

# Space & Satellite Insurance

## Gallagher Aerospace

July 2023



# WHAT GALLAGHER OFFERS

## Helping you face your future with confidence

Founded by Arthur J. Gallagher in Chicago in 1927, Gallagher has grown to be a leading provider of insurance, risk management and consulting services in the world. With significant international reach, our organisation employs more than 39,000 people globally.

Gallagher is a purpose-driven organisation, which means we translate our vision into action to achieve something for the greater good, whether that is to create the best outcomes for our customers, improve the communities we live and work in, or foster a supportive work environment that connects to our shared core values called The Gallagher Way.

We partner with businesses across countries and international territories to support the ever-changing needs of our clients, and provide relevant and impactful professional advice. Simply put, we put the needs of people, businesses and communities first to help you face your future with confidence.

Since our founding, leading with integrity is a critical part of Gallagher's success. We have a reputation for doing the right thing, earned day by day for nearly a century, and we bring an unmatched level of experience and industry knowledge to our clients, find the best solutions, and deliver world-class service.

**Expertise. Ethics. Excellence. It's The Gallagher Way.**

# ABOUT GALLAGHER

## A Global Snapshot

Founded in



# 1927

with headquarters  
in the US

**2023** | **WORLD'S MOST**  
**ETHICAL**  
**COMPANIES**<sup>®</sup>  
**ETHISPHERE**<sup>®</sup>

For thirteen consecutive years Gallagher has been ranked as “One of the worlds most ethical companies”

\*Based on core Brokerage & Risk Management divisions' adjusted revenue for 12 month period.

\*\*Market capitalisation as at February 6 2023. All other figures correct at January 31 2023.

\*\*\*According to Business Insurance

Revenues\* of:



# \$8.1bn

World's

# 3rd



largest insurance broker\*\*\*

More than



# 43,000+

employees worldwide

# 150+



Countries where we are able to  
offer client service capabilities

Control of over

# \$34.5bn



of premium worldwide

Listed on the NYSE (AJG)

# \$40.8bn



Market capitalization\*\*

# A SNAPSHOT OF OUR AEROSPACE PRACTICE

Gallagher has one of the world's leading aerospace broking teams with a strong reputation for innovation, client-focused service and performance.

Over  
**370**  
aviation specialists worldwide



Representing over  
**6,000**  
aerospace clients globally



Placing circa  
**\$1.4bn**  
of aviation insurance premium annually



**\$4bn+**

in combined claims handled during the past 10 years



Our clients operate across

**30+**  
aviation sub-sectors, from airlines to airports, to manufacturing and space




# OUR SPACE CAPABILITIES

## Key Figures


Gallagher's Space team represents some of the largest, most prestigious and exciting space organisations in the industry.

**350+**   
years combined  
experience in the  
Space sector

**\$9bn+**   
Cumulative value placed  
over past five years

**105+**   
launch and in-orbit insurances  
placed

**15+**   
Space sector insurance  
specialists

Clients in more than  
**10**   
countries around the world

# ABOUT THE SPEAKER



## Nikhil Kulabkar

Nikhil is the Aviation Practice Leader in Gallagher, India. He has over **18 + years of experience in the Aviation Industry**. He has garnered a reputation of being a specialist in the Aviation Industry with subject matter expertise in handling complex and technical placements for several client categories.

His passion for Aviation has been incredible to bring innovative solutions to clients.

- **The Basics**
- **The Types of Space Related Insurance Available**
- **The Space Insurance Market Performance**
- **Space Insurance Procurement**
- **Technical Information Required for Space Insurance Procurement**
- **Space Insurance Procurement Process**

# AGENDA

# THE BASICS



# THE DIFFERENCE BETWEEN BROKERS & UNDERWRITERS

**Insurance Broker:** a person or company registered as an adviser on matters of insurance and as an arranger of insurance cover with an insurer on behalf of a client.

