

# **AIRLINES INSURANCE**

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## **AIRLINE INSURANCE**

Airlines buy a wide variety of covers, but the main aviation risks are for hull and aviation liability. Usually a separate cargo policy covers the airlines liability for cargo loss or damage and each airline will have a full range of non-marine insurance policies covering ground property, including vehicles and liabilities related to ground operations and risks.

The hull policy, as its name suggests, covers the air and ground risks from accidental damage. The liability policy covers the risk from legal action by customers and third parties in respect of injury or physical damage for both hull and liability. A separate policy will cover the war risks.

## **POLICY WORDINGS**

There are standard policy wordings, but most airlines have individual (manuscript) wordings devised by broker and buyer to reflect the airlines special circumstances, needs and preferences. Whilst the concepts and basic wordings are relatively simple, many special situations require a great deal of work by buyer, broker and insurer to ensure that the airlines risks are adequately covered. For example:

- lease agreements for aircraft and other equipment which can include hiring out of aircraft by the airline;
- airport and other user agreements; and
- other contracts for the supply of services.

All these contracts will have liability and insurance clauses.

## **RATING FACTORS**

The rates charged for each airline will reflect the airlines own experience, regional and global airline experience with some account being taken of type of aircraft operated, route structure, passenger make-up and individual legal situations. In addition there will be broad changes in rates reflecting the overall world situation. The main global factors will be overall claims experience and the and cost of reinsurance. Similarly, major changes in law may affect rates.

Valuation of aircraft will also affect the hull rate, with generally (low valuations) increasing the rate and vice versa as insurers will pay all of the partial claims with lower premium if a single pro rata rate is applied to a low valuation.

The liability rate can be affected by the individual conditions of carriage of each airline and the underlying legal situation. International conventions broadly determine the liability of airlines to their passengers. The 1929 Warsaw Convention set very low limits reflecting the nature of air transport at the time, with limited finance and an acknowledged high personal risk. Subsequent international agreements have expanded that liability, but their application varies between countries. This can result in the situation that different passengers on the same flight have tickets with differing liability.

## **LIABILITIES**

Major accidents often involve complex liability situations. Whilst the hull loss can usually be quickly determined and settled, liability may be shared with other parties involved, such as manufacturers or

airport. Normally the various possible responsible parties will work together to contain the overall cost leaving apportionment to be decided in due course.

Airlines buy very substantial limits of liability, typically ranging from US\$400 million per loss for a small regional operator to US\$1 billion or more (up to US\$2 billion) for major international airlines.

Hull rates are related to fleet values and liability rates to revenue passenger kilometers (RPKs).

Whilst there is a degree of consistency in the number of accidents every year, the consequences vary dramatically. In the last two years several wide-body aircraft have been total losses without any passenger fatality. Payments per fatality can range up to US\$10 million or more with the average in the US approaching US\$3 million per head.

#### **INSURANCE IS A SMALL COST**

Overall aviation insurance cost is a small part of airline operating costs, just 0.8%.

If the cost is looked at in relation to a single flight it also looks very low. As an illustration, if one takes Mediums size European air carrier, with rates of about 0.18% for hull and say 18 cents per 1000 RPK (Revenue passenger kilometers) for liability, the cost to the airline for aviation insurance covering hull and liability for a single passenger flying from London to Rome would be approximately 50 cents (Excluding war).

#### **HULL WAR INSURANCE**

Hull war policies cover airlines against loss or damage to their aircraft, equipment and spares (as defined in the individual policy) against a range of war and war-related risks which usually include:

- civil war, rebellion etc;
- strikes, riots and other labor disturbances;
- political or terrorist physical acts;
- malicious damage and sabotage;
- confiscation, nationalization, government seizure or detention; and
- hijacking or other seizure in flight etc.

It does however exclude war between any of UK, US, CIS, France and China, loss from atomic or nuclear fission or fusion, confiscation by the government of the country in which the aircraft is registered, financial or other repossession relating to an airline contract.

The rates charged take into account many factors including airline routes, security measures, fleet size, location, claims record and coverage. The rate is calculated as a percentage of the total aircraft fleet value.

