THE INSURANCE CLIMATE FOR SMALL SATELLITES AND ELVs

Peter M. Stark
Director, Space Industry Analysis
International Technology Underwriters

The space insurance industry provides coverage for physical damage and liability risks to which space ventures are exposed as part of their business. The Insured party obtains insurance coverage through a Broker, who represents the Insured in soliciting coverage from the various Insurers in the world market. Physical damage insurance is designed to cover the value of an asset or the revenue it may provide, while liability insurance covers damage to the person or property of parties unrelated to those involved in launch activities. Under the Commercial Space Act of 1988, U.S. commercial ELV operators are required to obtain a license from the Department of Transportation and to carry liability insurance. To date, two U.S. commercial ELV launches have been conducted, and the necessary insurance has proven to be available at affordable rates.

OVERVIEW OF THE SPACE INSURANCE INDUSTRY

The space insurance industry provides insurance coverage for risks which space ventures are unable to reduce or eliminate by other means. In the context of providing insurance coverage, there are four primary players: the Insured, the Broker, the Insurer (Underwriter is often used synonymously), and the Reinsurer.

The Insured is the party whose risk is being protected by the insurance. Typically the Insured would be the owner of the payload to be launched, or the provider of the launch vehicle who is insuring the cost of providing a new launch if the first one fails. The Broker is a professional insurance agent who is retained by the Insured to obtain coverage for the risk against which the Insured wishes to be protected. The Broker does so by soliciting the desired coverage from the various space Insurers in the world market who cumulatively insure the risk. Each Insurer has a certain amount of capacity (the total amount of insurance for a single risk) which can be made available for acceptable insurance coverages. The Insurer reviews each risk which is presented and determines the premium rate and conditions under which he is willing to provide some or all of his capacity. The actual funds which the Insurer puts at risk under a given coverage are both his own and those of his Reinsurers, the sum of which constitute that Insurer's total capacity. The premium collected is paid to the various Insurers in their respective share of participation by way of the Broker, and if there is a loss, each Insurer pays his share to the Insured. The total capacity of the world space insurance market is about $200 million.

The Insurer's main concern is to understand the risk he is insuring, particularly the technical aspects thereof, and is thus inclined to require a significant amount of technical information as a condition of providing coverage. In the long run it may actually be to the benefit of the Insured to have an Insurer who takes an interest in the technical details of the risk, because through discussions and observations associated with a knowledgeable Insurer, improvements for the overall risk management plan may be identified. Ideally the relationship between Insured, Broker, and Insurer is one in which risk management skills are applied to help the Insured minimize overall risk.
AVAILABLE SPACE INSURANCE COVERAGES

The types of risks which can be covered by space insurance fall into two broad categories: physical damage and liability. Physical damage insurance is designed to cover the risk of losing physical assets, generally for the cost of replacing them. In a launch coverage, the owner of a spacecraft would insure the value of the spacecraft and the cost of the launch, beginning typically at intentional ignition of the launch vehicle and ending at separation of the spacecraft. Often he will also insure the initial operation of the spacecraft after it separates from the launch vehicle until it has completed its test phase and is declared operational. Collectively these coverages are known as "launch and initial operations."

Once a spacecraft has completed its initial operations period, the owner may wish to insure its continued successful operation. He may elect to insure the book value (depreciated) of the spacecraft, replacement cost, or the value of the revenues generated for a given period. These coverages are called "on-orbit life."

Liability insurance is intended to cover the risk of damaging the person or property of parties who are not part of the organization(s) purchasing or conducting the launch. In the U.S., in order to secure a license from the Department of Transportation (DOT) to launch, the launch operator must secure liability coverage for damage to the person and/or property of third parties and to government property.

Third party liability insurance is designed to cover the Insured against the possibility that bodily injury or damage to property will occur to some person unrelated to the launch (the "man in the street"). If such injury or damage does occur, then the insurance responds on behalf of the insured ELV operator and his customers, contractors, and subcontractors to settle the claim.

To underwrite either physical damage or liability coverages, the criteria are fairly similar. The Insured will typically be asked to provide details of the launch vehicle and its payload(s), the performance track record of the vehicle(s) or system(s) from which the vehicle(s) has been developed, the nature and scope of the government facilities to be used, copies of the contracts and agreements with customers, major suppliers, and the government, and copies of their DOT license and insurance orders.

RECENT DEVELOPMENTS

The U.S. government requirements for U.S. ELV operators to carry liability insurance was established in the Commercial Space Launch Act of 1988, under which the DOT is designated as the agency which will regulate and license commercial launches in the U.S. Part of the origin of the third party liability requirement is that under international treaty, the U.S. government is liable for any damage done to non-U.S. people or the property thereof for objects launched from within U.S. borders. Since the government would prefer not to be exposed to such liability for activities of private citizens, Congress instituted the requirement for ELV operators to carry third party liability insurance holding the government harmless to the extent of predetermined coverage limits. The amount of insurance to be carried is determined by the DOT Office of Commercial Space Transportation (OCST) and issued in an "insurance order" as part of the license. Since the maximum for which an ELV
operator might be held liable could conceivably exceed either the maximum available insurance in the market, or the amount of coverage an ELV operator might be able to afford, the DOT (per the Act) determines an amount of insurance which is reasonable for each launch. If there is an accident and claims exceed the amount of insurance, the Act provides, subject to congressional appropriation, for the government to indemnify the ELV operator for $1.5 billion above whatever amount of insurance is required. (Claims in excess of the additional $1.5 billion are the responsibility of the ELV operator.)

The origin of the requirement for insurance covering potential liability for damage to government property is of a similar nature. The amount of insurance required by the DOT is an amount below the maximum possible damage which might occur, but covers what the DOT believes is a reasonable amount to be expected from a launch accident. Above the amount of the insurance, the government will absorb all damage which it might incur (this time with no limit).

Also under the Act, ELV operators are required to enter into extensive cross waivers of liability with their contractors, subcontractors, and customers in order to eliminate the possibility for complex, wasteful legal actions among those parties after an accident. In effect the cross waivers say that all of those involved recognize that launching spacecraft is a risky venture, and that if anything goes wrong, they are responsible for their own property and personnel and will not make claim against any of the other involved parties if there are problems irrespective of fault. The practical consideration in requiring the cross waivers is that they eliminate the need for every contractor and subcontractor to find and carry their own liability insurance.

Since the Act was passed, the first licensed commercial launch was conducted by Space Services Inc. on March 29, 1989 from White Sands, N.M. For that suborbital launch, the DOT required coverage of $20 million for third party liability and $7 million for damage to government property. Since then, McDonnell Douglas has launched the BSB-1 spacecraft, carrying coverage for $164 million third party and $80 million government property. As of this writing, DOT licenses had also been issued for American Rocket ($12 million third party/$1 million government property) and Titan ($215/$80 million).

OUTLOOK FOR THE FUTURE

Thus far, the world insurance market has had no trouble providing adequate coverage for these requirements at an affordable price, and this situation is expected to continue. For small ELVs, there is an advantage in that the sums which will be insured (including third party, government property, and any physical damage coverages) will be small compared to those for large ELVs. This means that there should be no trouble finding sufficient coverage at a reasonable cost. In addition, it is possible that the number of small launches will grow quickly to a rate which represents a more substantial statistical base from which to develop rates, and if the success rate is high, premiums can be kept affordable over a long period of activity.