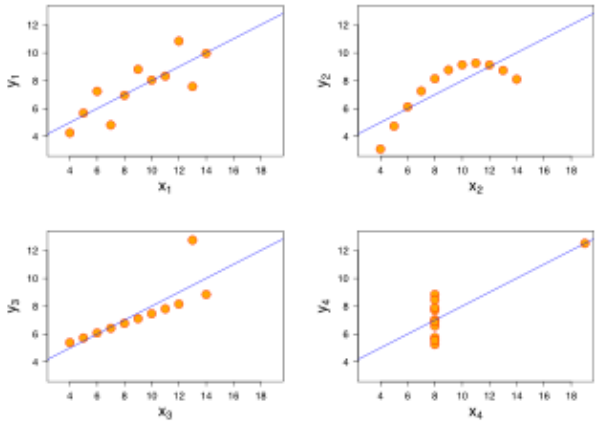


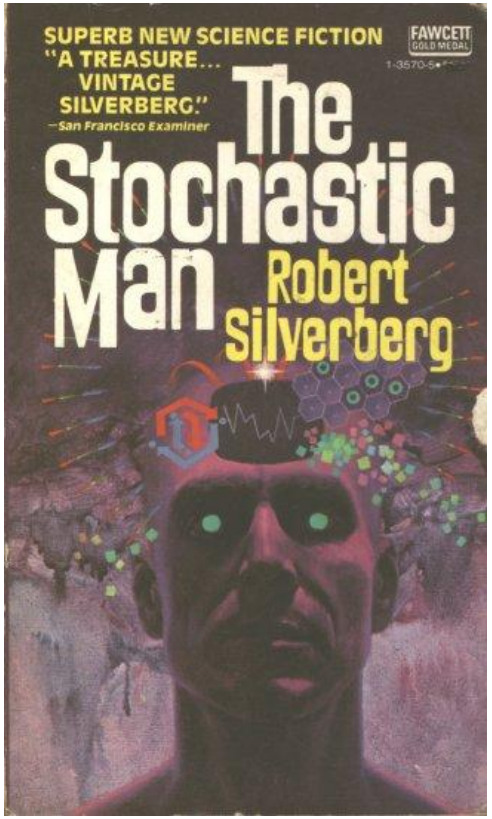
Garbage In, Garbage Out

Correlation

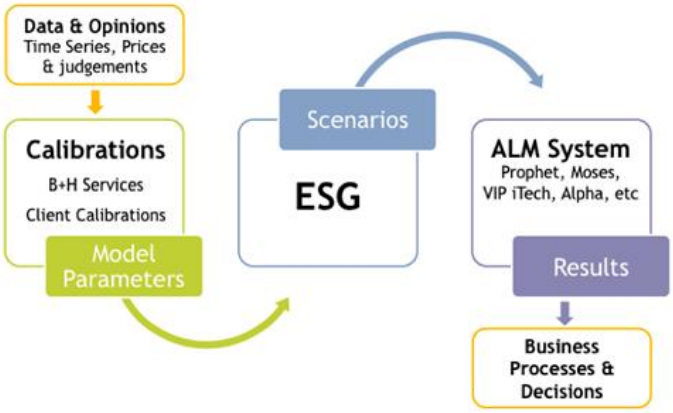


Parameterization

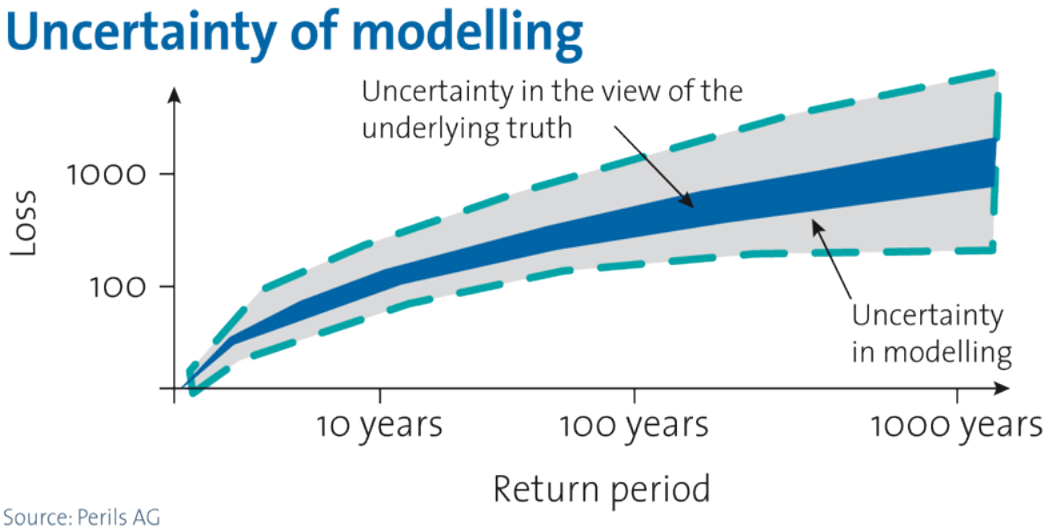

y1
y2
y3
y4
x1
x2
x3
x4


SUPERB NEW SCIENCE FICTION
"A TREASURE... VINTAGE SILVERBERG."
—San Francisco Examiner
FAWCETT GOLD MEDAL
The Stochastic Man
Robert Silverberg

SCHOOL


Data & Opinions
Time Series, Prices & judgements
Calibrations
B+H Services
Client Calibrations
Model Parameters
Scenarios
ESG
ALM System
Prophet, Moses, VIP iTech, Alpha, etc
Results
Business Processes & Decisions

