# GROUP REGULATION, MODELLING & PROCESSES
# THE SUBSIDIARY VIEW

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# AGENDA

- Introduction
- Subsidiary model architecture
- Group model Vs. Subsidiary model
- Model parameterization
- Capital management
- Lessons learnt
- Next challenges
- Summary

# INTRODUCTION

What are the similarities and differences between SST and NASA?

- They requires complex models;
- They rely on expert judgment;
- They model the unknown (TVAR99% Vs the Moon conquest);
- In both cases the key tool is a LEM:
  - Legal Entity Model;
  - Lunar Exploration Module.

# INTRODUCTION

NASA Pilot:

Houston

Subsidiary Pilot:

Bern

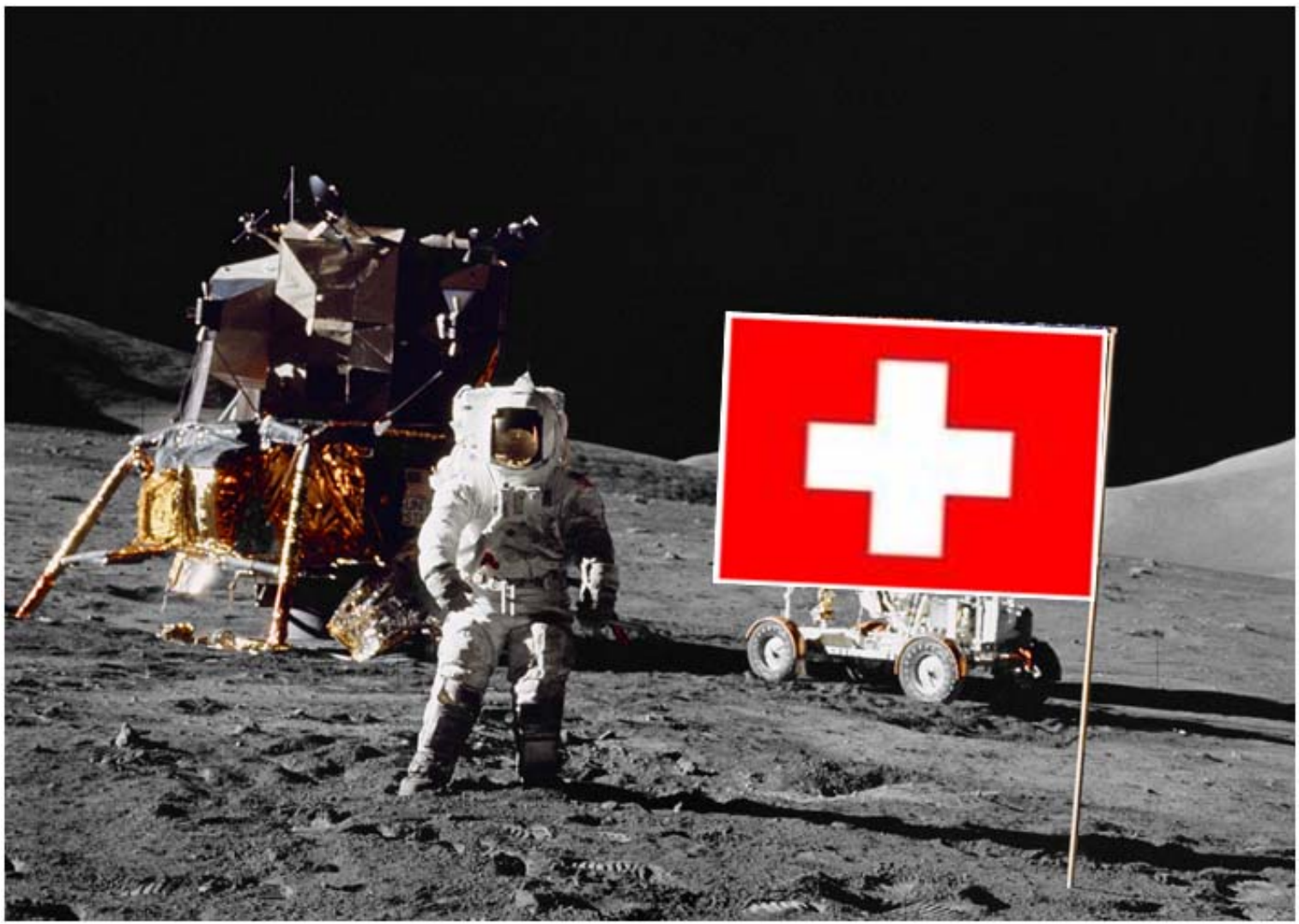
Munich

Bonn

->Subsidiary LEM requires more intense coordination and communication to avoid signal interference!

