

## **Исследование индустриальных рисков нефтегазовой отрасли в России и рисков ПАО «Газпром»**

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### **Аннотация**

В статье представлены результаты идентификации рисков ПАО «Газпром» и управления ими. Оценка основана на описательной статистике, предоставленной как компанией, так и статистическими наблюдениями в нефтегазовой отрасли, предоставленные «Росстатом» и Министерством энергетики. Результаты могут быть использованы в национальном, региональном управлении и управлении компанией.

**Ключевые слова:** нефтегазовая отрасль, корпоративное страхование, отраслевые риски, фирменные риски, корпоративная страховая программа, ПАО «Газпром».

## **Study of the industrial risks of Oil and Gas sector in Russia and risk identification of PJSC «Gazprom»**

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## **Abstract**

Results of the PJSC «Gazprom» risk identification and their management are presented in this paper. Assessment is based on a descriptive statistics provided both by the company and the statistical observations of the Oil&Gas industry provided by Rosstat, and the Ministry of Energy. The results may be used in national, regional governance and company's management.

**Keywords:** oil&gas industry, corporate insurance, industry risks, firm risks, corporate insurance program, PJSC Gazprom.

## **Introduction**

Over the years the companies have been undertaking extensive risk of management activities to safe the investor as well as investments and financial performance. In the present day scenario the two aspects which are of great importance to the general insurance industry are firstly the opportunities in the general insurance market and the resulting focus of players on achieving business growth and secondly the ongoing process of business operations in a specific industry.

An efficient risk assessment and management in oil and gas industry lays great emphasis due to entry of private players, corresponding policy changes and the present day fact of erosion of capital resulting from unmanageable resources.

This paper focuses on PJSC Gazprom, its risks identification, and possible risks elimination, reduction or resignation. Industrial risks together with company's ones will be discussed in the beginning of this work followed by estimations of Gazprom's risks (severity of impact and probability of risk occurrence) on the scale from 1 to 5, where 1 is low impact and low probability and 5 means severe impact and high probability equalling 100%. In the aftermath, corporate insurance programs will be considered and the best one chosen for the particular case of Gazprom.

### **1) Business Description**

Public Joint Stock Company Gazprom is a large Russian company founded in 1989, it is also a global energy company focused on geological exploration, production, transportation, storage, processing and sales of gas, gas condensate and oil, sales of gas as a vehicle fuel, as well as generation and marketing of heat and electric power. The company is majority owned by the Government of Russia, via the Federal Agency for State Property Management and Rosneftgaz. The company is involved in the Russian Government's diplomatic efforts, setting of gas prices, and access to pipelines. The Company's share in the global and Russian gas reserves amounts to 17 and 72 per cent respectively. Gazprom accounts for 12 and 68 per cent of the global and national gas output correspondingly. At present, the Company is actively implementing large-scale gas development projects in the Yamal Peninsula, the Arctic shelf, Eastern Siberia and the Russian Far East, as well as a number of hydrocarbon exploration and production projects abroad. Gazprom is a reliable supplier

of gas to Russian and foreign consumers. The Company owns the world's largest gas transmission system with a total length of 172.1 thousand kilometers. Gazprom sells more than half of its gas to Russian consumers and exports gas to more than 30 countries within and beyond the former Soviet Union. The company has subsidiaries in industrial sectors including finance, media and aviation, and majority stakes in other companies. Gazprom is among Russia's top four oil producers. The Company also owns major power-generating assets accounting for some 16 per cent of the total installed capacity of the national energy system. In addition, Gazprom ranks number one in the world in terms of thermal energy generation. On November 30, 2018, Gazprom published IFRS statements for 9 months: net profit amounted to RUB 1.017 trillion, which is RUB 435.416 billion, or 75% more than in the same period last year. This is more than the entire profit for 2017: Gazprom received last year a net profit under IFRS in the amount of 714.3 billion rubles.

## **2) Firm Risk Identification and Assessment**

In the third chapter the risks of Public Joint Stock Company «Gazprom» will be considered. So far, PJSC «Gazprom» has a wide range of issues that should be tackled in the nearest future in order to secure the assets, reputation, performance and welfare. The following risks will be derived from the industrial ones and diversified according to specific features of the company.

