

# Improving Aviation Insurance System in Russia

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**Abstract** – The article is devoted to the study of aviation insurance system in Russia. The novelty is the presentation of aviation insurance as a system of elements.

Within the framework of the study, the ranking of insurance companies by indicators of financial stability was carried out on the basis of the methodology proposed by Sberbank. The most stable company is National Insurance Group.

An important result is the comparative analysis of aviation industry and aviation insurance industry in the period before and after the COVID-19 pandemic.

As a part of the study, the dynamics of passenger traffic was analyzed, and the features of the formation of insurance rates before and after the announcement of the COVID-19 pandemic were revealed.

The authors offer recommendations for insurance companies in order to help them overcome the crisis as soon as possible.

**Keywords** – aviation insurance; underwriting; civil aviation; aviation insurance market; aviation insurance system.

## 1. Introduction

Insurance is one of the oldest and most stable forms of economic activity.

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DOI: 10.18421/TEM101-33

<https://doi.org/10.18421/TEM101-33>

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*Received:* 12 October 2020.

*Revised:* 26 January 2021.

*Accepted:* 02 February 2021.

*Published:* 27 February 2021.

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Its formation is inextricably linked with the development of modern society. In economics, this concept is defined as the creation of trust funds intended to protect the property interests of individuals and legal entities from unexpectedly occurring, random events or accidents, accompanied by damage to the insured person.

The relevance of the research topic lies in the fact that today the aviation insurance market is undergoing crisis processes that shake not only the Russian market, but also the international aviation insurance. The study of the main reasons for this situation will make it possible to find solutions to this crisis state.

At the moment, insurance companies are facing the consequences of their own pricing policies. Considering the period before the outbreak of the COVID-19 pandemic, it was noted that due to the large number of aviation accidents and the reduction in market capacity, insurance companies made decisions related to reducing the price of provided services. At the same time, the number of insurance losses has also increased, and the insurer's premiums are not enough to cover them. Thus, companies have to rethink their decisions to stay "afloat".

The situation after the start of the global pandemic did not improve the atmosphere in the segment of the insurance market. Experts predict that the number of airlines and other enterprises associated with the operation of air transport will decrease due to the fact that fewer people will use air travel due to the prohibitions and restrictions on the movement of citizens within the country and abroad, introduced in almost all countries of the world [1]. Analysts also note that small carriers and those companies that do not have enough funds to support their current activities will leave the market. In view of this, the size of the aircraft insurance market will decrease. Consequently, it is possible to expand the equity insurance of large and medium-sized airlines, when several insurers serve the same air carrier. This, of course, it will be a way out for insurers, but not all companies are ready (including morally) for this format of work.

## 2. Theoretical Basis

Aviation insurance is a sub-sector and represents the insurance of risks associated with the operation of aviation and space technology. The aviation insurance system is a complex of relations between policyholders and insurers to protect against risks arising from aviation activities [2], [3].

Within the framework of aviation insurance, the insurance company interacts with a wide range of individuals and organizations. Among them we should note government agencies, intermediaries and competitors. Consideration of interaction with the category of customers deserves special attention. It should be noted that the main feature of cooperation between the insurer and its clients is the implementation of an individual approach. Aviation insurance includes compulsory and voluntary types. Therefore, the insurer, before concluding an insurance contract, determines a group of potential customers; makes an individual calculation of the tariff, which takes into account the possibility of payment from the client's side and the profitability for the insurance organization; provides full service of the contract in accordance with the agreed conditions until the expiration of the contract [4].

It is worth mentioning that the aviation insurance system can be represented in the form of a system of market relations, where insurance organizations play the role of “sellers” of insurance services and “buyers”, which include a wide range of individuals and organizations: from individuals and legal entities to government and affiliated structures. The civil aviation market is the most attractive for insurance organizations [5]. This is due to the fact that the existing rules and regulations make it possible to quite accurately bring any risk to a numerical measurement, and almost all risks in this area are spelled out and taken into account in the insurance rules, and with the correct application of actuarial mathematics, the insurance company gets the opportunity to competently conduct the underwriting process and ensure its own business [6], [7].