Typical maximum limits are up to US\$225 million any one aircraft and up to US\$150 million any location for spares (there are specific maximum agreed values in each case). Policies contain an annual aggregate of three or four times the aircraft maximum value.

#### **AIRLINE CLAIMS**

The airline buys a promise to pay claims in accordance with the conditions encapsulated in the policy of insurance. Airlines need an expert professional claims service backed by dependable long term ability to pay.

#### **HANDLING A MAJOR DISASTER**

One of the first tasks for a newly appointed leading insurer is to agree the pattern of claims service overall and in particular coordinate claims service with airline contingency plans for a major disaster. Insurers, loss adjusters and lawyers all work closely with the airline.

There may be an immediate request to pay US\$150 million or more on the agreed value after a total loss. Where the aircraft is subject to lease or financing arrangements the loss (subject to policy conditions) will be paid to the financial institutions concerned.

A typical disaster may involve dozens of different jurisdictions, including the location of the crash and the places where passenger or cargo interests may sue the air carrier. Claims made by passengers or their next of kin may be governed by a variety of different legal regimes, each with a different liability limit. The individual passenger contract may be international or domestic. In Europe most cargo and passenger claims are settled within two years.

Other factors may complicate the settlement of claims, such as:

1. other parties (manufacturers etc) may have or share legal responsibility; and
2. the plaintiff may allege wilful misconduct sufficient to break Convention/Protocol limits.

Typically, early financial assistance is provided to claimants based on need as perceived in the airlines contingency plan, followed by the settlement of each claim when the (undisputed amount) is agreed. Undisputed amounts are paid as soon as correct beneficiaries and sufficient evidence of damages have been provided. Final settlement takes place when all disputes are resolved. Insurers may face subrogation claims from passengers and employers insurers as well as social security organizations.

#### OTHER CLAIMS

Despite the existence of often substantial deductibles in airline policies, airline insurers will be involved in claims for serious incidents above the deductibles that are not disasters and for smaller airlines, smaller claims, again above the deductibles. Aviation insurance claims managers are part of an intricate web of relationships and need substantial negotiation skills, despite the professional assistance provided by loss adjusters and lawyers.

#### THE AIRLINE INSURANCE MARKET

Although airline insurance provides the biggest single segment of aviation insurance, it provides only a minority of aviation insurance premiums. Related segments include the products liability of airframe, engine and component manufacturers, and the insurance of airports and related navigation and other services. Aviation insurance also includes general aviation (over 320,000 aircraft covering recreational and personal flying), (industrial aid) (or business jets and turbo props), as well as various specialist segments such as helicopters and more exotic groups such as crop dusters, and water bombers.

In addition there is a growing space insurance market covering launching and orbital flight.

There are some specialist general aviation insurers, but most of the business is underwritten by aviation insurers or the aviation departments of major insurers and reinsurers. In some markets, marine and other insurers underwrite shares of direct aviation business for major airlines and other big aviation risks including space.

At one time airline insurance covers included a wide range of non-aviation risks, such as hotels, travel agents and other activities, but these are now usually separately insured. The exclusion of non-aviation risks mainly resulted from the limitation of reinsurance covers, so that specialist aviation insurers had difficulty in securing comprehensive reinsurance cover. Many airlines seek such overall cover and it may again become possible for insurers to provide a more all-embracing cover for their airline clients.

Almost all airline insurance is placed through brokers and their work is described in a separate section. For all sizeable airlines, a professional insurance buyer manages relationships with the insurance market for the airline. In some cases the airline has its own insurer to take part of the risk.

#### ACCUMULATION RISK

Consideration of the total airline insurance premium (of about US\$1,785 million gross in 1995 excluding war risks) shows that the relatively modest premium covers enormous exposures, such as nearly US\$400 billion of aircraft hull values and the liability exposures from the carriage of passengers. Both can produce huge accumulations. With a per passenger fatality liability cost of US\$3 million and hull values of up to US\$150 million per wide-body, a single major event could cost several billion or many times the worldwide annual premium. Fortunately, such a loss has not yet occurred, but a single airline loss did cost nearly US\$600 million in 1985.