# INTRODUCTION

How to implement, pilot a LEM and land safely in the “SST of tranquility”:



# INTRODUCTION

Groups and subsidiaries have various capital requirements and various models:

- Solvency margin;
- Rating model;
- Group internal model;
- LEM for local regulators.

Business steering is based on the highest requirements (usually group).

Models used for business steering necessitate more granular/complex treatment and output than other solvency models.

# SUBSIDIARY MODEL ARCHITECTURE

An subsidiary  LEM translates the group organization and governance. Business model architecture:

- Dividend  model;

- Fully interconnected business model.

NR is subsidiary of a EU group;

- NR has applied to make use of full internal models under SST;

- MR has applied to make use of full internal models under SII;

- All risks are fully steered according to internal models consistently applied throughout the whole group.

# SUBSIDIARY MODEL ARCHITECTURE

The ideal LEM is a replication of the group modeling framework:

- Avoids double work;
- Same models used  for business steering and regulatory issues (use test);
- Facilitate group supervision.

Ideal relation between Group and subsidiary model: the Matryoshka model!

# SUBSIDIARY MODEL ARCHITECTURE

Full interconnectedness to be checked / implemented:

- Asset management:
  - Centralized Vs decentralized mandate / model;
  - Product  range.
- Insurance risk
  - Product range (Underwriting mandate);
  - (Geographical specificity).

# SUBSIDIARY MODEL ARCHITECTURE

Perfect replication, in reality is hardly achievable and a subsidiary LEM may look slightly differently:

- Allows for specificities;
- Level of risk significance;
- Lack of diversification;
- Intragroup business captured at source.

# GROUP MODEL VS. SUBSIDIARY MODEL

A group is at the same time:

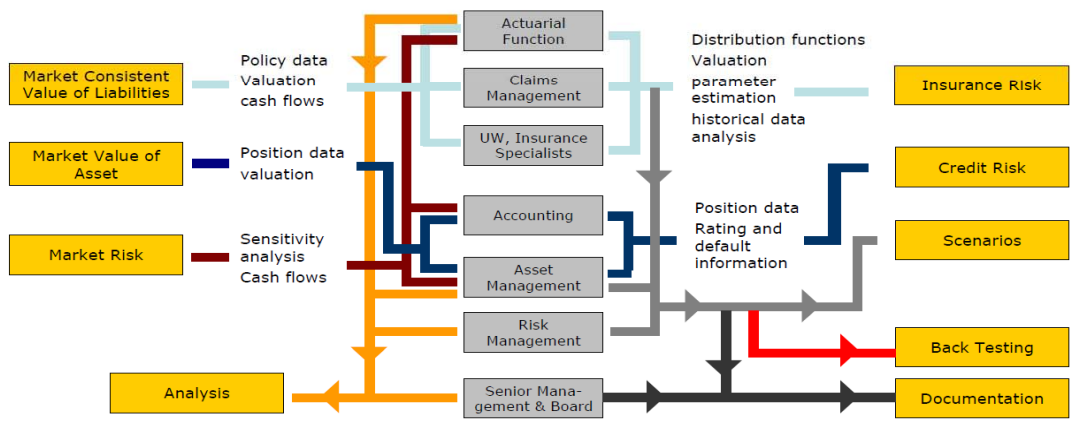
- a collection of legal entities;

- a collection of risks with capital sitting in various jurisdictions.

No major difference between a group and a subsidiary risk landscape:

## Tasks for the SST

To implement the SST entail the close cooperation of different departments: actuaries, underwriting, insurance specialists, asset management, accounting, risk management, the senior management and the board of directors



# GROUP MODEL VS. SUBSIDIARY MODEL

Further requirements group models:

- Capital allocation constraints
  - Same risk written by different business units must have same capital intensity;
  - Within a group, organization and UW mandates change. That cannot not have an influence on capital.
- Recognize and manage critical accumulation (limit system);
- Optimize use of risk carriers (capital management)

# GROUP MODEL VS. SUBSIDIARY MODEL

Separation between group and subsidiary model -> a subsidiary needs at the same time:

- model individual risks that enter into group model;
- model individual risks that enter into LEM;
- Integrate intragroup risks;
- Assembly LEM.