## 3. Methodology

When analyzing any market, it is impossible to do without characterizing the main market participants.

The informational basis of this study is the data of National Rating Agency, which, since 2016, annually publishes reports on the situation in Russian insurance.

As a part of the study, the largest insurance companies in the aviation insurance market were analyzed. The analysis method proposed by Sberbank of Russia is based on the calculation of a group of indicators, such as the solvency of insurance

organization, liquidity and profitability ratios and the level of coverage of insurance reserves by equity capital [8], [9]. Each indicator is assigned a certain number of points, and the summary indicator of the financial condition of the insurance company is calculated as a sum of the scores of indicators characterizing the financial condition of the insurance company, based on the values of indicators and their scores [10], [11].

According to the authors' calculations based on an analytical review of the insurance market for 2018, the largest insurers in the aviation insurance market include National Insurance Group (NIG), SOGAZ, Ingosstrakh, AlfaStrakhovanie and VSK. Table 1 shows the ranking of companies in descending order of the final assessment of financial stability.

*Table 1. Set of marketing activities carried out in the implementation of an innovative energy efficient cluster*

№	Company name	Point score
Ranking of companies according to the value of the final assessment in 2018		
1.	NIG	115
2.	SOGAZ	100
3.	Ingosstrakh	95
4.	AlfaStrakhovanie	85
5.	VSK	85
Ranking of companies by the value of the final grade in 2017		
1.	SOGAZ	110
2.	Ingosstrakh	105
3.	NIG	100
4.	AlfaStrakhovanie	75
5.	VSK	75

For the period under review 2017-2018 the financial condition of NIG has significantly improved. SOGAZ and Ingosstrakh moved down one position each, taking second and third places, respectively. AlfaStrakhovanie and VSK occupy the fourth and fifth positions.

Almost all companies, except NIG, are recognized as industry-forming. NIG, in turn, is the main insurer in the military-industrial complex, its clients are large enterprises working for the State Defense Contract.

An important component of this study is the implementation of an approach according to which indicators characterizing flight safety in Russia are considered as factors of loss-making in the activities of insurance airlines in the field of aviation insurance [12], [13].

The study analyzes civil aviation insurance. Military aviation, due to its specifics, is not included in this study.

#### 4. Results

The economic situation in the aviation insurance market largely depends on the volume of passenger and cargo transportation and is characterized, on the one hand, by indicators of the level of income of insurance companies for this type of insurance, and on the other, by the volume and dynamics of payments for insured events.

Figure 1 shows the indicators of air passenger transportation in Russia from 2014 to 2019.

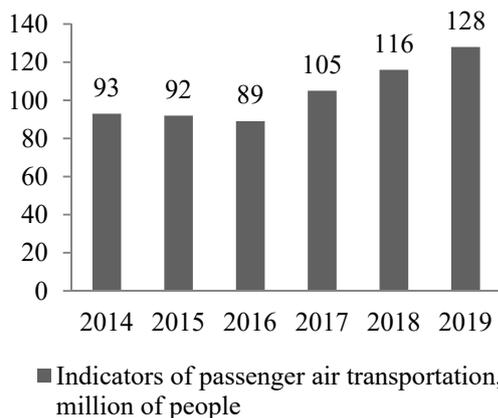


Figure 1. Indicators of passenger air transportation (2014–2019)

In 2019, Russian airlines carried over 128 million passengers (increase of 10.3% compared to 2018), including those on international routes: more than 55 million passengers (increase of 16.3%), on domestic routes: about 73 million passengers (6% growth). The passenger traffic of Russian airlines on domestic