The problem facing aviation insurers is the need to be able to meet large losses with a modest premium. Insurance companies try to limit their retained loss to a defined percentage of their total premiums. At the same time their shareholder funds provide a solvency or safety margin to meet any undue loss experience. But the margin is limited, typically to 50% to 125% of annual premiums.

#### SPREADING THE RISK CO-INSURANCE

A mechanism has evolved to deal with the distribution of airline risks so as to limit the exposure to a reasonable level for each company or underwriter. This mechanism includes the use of many direct insurers and many layers of reinsurance.

Participants in the direct insurance market include insurance companies and Lloyds underwriters.

In many cases a pool of insurance companies is specially formed to underwrite aviation risks.

This provides the advantages of concentration and specialization whilst making available a large amount of capital from the participating insurers. Some insurers, pools and groups have put together very substantial capacity with the help of reinsurance, with individual participation of 5%, 10% or even more in some cases. Generally, the airline risks are separate from other risks written by the companies

that take part, but underwriters must be alert to catastrophe risks, such as the big windstorm, or earthquake that affects aviation and non-aviation risks.

In airline business different markets often rate the risk at slightly different levels, although most of the insurers are usually content to follow the rates developed by recognized (leaders).

Different markets have major differences in practice. While brokers play a major role in arranging insurance in markets such as London and New York, in other markets the insurer takes a leading role providing a full range of services to his client direct. The pattern of claims handling also varies.

Some insurers, in Europe and the US in particular, practice hands on day-by-day claims work using their own professionally qualified staff working directly with lawyers and adjusters.

#### REINSURANCE

Major writers of airline insurance are heavily dependent on reinsurance, often handled through the same big direct aviation brokers plus a handful of specialist reinsurance brokers. Most insurers employ a complex pattern of reinsurance with quota share (or percentage proportions) surplus where reinsurers take an excess share of the risk in the bigger (lines) or shares, and excess of loss reinsurance where reinsurers undertake to bear a proportion of the loss in excess of fixed amounts.

By the time a major risk has been fully reinsured, hundreds or even thousands of insurers and reinsurers will have a share. The ultimate reinsurers will often bear a higher proportion of the risk than the original direct insurers. Because they will thus only be involved in a proportion of the really big losses they often receive a smaller share of the premium. It will be appreciated that in year with little or no big losses they will make a profit, but equally they can suffer very large losses in bad years.

#### RATING FACTORS

In recent years a number of aviation insurers have been forced out of business by loss of capital or their owners loss of confidence in their underwriting. When all the factors work together the effects can be dramatic. If there is too much (capacity), perhaps in response to two or three (good) years, rates fall. When the big losses occur (capacity) is reduced very sharply and insurers and reinsurers need desperately to restore their depleted capital (as a result of the losses) by big rate increases.

If they fail to achieve them, the airline insurance market might be unable to meet buyers needs.

There are some other factors that have a big effect on the market, such as transparency of rates and the impact of major fleet buying. Unusually, the airline insurance market operates with a high knowledge of the individual rates charged and the limits of cover. The major brokers keep their customers advised to a remarkable degree. Usually there is a clear pattern and correlation between airline risks and rates, but occasionally competitive activity will cause an imbalance which soon distorts the market.

Recent years have seen big changes in the airline market, especially in concentration in the big carriers, many of which have fleets of hundreds of aircraft. Most of the major carriers have supporting regional or commuter operations, not usually owned by them, but often their insurances are placed as part of the main carriers programs. This will give price advantage to the regional, but sometimes their poor experience causes problems.

#### SPECIAL ARRANGEMENTS

In a few cases groupings of airlines, often for other operational purposes, result in combined fleet placing. The biggest of these are the placing of Chinese airlines in one (risk) and the consortium of KLM, SAS, Swissair, Austrian and other airlines, both giving advantages of scale.

There are other factors. Sometimes an airlines risks are placed, perhaps because of regulation, with a state carrier or other insurer who has the advantage of preferable placing, but is not a recognized aviation (rate maker). In these cases the reinsurance placing will directly determine the rate charged.

In some cases airlines or groups of airlines have formed their own insurance companies. With one or two exceptions these have not provided much capacity, but have been used to produce overriding commission. Without substantial capital commitment, any advantage is transitory. Generally airlines have other major needs for capital limiting their support, as the experience of Airline Mutual Insurance (AMI) has shown.