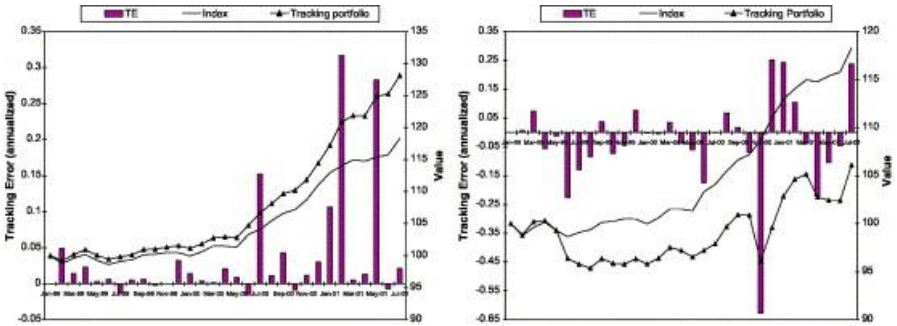
Reliance on External Models



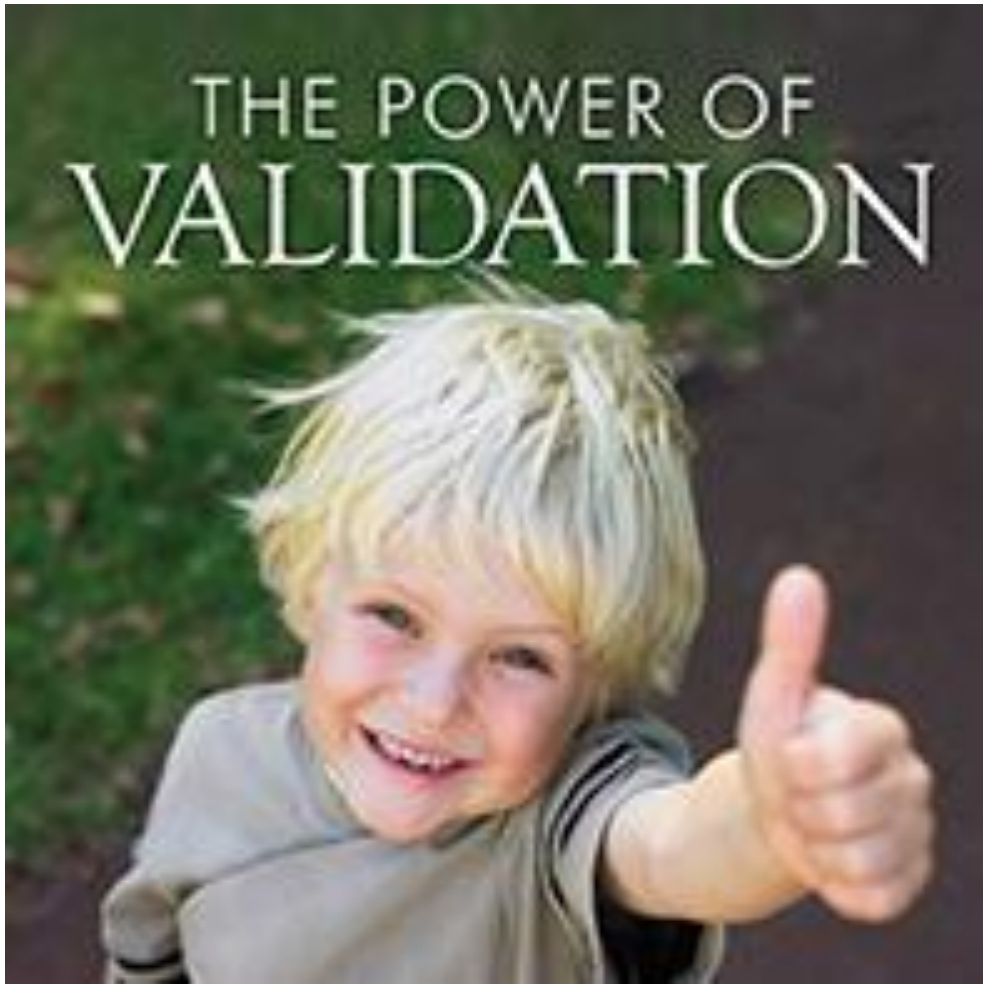
Source: Perils AG

Catastrophe models