The first one is the risk of geological exploration which means the possibility of unconfirmed prospects for the oil and gas potential resources exploration. When assessing resources, one constantly has to work under conditions of risk with the final result unknown and with the probability of obtaining certain results is known. Risks associated with the development of renewable energy sources may lead to a reduction in gas consumption in many countries that are the customers of Gazprom. The third risk in connection to the first one is the hydrocarbon reserve estimation risks meaning that PJSC Gazprom's strategic and financial goals highly depend on hydrocarbon reserves and the accuracy of reserve estimates. The fourth that is also related to this group is the environmental risk: the key operations, including hydrocarbon production, transportation, refining/processing, and storage, carry environmental risks (risks of environmental pollution, non-compliance with environmental regulations) may lead to legal, financial, and reputational implications. Risks associated with the development of gas production from unconventional sources means cuts in revenues of PJSC Gazprom, because since the mid 2000s there has been an increase in gas production from unconventional sources, primarily from shale deposits in the United States. Risks associated with the transit of natural gas include transportation of gas through the territory of third countries which is associated with the risk of default on transit obligations and entails the risks of inadequate fulfillment by Gazprom Group of obligations under gas supply contracts.

Risks associated with human resources mean that company's business depends on key highly qualified employees, and the lack of the required number of qualified personnel, in particular in

engineering and technology areas, can lead to risks associated with staff shortages. Risks related to labor protection and industrial safety follow the previous risk: the company is exposed to risks in relation to the safety of employees, equipment, buildings and structures, e.g., equipment breakdowns or equipment failure, labor disputes, injury to personnel and third parties, natural disasters, political disputes and terrorist attacks. License risks define the whole operating potential of the company in the field of subsoil use on the basis of special permits — licenses for the right to use subsoil areas, spatial boundaries, terms and mandatory conditions for subsoil use.

The next sub-group describes financial risks crucial to PJSC Gazprom. Foreign exchange risk is described as high exchange rate volatility plus income and expenses denominated in different currencies. Credit and liquidity risks exposes PJSC Gazprom to the provision of deferred payment to customers as well as advance payments to suppliers, which may lead to a risk of non-fulfillment of conditions for the repayment of receivables or failure to fulfill the obligations of suppliers when advances are made in capital construction or equipment supply. The third here is the risk associated with attraction of borrowed funds where the introduction of sanctions by US and EU against Gazprom have significantly narrowed the range of available financing instruments for the Company. Interest rate risk is important for the company, since, being the major borrower, the company is exposed to the risks associated with changes in financial market conditions. A significant part of the Company's debt portfolio is liabilities denominated in US dollars. The interest rate on loan servicing is linked to the rates on interbank loans - LIBOR. Risks of cost increase means the rising cost of equipment, technical devices, components, as well as services that form the value of capital construction objects, represents a risk from the point of view of investment activities.

Market risks is another sub-category that influences the performance of PJSC Gazprom. The main activities of the company are oil and gas production, oil refining, and sales of oil and oil products, therefore the company is subject to risks traditionally inherent in the oil and gas industry, namely:

- risks associated with possible changes in prices for purchased raw materials, services;
- risks associated with possible changes in the price of oil and petroleum products;
- risks associated with industry competition;
- risks due to economic instability in the industry.

Another group of risks arise from implementation of strategic objectives. In terms of unstable, tough market and constantly changing market conditions, the main challenges for the company are the preservation of the dynamic development vector and the realization of strategic goals. An alarming industry trend is the reduction of investments in the implementation of large projects, which casts doubt on the feasibility of large-scale strategic objectives and the safety of the project portfolio.

Risks associated with sanctions from the European Union and the USA threaten PJSC Gazprom greatly, since if the sanctions regime strengthens, this may adversely affect the overall situation in the industry, as well as have a point effect on the Company's promising projects and the ability of its counter-parties to fulfill their obligations. Risks associated with foreign assets are important, because Gazprom is implementing a number of foreign projects aimed at expanding the geography of its production activities and entry into new regions is associated both with the possibility of obtaining additional competitive advantages and with the risks of underestimating the economic and political situation.

Risks associated with changes in the tax legislation of the Russian Federation influence the key companies of the Gazprom Group who are one of the largest taxpayers in the Russian Federation paying federal, regional and local taxes. Risks associated with modification of customs control rules and fees may be presented as the possibility of the Government of the Russian Federation to change the rates of customs duties (both import and export) on certain goods in respect of which the company makes foreign trade transactions. The main negative consequences of the realization of this risk are increased costs and reduced export efficiency. Risks of state regulation of the gas industry in the Russian Federation mean that activities of PJSC Gazprom as a natural monopoly are regulated by the Federal Law of August 17, 1995 No. 147-ФЗ and the state's share in the share capital of PJSC Gazprom is more than 50%.

Out of the whole list, the crucial risks to the PJSC Gazprom are, as follows (this also can be clearly seen in the table in Appendix 1 — where impact equals to «4»):

- risks associated with the development of renewable energy sources and risk of geological exploration;
- risks associated with the development of gas production from unconventional sources;
- foreign exchange risk and risks associated with possible changes in the price of oil and petroleum products;
- risk of sanctions regime strengthening;
- risks of inadequate fulfillment of contract by Gazprom Group due to Risks associated with the transit of natural gas.