#### WHERE THE PREMIUM GOES

Finally, we should look at the disposition of airline gross premium. The main expenditure of airline insurers is in the payment of claims, but there are other expenses, notably:

1. brokerage often shared between producing brokers, and in some cases rebated to clients;
2. the purchase of excess of loss reinsurance (the cost of approximately 10% shown is low as for a major carrier, but for many aviation underwriters will be much higher because of lower limits of retention). It should be remembered that this 10% is the net cost of reinsurance premium less reinsurance recoveries; and
3. the insurers own cost structure for underwriting, claims, research, accounting and other administration. The 5% figure shown is lower than average.

There is another cost, shown as capacity cost, which is given as about 5% of premium.

This is the opportunity cost to the insurer of the capital tied up in aviation insurance and reflects the loss of income compared with more straightforward investment. Insurers usually have some investment earnings in their premiums etc, until needed for claims and this has been taken into account in the 5% figure.

When losses are made that exceed premium, insurers effectively (lend) interest free until premiums catch up with claims.

Overall, insurers only retain less than 70% of the gross premium, so that only 70% of the gross premium is normally available to pay claims. The reinsurance cost can produce some return to them from recovery of part of the really big claim.

When allowance is made for these deductions, the disproportion between premiums received and claims paid was even greater with a sizeable net loss over the last ten years.

Airline insurance thus represents a complex interrelationship between buyer, broker, insurer and reinsurer. It meets the needs of the carrier, but there is always a risk. Managing that risk effectively requires a higher margin than most insurers achieve. Strong reserves to pay claims can generate substantial investment income, but underwriters need a surplus of premiums over claims to deal with the natural volatility of the business.

#### AIRLINE INSURANCE BROKERS

Many of the world airlines largely place their insurance business into the market via a small group of skilled and experienced insurance brokers with specialist knowledge for four main reasons:

1. to use the brokers technical knowledge in evaluating the risk, assessing suitable level of liability and general advice on contractual and many other matters;
2. to take advantage of the brokers negotiating power in the insurance market;
3. to secure the brokers assistance in negotiating the prompt full payment of valid claims; and
4. to have available the brokers advice day-by-day in helping deal with insurance related problems as they arise.

A major airlines insurance programme will be placed in the international insurance markets.

Each leading market will develop its own rates and may require its own wording to be used, especially for leading markets. The specialist airline broker is dealing with these markets daily and will be aware of their available capacity and can estimate the likely required rate. The broker may prepare the policy wording and the policy documents, then collect the premium and pay insurers.

War and cargo risks will be placed separately and often with different markets. Non-marine covers are separate from the aviation covers and in some countries may be placed direct with local insurers by the airline.

For a new account, the broker will be involved in a detailed review of the clients needs and its current programme and placings. Sometimes this will be in a competitive situation, with a number of brokers asked to make submissions. Formal tender submissions will include details of the brokers capability, performance and proposed marketing strategy for the placement. This submission may include preliminary premium indications.

Substantial detailed investigation will be required, with the broker reviewing:

- fleet composition and values;
- passenger and freight volumes;
- the route structure;
- the airlines operations with careful attention to any peripheral activities and any special situations;
- the airlines detailed loss experience over many years; and
- any expected changes in equipment and operations.

This work will usually be carried out in conjunction with the airline insurance manager and his staff, with meetings with other airline insurance executives as appropriate. In some cases a separate fee may be paid for this work.

When the broker is appointed, he is in a position to approach the various insurance markets, with on-going involvement from the airline when appropriate. The markets to be used will often have been discussed with the airline. As the choice of lead is very important, the broker will visit the main markets to discuss their underwriting approach and any special wording needs. The selection of leader will have a big impact on achieving the required rate in approaching other markets. Major markets overseas are in the US, France, Italy, Sweden, Germany and the Gulf, providing about a dozen separate leaders who will quote their own rate.

For the bigger risks there is a sizeable following market, with each underwriter generally being prepared to follow leaders he respects, but most markets have their own preferences and underwriting philosophy.

