XL Insurance Reinsurance

Space Insurance : an incentive for Space Traffic Management?

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| Space Insurance| 23 October 2018

PROPRIETARY

Need for Insurance in Space

Concentration of value and risk

- Typ 150M$-500M$/sat
- Probability of Failure “Launch + LEOP + 15y operation” = 10-25%

Recurring innovation

- Prototypes
- Various design and missions
- Technological steps

Financing needs

- Mandatory for credit
- Protect profitability of operators

Insurance is
- Essential for private investment
- Incentive for systems quality and robustness

PROPRIETARY

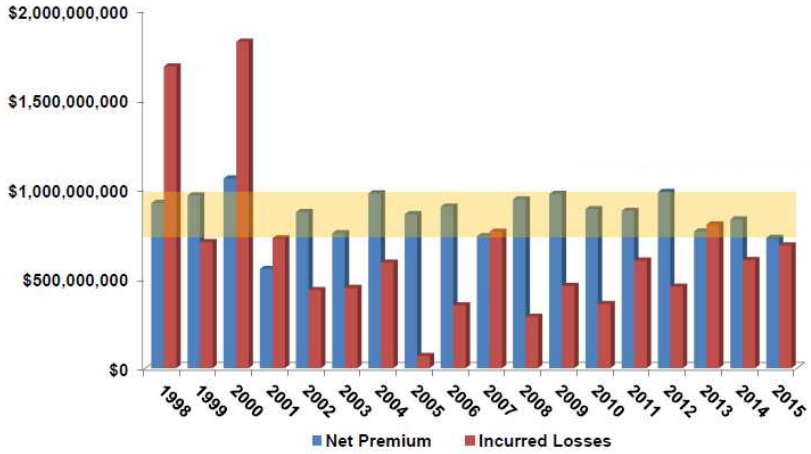
Space Insurance Market

- Coverage
  - All missions types
  - All orbits
  - Damage, Failure (Partial/Total)
    - With waiver of recovery wrt manufacturer
  - Liability of stakeholder

- Clients
  - Private operators
  - Government agencies
  - Launch agencies
  - Satellite manufacturers
  - Satellite users

- Worldwide market
  - Co-insurance with about 35 companies
  - Each company is exposed to a given share (x M$)
  - “Verticalised” price and conditions

Insurance Market Results

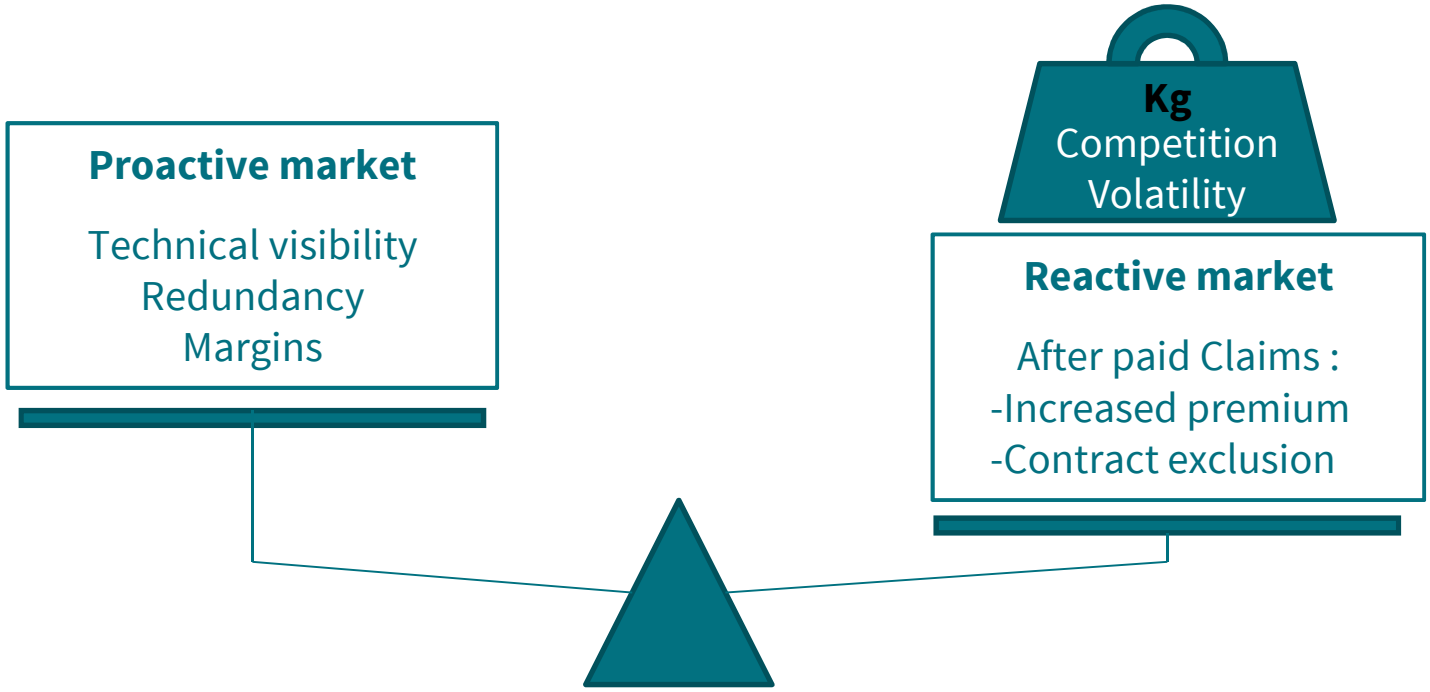


Source : WSRF / XL Catlin

PROPRIETARY

Space Insurance Market

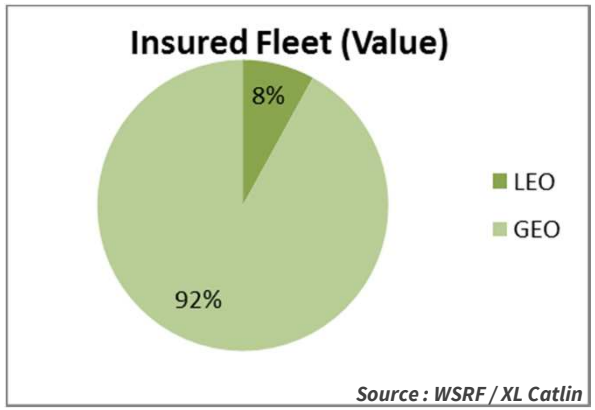
- Insurance Premium rate is based on
  - Technical merit (design, heritage)
  - Supply & Demand



PROPRIETARY

Space Traffic

- Some in-orbit anomalies with debris/micrometeorite have occurred
- Insured valued concentrated on GEO arc



  - In GEO : low Probability of occurrence with a significant impact
  - In LEO : low Number of insured satellites

- Probability of a big loss (in M$) due to Space Traffic appears low on the very short term
  - Insurers cannot justify investing in Active Debris Removal today

PROPRIETARY

Space Traffic

- **BUT**, if a big (insured) event occurs
  - Worst case : two insured satellites collision
  - Big claim + exceed internal rules (“capacity per event”)
  - Shock in the insurance community and top-management
  - Insurers will implement rules to insure some specific orbits

- Possible outcome
  - Higher premium rate for some orbits
  - Need for :
    - enhanced accuracy of conjunction prediction
    - increased accuracy of maneuvers
  - More redundancy to be able to deorbit after any failure
  - Long term : “environmental tax” on some orbits ?

- If/When large (civil) Human presence
  - Need for combined expertise : ground + space insurer
  - Market will be more “proactive” : need for rules before insurance

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Thank you