Moreover, the graph below shows the risk mapping, derived from the table from Appendix 1. It can be concluded that there are no so called routine risks (right bottom corner) which may occur frequently but have a low impact. Minor risks, that are unlikely to occur and would have minimal consequences if they did, include just risks in relation to the safety of employees, equipment, buildings and structures and risks associated with industry competition and instability in the industry. Difficult risks (left upper corner), which are unlikely to occur but would have a large impact if they did, are represented in the left upper corner with probability less than 3 and impact higher than 3.

Critical risks, that have a medium to high likelihood of occurring, and would have a severe impact if they do, represent the most important and crucial to the company risks which can be faced in the nearest future.

### **3) Methods of Risk Control**

The fourth chapter considers appropriate methods of risk management for each firm's risk. These techniques for risk management include:

- Avoidance (not performing an activity that could carry risk);
- Reduction (reducing the severity of the loss or the likelihood of the loss from occurring);
- Sharing (sharing with another party the burden of loss or the benefit of gain, from a risk, and the measures to reduce a risk);
- Retention (accepting the loss, or benefit of gain, from a risk when the incident occurs).

Risk management methods can be clearly seen in the fourth column of the table in Appendix 1.

Retained risks are those which are so large or catastrophic that either they cannot be insured against or the premiums would be infeasible, this risk also means that the cost of insuring against the risk would be greater over time than the total losses sustained. It can be clearly seen from the table in Appendix 1, that such risks as risks associated with the development of renewable energy sources are retained, since they cannot be anyhow insured or prevented. License risk, vice versa, is possible to reduce, for instance by using for instance drilling procedures only in Russia.

As for risk sharing, PJSC Gazprom is capable of insuring only the risk connected with safety of employees, equipment, buildings and structures, since other risks are unpreventable and external which means that the company can only adapt to these changes in the future or reduce the risks by some actions.

The risks that are reduced include, for instance environmental risks, which may be withheld due to clever environmental policy and guidance. The risks of obligation fulfillment failure are reduced through additional agreements and wise choice of partner countries. Foreign exchange risk, interest rate risk and risks considering raw materials and oil prices can be coped with futures and forward contracts, as well as swaps. External political risks such as sanctions or unreliable international connections may be reduced by additional agreements and contracts, rouble securitization, focus on domestic market, etc.

The last category is risk avoidance which, as we believe, can be applied to the two risks mentioned:

- risks associated with industry competition;

- risk due to economic instability in the industry.

Under the first, the following is understood: PJSC Gazprom is operating in a monopolized market and, basically, has no competition (the attempts of competitors may be neglected). The second risk can be avoided, since oil and gas industry is mostly important to the government. Moreover, because the market is monopolized, it is easier for Gazprom to control everything and not let the industry destabilize.

#### **4) Corporate Insurance Program**

In accordance with the objects and risks mentioned in the part №4, the following insurer firms were chosen for the determination of the potential and prospective insurer for the PJSC “Gazprom”. Those companies are: “SOGAZ”, “Alfa Strakhovanie” and “Ingosstrakh”. The choice of the firms are based on the reputable ranking “Banki.ru” and statistical data provided by insurers to Central Bank.

##### **4.1) Description of the Firms and core operational indicators**

###### **4.1.1) SOGAZ**

The SOGAZ insurance group was founded in 1993 and it is one of the largest federal insurers in Russia. The group provides more than 100 insurance programs for individuals and enterprises of various fields of activity. The regional network includes more than 800 divisions and sales offices throughout Russia.

Ranking: AKPA – AAA(stable), RAEX – AAA(stable), AM BEST – B++(stable), insurer №1 in category “corporate insurer”, according to Banki.ru

Claim Reserve: 66 billions rubles

Size of premiums: 110 billion rubles (2018)

Benefit Paid: 8 billion rubles(corporate property&equipment insurance, 2018 – first two quarters), 48 billion rubles(health insurance, 2018)

Expertise in Oil&Gas Industry: Key Player in the industry since 1993, Key Clients: Novatek, Rosneft and Bashneft. Established own comprehensive insurance system for gas and oil enterprises.

###### **4.1.2) Alfa Strakhovanie**

Alfa Strakhovanie Group has extensive experience in working with enterprises and organizations of various scales and profiles. Among their clients are more than 100,000 organizations and individual entrepreneurs. Especially for corporate clients, complex insurance programs and products are developed that take into account the specifics of industries and enterprises.