Local regulations in some countries provide for insurance to be placed only locally. Here the role of the airline insurance broker will involve the arranging of a facultative reinsurance with world markets.

Reinsurers in these cases are able to influence strongly or even dictate original placing terms.

For the major loss, adjusters will be appointed in accordance with pre-agreed procedures and if claims responsibility is clear-cut, a partial or full early settlement may be arranged. Sometimes a loss may involve other parties, such as manufacturer or airport, and action will be taken to manage the situation without trying to pre-determine the apportionment of liability.

For liability claims, specialist aviation defence lawyers will be approached following the procedures previously agreed with insurers. The overall claims work includes following up on documentation and other requirements and once the appropriate accident investigation has been completed, collecting and paying the claim to the loss payee.

Collecting a claim can be a lengthy process as every insurer on the policy will settle their share.

For a large placement, this may involve over 50 different insurers worldwide.

For a major airline there is constant change with a regular flow of contracts for new aircraft purchase or leasing, and for provision of airport or other services which are reviewed in the airlines legal and insurance departments. The broker will be consulted on any insurance implications which will often mean further negotiation or discussion with insurers.

Brokers have traditionally been remunerated by commission from the insurers. This will vary with the level of premium and has to cover all of the work of the broker. Sometimes airlines pay brokers an agreed fee, taking the place of commission which is then directly rebated to the client.

#### THE CAPTIVE INSURANCE COMPANY IN AIRLINE INSURANCE

Captive insurers tend to be formed by companies where loss experience is better than average and can expect to make underwriting profits. Offshore location often gives substantial tax advantage so that invested funds produce a much higher return than available onshore. However, a number of the world captives are formed (onshore) in the main insurance markets permitting ease of administration and, if appropriate, participation in the regular insurance market. Such captives do not need to accept business from their parent as reinsurance and are able to take part of the direct underwriting risk if appropriate. There are some 30 or so airline owned (captive) or other insurance companies. Three of the best known are:

1. Lufthansa Delvag (operating (onshore) as part of the German insurance market);
2. Guernsey based Polygon owned by a group of airlines, KLM, SAS, Swissair, Austrian Airlines and Finnair. Polygon participates in the regular aviation insurance market as well as initially accepting a sizeable share of its parent risk; and
3. Singapore Aviation & General owned by Singapore Airlines which participates in non-marine as well as aviation exposures.

What is the purpose and value of an airline captive insurance company? It could have several roles:

1. to participate in the airlines own insurance programme within the bounds of acceptable risk in relation to capital;
2. to give the airline a closer understanding of and involvement with the airline insurance market;
3. to act as an additional profit center, particularly if other airlines risks are underwritten; and
4. to gain direct access to the reinsurance market.

However, operating an insurance company, particularly in the difficult airline insurance market where there are big exposures and large accumulations of risk as well as big volatility in rates, requires careful management and a medium to long term approach.

Sometimes, after careful reflection, the prospective parent will decide that the possible return does not justify either the risk and/or the amount of airline executive time required. The airline mutual involving

a number of airlines can be an attractive alternative at first sight, but it does require a substantial commitment in time to achieve the necessary (mutual) understanding. Airline Mutual Insurance was wound up when the combination of recession and a soft airline insurance market led many members to question its utility.

Many airline captive owners are pleased with the results of their captive investment. Polygon, with its group of European owners, has survived and grown to be a significant player in aviation insurance. Within its first two years it suffered what was then the worst airline disaster, but good preparation and a well organized reinsurance programme ensured that it survived.

The regular airline insurance market is always a little doubtful about new captive ventures, but provided they are well managed and soundly capitalized it has been prepared to cooperate - often to mutual advantage.

### AVIATION INSURANCE MARKET PLACE

Barriers to entry in airline insurance are low. There has been a constant flow of capital going in and out of the aviation market. With good security and competitive rating a newcomer can start writing aviation insurance from day one.

For many companies involved in aviation insurance, the premium generated from this segment is relatively small and may attract less attention from corporate level. This fact gives the individual underwriter great freedom in assessing the risk and determining at what price he will assume the exposure. Therefore, the individual underwriters personal views will have a strong impact on the behavior of the market. It is true to say that the airline insurance market is a very competitive market. The fluctuations in rates

and premiums are very much a result of different views between different underwriters of what a correct price should be. In other words, the key element in what constitutes a true market place.