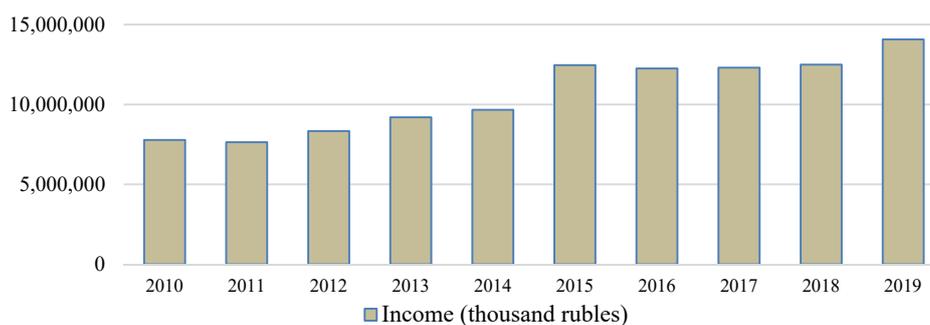


Figure 3. Dynamics of income of insurance premiums from aviation insurance in Russia, thousand rubles

The expenses of insurance companies are associated primarily with payments in the event of insured events. Therefore, the lower the level of flight safety, the greater the amount of payments.

The statistics of Federal Air Transport Agency on flight safety shows that the number of airlines (clients of insurers) is decreasing from year to year, and the number of accidents and disasters (namely, insured events) is steadily growing (catastrophic nature of one accident also increases, which affects the growth of losses).

airlines is increasing from 13.4 million passengers in 2000 to 73 million passengers in 2019.

The leading airlines, which have been demonstrating stable and high performance for many years, continued in 2019 to strengthen their positions. Six industry leaders (Aeroflot, Siberia, Rossiya, Ural, UTair, Pobeda) carried 90.4 million passengers in 2019, which is 64% of the total passenger transportation in the industry (Figure 2).

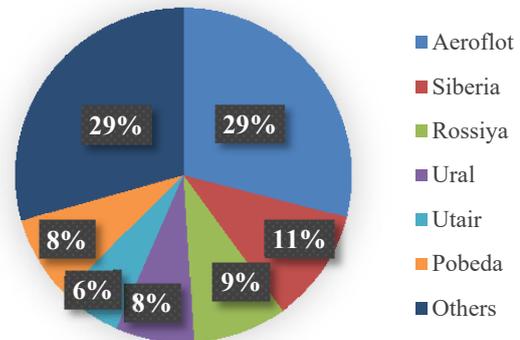


Figure 2. Distribution of air transportation market among Russian airlines in 2019, %a

The income of insurance companies is formed, first of all, from the proceeds of insurance premiums. Figure 3 shows the dynamics of receipts for the study period. The volume of the aviation insurance market in Russia in the period from 2010 to 2019 was approximately at the same level: in the range of 12.2–12.5 billion rubles. Growth in 2014–2015 and 2018–2019 due to the change in ruble/dollar exchange rate, because the airlines' risks are calculated for insurance purposes in US dollars.

In 2019, during the transportation of passengers, cargo, as well as during the performance of aviation work by operators of commercial civil aviation of the Russian Federation, 6 aviation accidents occurred, including 2 accidents with the death of 43 people. For comparison, there were 19 accidents in commercial civil aviation in 2018, including 9 accidents that “killed” 104 people.

Safety indicators are shown in Figure 4.

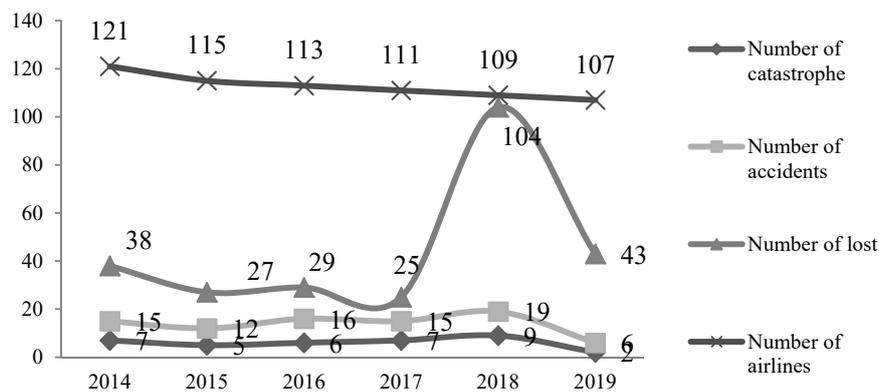


Figure 4. Flight safety in the Russian Federation (Federal Air Transport Agency, 2020)

