



Space Risk Update

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AXA XL Space Activity

What we do

→ **5 team members (3 x US, 2 x France)**

- Strong technical + commercial + service focus
- We are the market leader in small satellites and launchers, market data and analytics, and industry outreach

→ **Space insurance is a critical enabler of innovation and investment**

- We cover virtually all technical risk, with few exclusions, from launch of a rocket through the life of a satellite
- Our products include launch + 1 year, launch vehicle flight, in-orbit, “Seamless” pre-launch and launch, human spaceflight, space stations, engine tests, and more
- The space industry faces rapid change, increasing failures, and new threats

→ ***We embrace risk***

- We continuously engage with industry to develop innovative products and services
- We promote actions and solutions that enhance safe and responsible space activity



The space industry and space insurance market

→ **145 launches in 2021 of which half were insured**

- Those 150 launches carried 1,850 satellites of which 1,000 were Starlink (not insured)
- Of the remaining 850 satellites, half were insured during launch

→ **5,600 active satellites in orbit, worth \$75 to \$100b (book value)**

- 530 in GEO and 170 in MEO, of which 230 are insured for \$20.6b
- 4,900 in LEO, of which 48 are insured for \$2.6b

→ **Volatile insurance market (low frequency + high severity)**

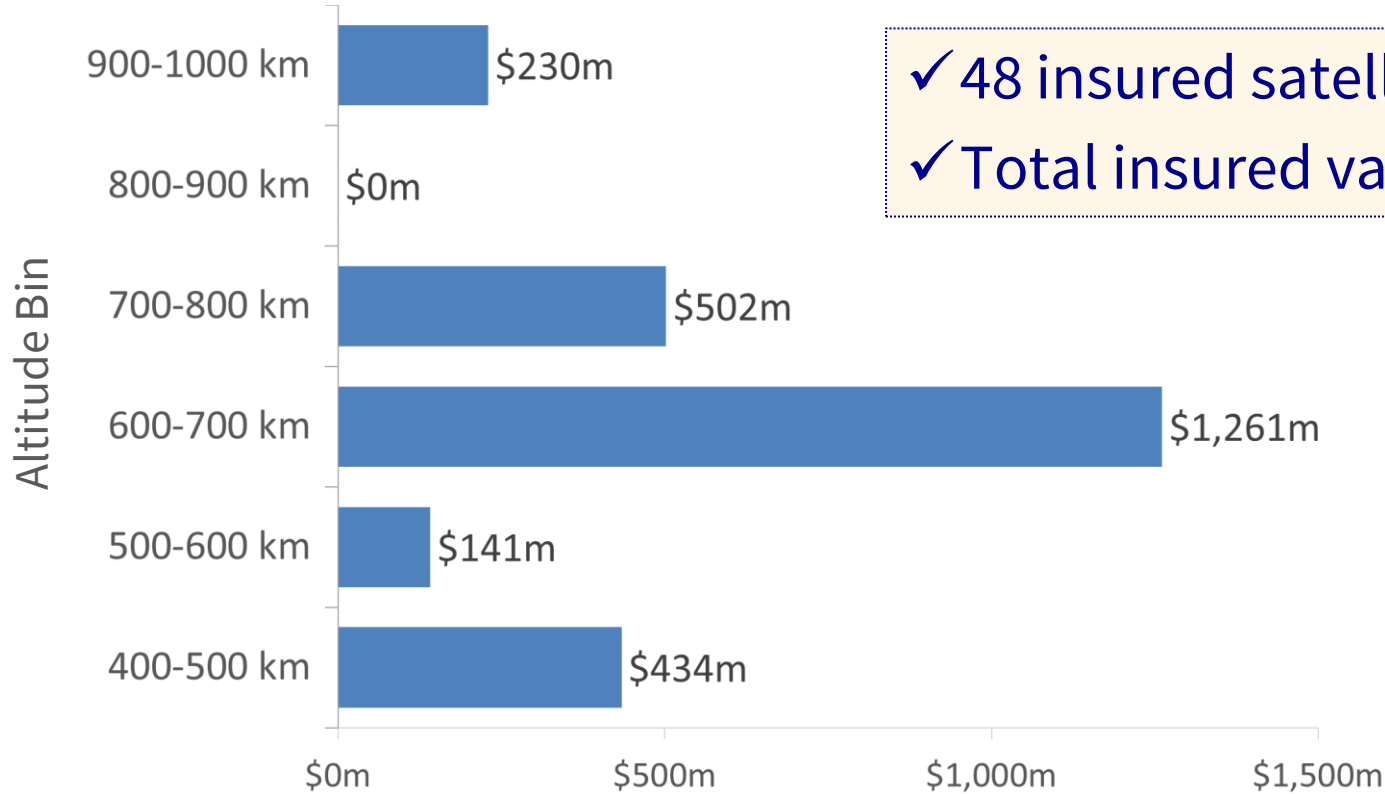
- Annual space insurance premium from 2019 to 2021 was \$450m to \$550m
 - Was \$700m to \$1b between 2002 and 2012
- Annual space insurance incurred losses (2001-2021) have been between \$100m and \$800m
 - But has been as high as \$1.7b (1998) to 1.8b (2000)

→ **Opportunities and threats**

- New launch vehicles and satellites, LEO constellations, on-orbit servicing, human spaceflight, commercial space stations, deep space missions ... and collision risk

Insured Values In LEO

By 100 km altitude bin



✓ 48 insured satellites in LEO
✓ Total insured value \$2.6b

Insured Values by Altitude Bin



Space Safety and Responsible Space Activity

Space insurers are concerned

- Failures ↑, premium ↓ = market volatility
- New launch vehicles = higher risk of failure
- More small satellites = higher risk of failure
- Debris risk? No...*Collision Risk!*
- Some insurers have withdrawn from LEO

Insurers in general are concerned

- Pandemics and infectious diseases
- Climate change and extreme weather
- Cybersecurity
- Geopolitical instability

The **same rules** that apply in your **house** apply in **space**:

- “Tell people where you are!” ... **prevent**
- “Don’t make a mess!” ... **mitigate**
- “Clean up after yourself!” ... **remediate**

AXA XL supports **best practices** for **space safety**

- **Characterize** the **space environment**
- **Tracking** devices for **SSA**
- **Maneuverability** for **collision avoidance** and **PMD**
- **Post-mission disposal** within **1 to 5 years**
- **On-orbit servicing** for **inspection** and **ADR**

A significant **insurance loss** due to a **collision** in orbit will have an **immediate** and **chilling effect** on the **space insurance** market, and thus on the whole **space industry**

Responsible behavior is the baseline, not the aspiration