## **Insurance Broker Role:**

- Negotiates the risk with underwriters on behalf of the insured
- Focuses on protecting the customer interests and arrange the best coverage and premium rate possible
- Assists the customer in producing and presenting the technical information
- Negotiates and collects any claims on behalf of the insured

## **Broking Entities:**

- Gallagher, Marsh, Aon, Willis Towers Watson



Insurance | Risk Management | Consulting

# THE DIFFERENCE BETWEEN BROKERS & UNDERWRITERS

**Insurance Underwriter:** professionals who evaluate and analyse the risks involved in insuring people and assets.

## Insurance Underwriter Role:

- Underwrites an insurance risk
- Evaluates each policy based on technical packages and information received and establish a risk profile
- Receives premium on policies underwritten
- Pays valid claims

## Underwriting Entities:

- Munich Re, Elseco Limited, Atrium, Starr, Fidelis

Munich RE 

elseco  
A T R I U M

**FIDELIS**

STARR  

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INSURANCE COMPANIES

# ASSET VS LIABILITY

- Asset - defined as an item of property owned by a person or company, regarded as having value
  - Satellite
  - Launch Vehicle
  - Spacecraft
- Liability - defined as the state of being legally responsible for something.
  - Liability insurance provides protection against claims resulting from injuries and damage to people and/or property.



# THE TYPES OF SPACE RELATED INSURANCE AVAILABLE

# SPACE INSURANCE

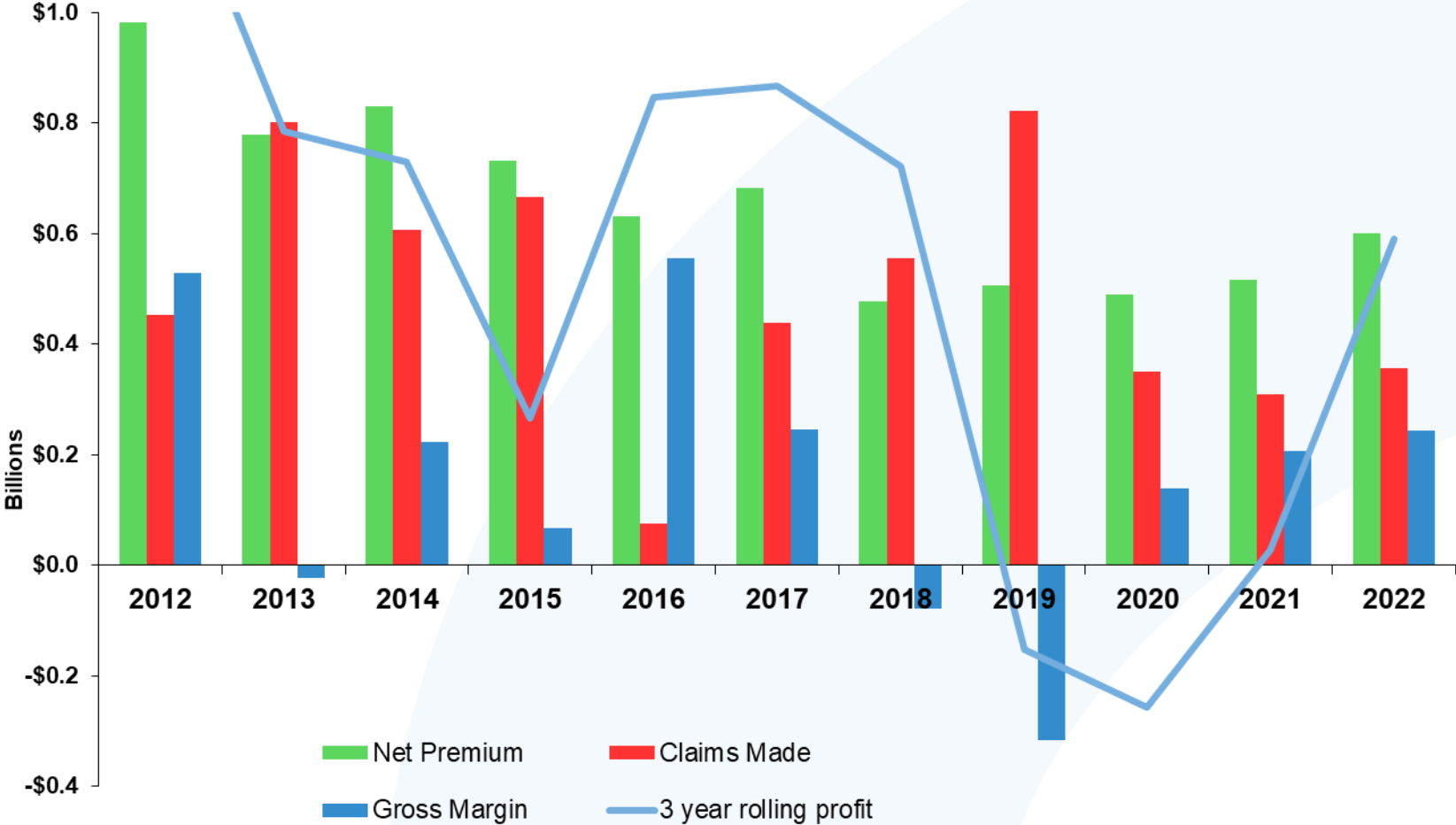
## Specialized Coverages Offered by Niche Markets