The main factors that led to aviation accidents in 2019 were:

1. Rough landing: crash of the RRJ-95B RA-89098 aircraft of Aeroflot, which occurred on May 5, 2019 at Sheremetyevo airport and led to the death of 41 people (during the flight, there was a failure in the operation of electronic units with the transition of the control system to the "Direct mode", there was a rough landing, followed by a progressive "bounced landing").
2. Rolling out of the runway: crash of An-24RV RA-47366 aircraft of Angara Airlines when landing at the airport of Nizhneangarsk on June 27, 2019, which led to the death of 2 people (on descent for landing, the left engine of the aircraft failed. On the run, after landing, the plane rolled out to the right of the runway center line 36, as a result of which the plane broke through the airfield fence and collided with the treatment facility building).
3. Collision with birds: accident of A-321 VQ-BOZ of Ural Airlines during takeoff and climb on August 15, 2019 at Zhukovsky airport (during takeoff, the plane collided with a flock of birds, which led to a decrease in engine thrust, as a result of which the crew made a decision to perform an emergency landing with the landing gear retracted along the take-off course).

The following factors are typical for aircraft accidents and serious incidents:

- getting into conditions associated with dangerous weather (thunderstorm activity, intense precipitation in the form of hail, fog, wind shear, etc.);
- collision with the ground or obstacles in controlled flight;
- collision with birds during take-off and landing.

Thus, it can be noted that the insurance market in Russia is currently faced with an increase in insurance payments, but the available insurance premiums are sufficient to cover the insurer's losses

on the fulfillment of obligations under the insurance contract. At the same time, the number of potential clients for the policyholder is decreasing, which forces insurance companies to apply various kinds of price reduction mechanisms to preserve client portfolios.

## 5. Discussion

The situation on the aircraft insurance market before February, 2020 and after is completely different. So before the start of the pandemic, the market was characterized by the following problems:

1. The slowdown in the growth rate of income with a simultaneous increase in insured events is not beneficial to insurance companies, since most of the revenue is spent on servicing contractual obligations. In order to improve their relations with airlines, insurers apply a policy of price reduction, which is often, but not always supported by economic calculation. Thus, instead of naturally increasing communication rates with the increase in the number of air crashes, the insurer lowers the rate in order to retain the client;
2. Insurance companies, in connection with their "pricing policy", take on insurance for high-risk aircraft (for which insured events have already been recorded and critical production defects have been identified). It is clear that with this policy, the quality of the services provided by the insurer suffer (insurer does not realize what risk he takes upon himself and what are its consequences), and the quality of the airline's work (the lower the quality of the aircraft, the less it will fly, and the more serious the accident will be with this aircraft, which will damage the carrier's image, which often leads to the bankruptcy of the airline);
3. The decline in the capacity of civil aviation is manifested in a decrease in the number of airlines in Russia. Most of the fleet of liquidated

airlines is either bought out by large players or is undergoing a scrapping process, so it is difficult for insurance companies to attract new customers and often it is a useless exercise. Due to the limited number of customers, competition among insurers is also growing;

4. In order to be able to earn money, insurance organizations can use the practice of risk reinsurance in the foreign insurance market. This allows benefitting from the difference in tariffs that are paid by the policyholder and which have to be paid to the reinsurer. At the same time, despite the rise in the dollar exchange rate, until recently in the practice of companies such a policy was a fairly frequent occurrence;
5. It is also worth noting the growth in the number of insurance accidents. It should be clarified that, unfortunately, from the point of view of flight safety, Russia lags behind the world average and catastrophically lags behind developed countries. The absence of a progressive state security policy and, in particular, the absence of any goals in this area means that this situation will continue in the near future. It has been noted more than once that the activities of regulatory and supervisory bodies (in particular Federal Air Transport Agency) are reduced to punishments and revocation of certificates. This policy does not have any positive component, such as developing recommendations, disseminating best practices and training of staff.