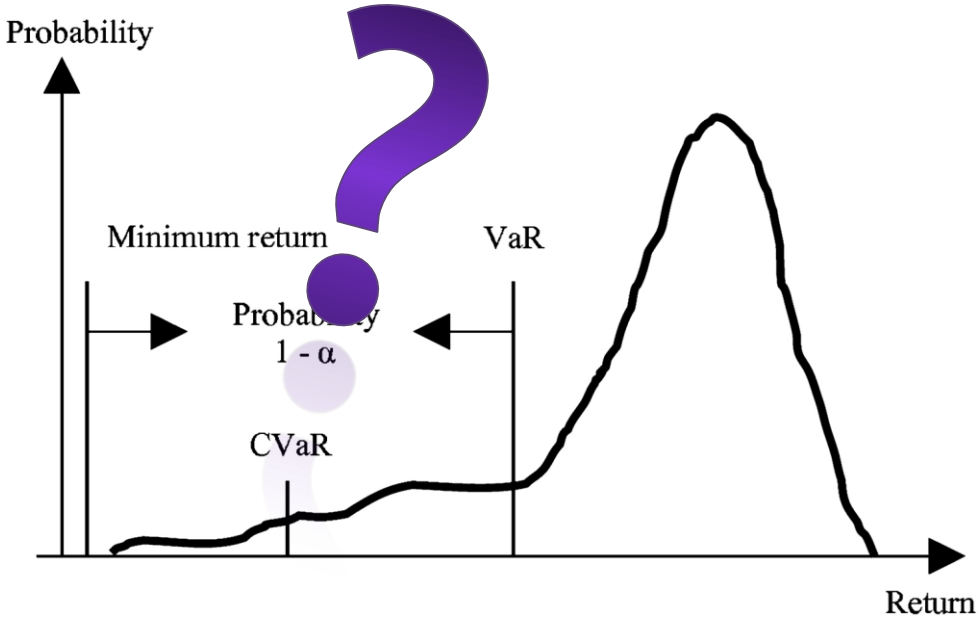
Economic Scenario Generator



Model Validation



Communication of results



Thank you

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