- Coverage for unique risks arising from manufacturing, launching, owning, and operating property in space
  - Space Property and liability exposures excluded in most commercial Property & Casualty (P&C) policies

Type	Insurance Coverage Description
First Party Property	<p>Pre-Launch, Launch, and In-Orbit Insurance (Limits up to \$500M+)</p> <ul style="list-style-type: none"><li>• Covers loss of or damage to spacecraft before, during, and/or a defined period after launch.</li><li>• Bespoke coverages with highly technical underwriting and explicit waivers of subrogation</li></ul>
Third Party Liability	<p>Launch, In-Orbit, Reentry, Spacecraft Products Liability Insurance (Limits up to \$500M+)</p> <ul style="list-style-type: none"><li>• Covers claims by 3rd parties for property damage and/or bodily injury arising from owning, launching and/or operating property in space or reentering from space.</li><li>• Stand alone coverages or included in broader Aerospace program for some large buyers</li></ul>

# THE SPACE INSURANCE MARKET PERFORMANCE

# PREMIUM VS CLAIMS



Premium averaging around 500m in recent years

Claims in recent years below market average

Market mindful of previous loss levels and new technology

Source: Information is from AXAXL, Seradata, internal Gallagher, and market knowledge. Information is believed to be accurate, but cannot be guaranteed. 2022 claims made data is an estimate based on notifications to the market

# SPACE LOSS EXPERIENCE

Insurance Losses over the past 3 years

Mission	Event Date	Claim Amount	Event	Anomaly Description	Launcher/Satellite
<b>2023</b>					
Azersky	15/03/2023	USD40m TBC	In-orbit Anomaly	Power Distribution failure / Potential Debris strike	ASTROBUS 500L (Airbus)
ALOS-3	07/01/2023	USD12m	Launch Vehicle Anomaly	Second stage Engine failure	H3
<b>2022</b>					
PLEIADES NEW 5 & 6	20/12/2022	USD 225m	Launch Vehicle Anomaly	Second stage engine failure	Vega-C
QPS-SAR 3 & 4	12/10/2022	USD 11M	Launch Vehicle Anomaly	Second stage Attitude fault	Epsilon
MEV-1	Sep-22	USD50m	In-orbit Anomaly	Precaution taken as a result of MEV-2 PPU issue	GEOSTAR 3
MEV-2	Sep-22	USD50m	In-orbit Anomaly	PPU issue on electric thrusters	GEOSTAR 3
ELSA-d Chaser	Jan-22	USD20m	In-orbit Anomaly	Loss of 4 thrusters	Custom Astroscale
<b>2021</b>					
PSN 6	12/08/2021	USD33m	In-orbit Anomaly	Solar array fault	Maxar SSL1300
Measat 3	21/06/2021	USD45m	In-orbit Anomaly	Propulsion system failure	BOEING 601HP
Pliades NEO 3	15/05/2021	USD28m	In-orbit Anomaly	Attitude control fault	Airbus S950
Sirius SXM-7	04/01/2021	USD225m	In-orbit Anomaly	Payload anomaly during IOT	Maxar SSL1300

**Note:** 2021 data is indicative based on year to date figure. Claims under USD10m are not shown.

**Source:** Information is from multiple sources including Gallagher and Serradata and is for illustration purposes only.