# MODELS PARAMETERIZATION

Often few different input requires usually requires full re-parameterization:

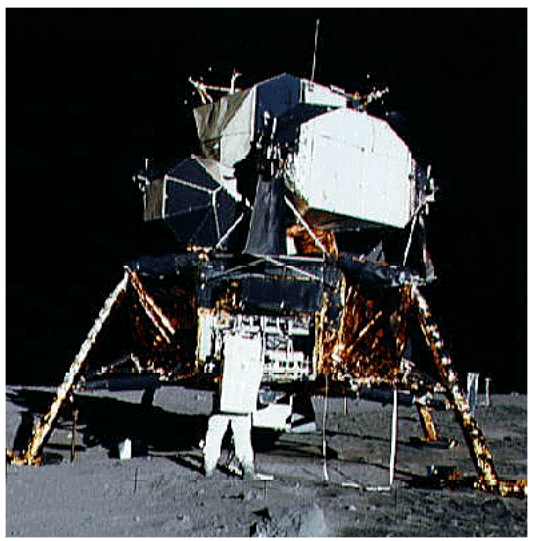
- Intragroup business usually captured at source;
- Interest rate curves (Basic Loss modeling, Life,…);
- Fx neutrality (CHF Vs EUR);
- Significance of risk threshold.

-> All modules of the LEM needs to be maintained twice.

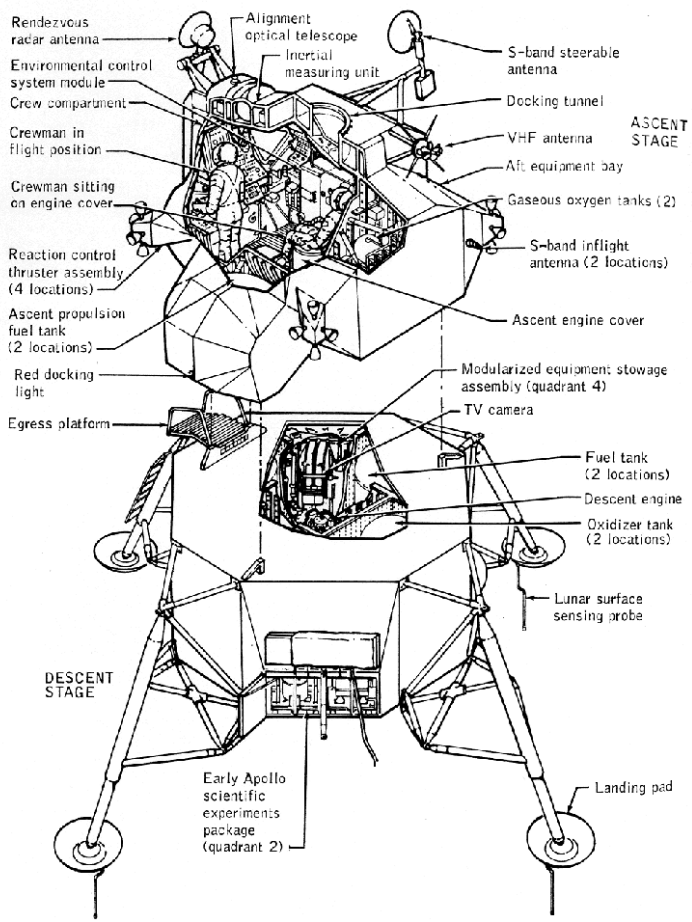
-> Extremely difficult to reconcile figures from Group Model and LEM.

# MODELS PARAMETERIZATION

The external view of LEM:



Risk-based assembling




Group module is used to fly (business steering, capital allocation, pricing, ALM,..)

Regulatory LEM is used to prove that it can fly

# MODELS PARAMETERIZATION

The internal view:

- Both group model and LEM are both part of a complete group model: the first captures risks, while the second evaluates eventual limitation in capital transferability;

- output of LEM are fully integrated into internal risk reporting;

- group limit system eventually completed by local sub system;

LEM is integral part of group risk management practice.