### DIFFERENT UNDERWRITING TECHNIQUES

Consequently, various methods are used in the market by the underwriter when formulating his price for a risk. The individual underwriter does not necessarily adhere to one single method only, as the business environment in aviation varies from one year or one month to another.

Among the rating approaches used are:

Exposure based - working with certain factors as in car or life insurance. Previous loss experience is used to calculate the probability of a total loss overall, also taking into account changing circumstances. Then the individual risk is examined, including evaluation of safety standards. This method can also be applied to a total market segment, ie trunks in the US market or cargo operators in South America.

Experience rating or (burn) rates - looking at partial claims, say 5 to 10 years back. Then allowance for inflation, brokers commission, reinsurance costs and catastrophe loading is added to arrive at an average cost price. This method is useful for frequent claims policies, such as cargo or loss frequent airlines.

Cash flow based - with emphasis on the investment return generated by insurance premiums before claims are paid. Such an approach developed during the high interest rates for the 1970s to 1980, but is not so appropriate today with lower interest rates. There is also the risk that there will not be enough money to pay unexpectedly big claims.

Comparison with similar carriers. One price may have been charged for one carrier and for a similar exposure the price is expected to be the same.

It can therefore be meaningful to take a scientific or technical approach to underwriting, taking into account all the available data. But the level of loss at an average 22 total losses and 700 passenger fatalities in the world each year is quite small. It may not provide enough statistics to base underwriting on unless full allowance is made for uncertainty.

### THE FUTURE OF AIRLINE INSURANCE

The previous sections have shown the enigma of airline insurance - how to provide secure insurance for very large values and limits without undue expense. The cost of airline insurance, whether measured in the hull rate per US\$100 or the liability rate per 1000 RPK (revenue passenger kilometres), has fallen, more rapidly for hull (where the rate for a Boeing 747 is less than a tenth of that at the time of their introduction) than liability where rising awards balance the improvement in accident rates.

#### AIRLINE INDUSTRY CHANGES

Manufacturer forecasts predict continuing average growth of 3% to 5% annually in airline traffic.

One threat to the high income business sector is a growth in video conferencing. Leisure travel growth looks more certain especially from new areas such as Asia/Pacific.

Technologically there is a continuing, but much more gradual, improvement in air safety especially in navigation and air traffic control. The wide use of long twin engine flights over water (ETOPs) has so far not caused any major safety problems. Aircraft size is increasing with active planning for the 800-seater if not the 1000-seater aircraft.

#### INSURANCE CHANGES

In insurance there is a strong move towards amalgamation and consolidation with an appreciable fall in the number of aviation underwriters. Fewer but bigger suggests a healthier market with more security for the buyer and possibly less cut throat competition. Electronic markets are still largely a concept, but radical reorganisation of the market is likely with a sharp reduction in cost for both broker and underwriter leading to lower expense levels.

The use of multi-media and other advances in information technology are likely to improve both the flow and use of information for better underwriting. Perhaps the biggest problem is the tiny margin between incident and catastrophic accident which tends to reduce the value of statistics experience. Already this problem has been tackled by a split rate approach where smaller losses are fully absorbed in experience (including the bottom part of major losses), but catastrophe losses are more widely spread as an overall experience factor.

#### THE LIABILITY RISK

Most of the bigger risks are in the liability segment which also shows the lowest fall in claims cost and premiums. The level of liability claims includes very substantial legal costs and great uncertainty about the outcome. Moves to define more tightly the level of liability could help.

One possibility that has been put forward is the progressive replacement of legal liability by first party accidental injury cover with an automatic level of payment, so that payment to those injured or their dependants would be made only on condition that the injury had been suffered in the course of airline operations.

By eliminating the majority of legal cost, more of the premium would be available to pay claims and insurers would be able to determine their exposure more precisely.

#### MORE COOPERATION

There may be scope for more risk sharing, using an assessment method to pay claims where the US nuclear industry insurance already provides a model. Here full advance premium is replaced by a system where part of the claim is met by a post loss industry - wide contribution.