# SPACE INSURANCE PROCUREMENT

# NON DISCLOSURE AGREEMENTS (NDA)

- NDA is a legal contract. Sets out how information or ideas is shared in confidence. Also known as confidentiality agreements.
- Must state what information is considered confidential
- Can limit how disclosed information can be used by third parties
- Time period of an NDA is on average 2 to 5 years
- Information protected
  - Customer, financial, marketing, operating and intellectual property



# BROKER OF RECORD (BOR)

- A BoR is an agent that is appointed by the insured to manage & represent the insured's policy
- Once a BoR is implemented, they will become the main point of communication & act as a liaison for the insured
  - BoR has the ability to obtain quotes & policies
  - They can also recommend changes to any existing policies
- A BoR is used to legally establish the relationship between the insured & the broker



# TECHNICAL INFORMATION REQUIRED FOR SPACE INSURANCE PROCUREMENT

# TECHNICAL BRIEFING CONTENT

- Prepared by the Insured and provided to Underwriters ahead of insurance placement
- Programme overview
  - Pedigree and history of the manufacturer
  - Mission description
    - Satellite configuration, coverage, launcher, system budgets, etc.
  - Payload
    - Frequency, antennas, block diagrams, etc.
  - Platform
    - Structure, avionics, EPS, TCR, thermal system, etc.
  - Single Point Failure list and Hardware Matrix
    - Equipment and contingencies
  - Spacecraft Integration and Tests
  - Operations
- Presentation is key both substance and style should be considered important



# LAUNCH VEHICLE & ORBIT

- Launch Services Contract and Launch Provider
- Candidate Launch Vehicle the satellite may be launched on
  - Estimated Launch period
  - Compatibility verification plan
  - Identity co-passengers (if applicable)
  - Back-up Launch Vehicle (if applicable)
- Target Orbit
- Mission Design & Architecture
  - Mission requirements, Con Ops & space segment architecture
  - Equipment heritage & qualification status
  - First flight items (if applicable)



# SATELLITE OPERATIONS

- Operator facilities and experience
- The timeline from launch through completion of In-orbit testing and commencement of service
  - Mission timeline and key points after commencement of service
- Contingency plans and facilities



# SATELLITE SYSTEM BUDGETS & MARGINS

- Expected system budgets;
  - Payload performance design vs spec
  - Propellant
  - Power
  - Mass
- Where applicable all budgets should have a “Prime Configuration” and “1<sup>st</sup> Redundant Configuration” shown





# SATELLITE END OF LIFE

- Space debris has become important talking point over the last few years amongst insurers and operators
- End of Life disposal plan
  - De-orbit
  - Graveyard Orbit
  - Lunar/Planetary Strike



# SPACE INSURANCE PROCUREMENT PROCESS

# HOW TO BEST APPROACH THE INSURANCE MARKET

- Via your chosen broker, establish relationships with key insurers through meetings and technical presentations
- Answer any technical questions asked by insurers
- Create a tailored insurance policy for presentation to insurers
- Generate competition amongst insurers in order to achieve the most competitive premium rate



# PREMIUM RATING & NEGOTIATION FACTORS

- Launch Vehicle heritage, experience and configuration
- Spacecraft heritage, redundancy, fuel/power budget, margins
- Customer profile
  - Premium and Claims records
  - Willingness to share technical information
  - Ability to answer technical questions from insurers
- Volume discount and buying power
- Commercial conditions, “hard” or “soft” market
- Broker experience and expertise



# PREMIUM RATING & VOLATILITY

- For conventional risks rates are lower however there are a large portion of “New-Space” risks which will demand higher rates from insurers:
  - New Software defined satellites
  - New manufacturers of satellites
  - New satellite type
    - No previous orbit history
    - E.g. Small GEO
  - Exponential growth in LEO satellites especially from start-ups
  - New generation launch vehicles
  - Commercial manned space flights
  - New concepts such as “gas stations” in space



# CONTACT US

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# Thank you.

The information contained herein is offered as insurance industry guidance and provided as an overview of current market risks and available coverages and is intended for discussion purposes only.

This publication is not intended to offer legal advice or client-specific risk management advice. Any description of insurance coverages is not meant to interpret specific coverages that your company may already have in place or that may be generally available. General insurance descriptions contained herein do not include complete insurance policy definitions, terms, and/or conditions, and should not be relied on for coverage interpretation. Actual insurance policies must always be consulted for full coverage details and analysis.

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