# CAPITAL MANAGEMENT

- Supervisor : Who is the final risk carrier?
- Group: Who is the best risk carrier?
    - Tax benefit;
    - Accounting arbitrage;
    - (Capital requirements);

Arbitrage between cost of holding capital at subsidiary and benefit can be estimated by a LEM:

Subsidiary or branch? Ask to LEM

# CAPITAL MANAGEMENT

Not in all case risk carrier optimization requires a risk transfer instruments (e.g mismatch position);

Risk transfer instruments are a powerful use to increase diversification in LEM (capital charge arbitrage);

Can allow a subsidiary to function at very low capital level (excess capital retained at few LE);

Some disadvantage:

- can complicate group structure;

- Risk management responsibilities shared with business owner;

- Do not have the same rationale of external business (may need intense bilateral cooperation between supervisors).

# LESSONS LEARNT

- LEMs are a compulsory requirements of modern solvency regime;
- LEMs are a key component of a group risk management framework (capital fungibility, responsibility of local risk management, local limits and triggers,..);
- LEMs require formalization of processes (reduction of flexibility) within group supervision;
- SST LEM has been an important test for SII (model review);
- Russian dolls principle helps lead supervisor (in particular for non EU subsidiaries);
- Being the first subsidiary to build a LEM requires a high workload;

# NEXT CHALLENGES

- Group supervision:
  - No yet formalized approach under SII;
  - Coordination of model review / audit highly welcome;
  - Group wide model change policy shared (find the common cruising speed);
  - Responsibilities of lead and local supervisors under SST - SII equivalence?

# SUMMARY

## Group Model:

- Provide a modelling framework;
- Collect individual risks
- Capital diversification;
- Limits system;
- Specific group wide scenarios

## LEM:

- consistent risk management framework ;
- Provide individual risk input;
- Capital fungibility constraints;
- Sub limit system;
- Local scenarios;

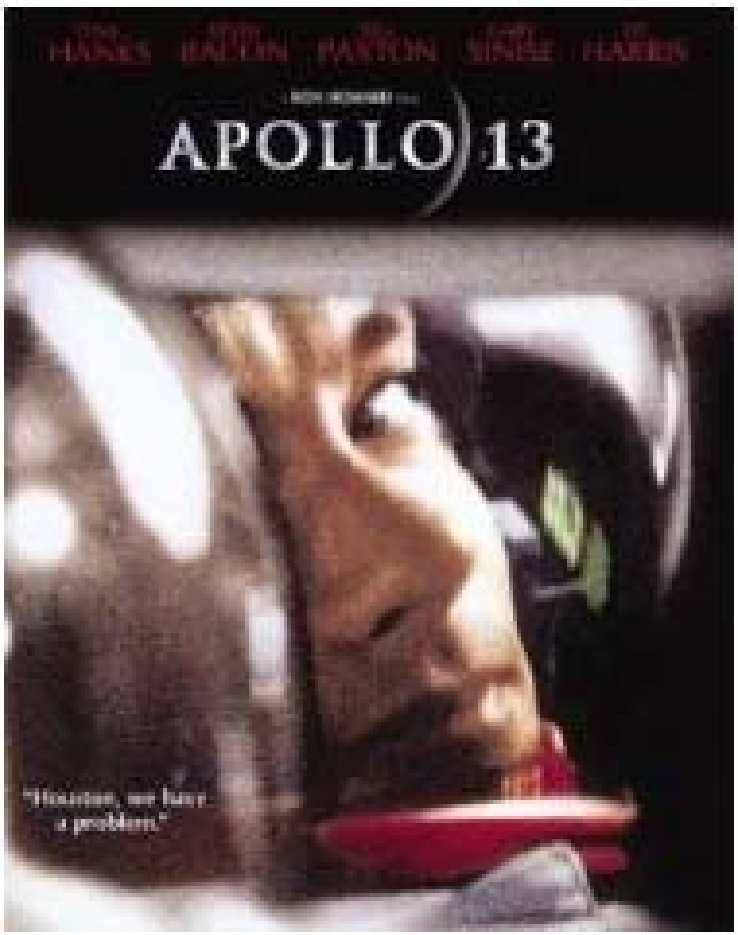
- improve capital management;
- Consistent risk reporting;
- Spread of risk awareness;

# SUMMARY

The interconnection of group and LEM is not captured at LE level.

LEM and LE are judged on the “test flight”.

“Hallo Bern, we have a problem…”



# THANK YOU VERY MUCH FOR YOUR ATTENTION

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