It should be noted that before the problems caused by the COVID-19 virus, some insurance companies took measures to increase revenue by increasing tariffs by 15-20%, which should have solved the main problems described above. However, the situation with the pandemic and flight restrictions caused a decrease in insurers' incomes to almost zero, but, at the same time, the accident rate also decreased due to the fact that most of the aircraft are "remained on the ground". Therefore, the main task of the aviation insurance market is the "survival" of all participants, as well as the earliest possible normalization of the work of the industry enterprises that need insurance services.

At the same time, the state "did not abandon" civil aviation to the mercy of fate. According to the Decree of the Government of the Russian Federation of May 13, 2020, 23.4 billion rubles were allocated to support Russian airlines affected by the coronavirus pandemic. However, not all companies received the assistance they deserved. According to media sources, Pobeda (subsidiary of Aeroflot) is the only airline that has not received government support. To cut costs, Pobeda had to send employees on unpaid leave. It is estimated that about a hundred second and junior pilots were sent on unpaid leave.

This is about a third of all pilots in the company. At the same time, the airline said that they offered employees to take regular vacations during the period of forced downtime, and some of them took advantage of the offer.

Due to the pandemic and restrictive measures, many airlines in Russia and around the world began to lay off their staff. Thus, Siberia has reduced the number of pilots, and also closed its divisions in Omsk, Chelyabinsk and Perm. Ural Airlines and Utair claim that they are not making large-scale redundancies.

At the same time, major world airlines have already announced large-scale reduction programs: at the end of May, the British EasyJet announced plans to cut 30% of its staff: 4 500 people. At the end of April, British Airways announced possible plans to lay off 12 000 employees. The company expects demand for air travel to recover for several more years. Low-cost airline Ryanair was going to cut about 3 000 people due to the crisis. Air France also announced similar plans for more than 7 500 employees, and Germany's Lufthansa was planning to cut 26 000.

## 6. Conclusion

Thus, the following actions can be recommended to insurance organizations:

1. To analyze their own portfolio of clients and identify the weakest ones who will not be able to pay for insurance services;
2. To find out the reasons for delays in payments and, if possible, to provide such clients with support in the form of assistance in resolving emerging issues;
3. An effective way to protect insurers from the consequences of quarantine can be the inclusion in insurance contracts of rules and clauses that allow insurance companies to be exempted from liability for the agreed risks if the aircraft is idle due to force majeure circumstances;
4. We should also take advantage of the assistance provided by the regulator and the state, as this will allow a more rational use of monetary resources to support activities;
5. It is necessary to develop a specific plan of action in case of such incidents.

These measures will allow insurance companies to identify the most unprofitable clients and take measures to reduce the unprofitableness of their own insurance portfolio. The implementation of these recommendations will undoubtedly lead to an even greater reduction in demand in the aviation insurance market, leaving only large policyholders on the market. But, unfortunately, this is a necessary

measure associated with the survival of insurers. There is a great risk that many insurers will not be able to wait long enough for the end of the crisis and they will have to re-profile their activities. At the same time, there is still hope for an early recovery of the activity of market participants if quarantine measures are gradually lifted inside the country and abroad. Otherwise, the recovery of the industry will be quite a long process.

Having analyzed the existing system of aviation insurance, it can be noted that it is experiencing negative consequences from the problems that were before and during the pandemic.

If we consider the state of the market before the start of the pandemic, we can say that the market has found solutions to the existing problems. Companies could raise prices and reduce the supply of insurance services. Now such measures will not be able to properly correct the situation, since the income to the insurer is not received due to objective reasons.

Thus, all market participants, policyholders and insurers, need support, since the development of aviation insurance depends on the activities of the aviation sector, and the development of the aviation sector largely depends on the development of insurance in this area.

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