Ranking: RAEX – AA(stable), Fitch – BB(stable), insurer №2 in category “corporate insurer”, according to Banki.ru

Claim Reserve: 66 billions rubles

Size of premiums: 17,2 billion rubles (2018)

Benefit Paid: 468,030 million rubbles (corporate property&equipment insurance, 2018 – first two quarters) ,10 billion rubles(health insurance, 2018)

Expertise in Oil&Gas Industry: Lack of Large Oil&Gas Corporate Clients

#### 4.1.3) Ingosstrakh

Ingosstrakh AO is one of the largest Russian insurance companies, consistently ranked among the top 10 insurers of the Russian Federation

Ranking: AM BEST – B+(stable), RAEX – AAA(stable), S&P – BBB-(stable), insurer №3 in category “corporate insurer”, according to Banki.ru

Claim Reserve: 73 billions rubles (2018)

Size of premiums: 79,7 billion rubles (2018)

Benefit Paid: 42,833 billion rubles (2018)

Expertise in Oil&Gas Industry: Key Clients: Russneft. Insurance Packages are available for all the types of risk for oil and gas industry, however are provided separately, rather than a complex product.

All the insurers provide almost the same type of packages and guarantee, that in case of complete or partial damage or loss of all or part of the insured property as a result of events specified in the insurance contract, the insurers shall indemnify the insured for losses incurred as a result of these events within the insurance amount specified in the insurance contract.

#### **4.2) Enterprise Property Insurance Package**

Insurance coverage may be provided on a “against all risks” and “certain chosen risks” basis.

“Against all risk package” includes: “Fire” Option, that covers full destruction or damage to the insured property as a result of: (a)fire, (b)explosion, (c)lightning strike, (d)manned aircraft crash and (e)fire extinguishing measures; “Water” Option, that covers (a)sudden accidents plumbing, heating, sewage, fire or other hydraulic systems, (b)freezing pipes of water supply, heating or sewer systems, (c)penetration of water or other liquids from neighboring rooms; “Natural Forces and Disasters” Option; “External Effects” Option that covers (a)collision with the industrial machines, (b)falls on the insured property of trees, pillars, lighting masts, elements of outdoor advertising and other items; “Illegal actions of third parties”, that includes (a)theft, b)intentional damage or destruction of property as a result of actions third parties, (c)hooliganism, (d) vandalism, (e)destruction or damage to property due to negligence and (e)riots.

#### **Accident & Critical Illness Insurance Package**

SOGAZ implements insurance programs for employees of enterprises against accidents and diseases, which are developed taking into account the specifics of the industry, the number of insured. The insurance contract may provide for compensation for harm caused to the life and health of the insured both during work and 24 hours a day.

### **Third-party Insurance Package**

The insured event is the infliction of harm to the life, health or property of third parties in the process of using immovable property that is the subject of a pledge. Insurance payment is made:

- physical persons whose life, health or property was injured or who have, in accordance with current legislation, the right to compensation for harm in connection with the death of the victim in an accident;

- legal entities whose property was damaged.

All the insurance rates are calculated individually, based on the industry.

#### **4.3) Determination of the Insurer for the JSC Gazprom**

As the insurance products, that are provided by the prospective insurers are mostly the same in their core options, the choice of insurer firm will be based on the operational indicators for year 2018 and experience in Oil&Gas Industry. Alfa Strakhovanie showed a strong performance on the par with good reputation and rankings, however, the insufficient industrial experience and lack of special insurance programs make the firm a weak contender. Both SOGAZ and Ingosstrakh are reliable insurers due to the high level of claim reserves and positive difference between size of premiums collected and benefit paid. In addition, the above mentioned companies are backed up by the reputable rating agencies. Nevertheless, SOGAZ, as the most experienced player in Oil&Gas Industry with its integrated approach to insurance protection and risk management makes it possible to comprehensively consider the specific features of the functioning of industry enterprises. Such an approach is expected to improve the quality and effectiveness of insurance protection while optimizing its value. With the reference to the facts and evaluation mentioned previously, SOGAZ is considered as the potential insurer for the JSC Gazprom.

#### **4.4) Potential Insurance Programme for the JSC Gazprom**

PJSC Gazprom should consider a comprehensive insurance system for gas enterprises, provided by SOGAZ. The programme includes the following features:

- insurance of the most important and expensive objects (gas processing plants, compressor stations, gas fields) against catastrophic losses with an adequate limit of liability;

- compensation for damage associated with the elimination of the consequences of the accident, at the actual costs of the enterprise;

- insurance of breaks in production;

- extended liability insurance of enterprises operating hazardous production facilities.

Additionally, the programme includes the mandatory insurance for owners of hazardous facilities, that covers injuries and death of the employees and members of the third party. SOGAZ provided regular inspections, that is led by the experienced professionals conduct, that are aimed at

diagnosing and identifying existing and potential threats, as well as developing response scenarios if they occur.

Implementation of such a comprehensive insurance protection system is the main objective of applying insurance as an economic risk management tool for JSC Gazprom, that will provided all the necessary protection from risks, related to the safety of employees, equipment, buildings and structures, injury to personnel and third parties.

### **Conclusion**

PJSC Gazprom has been thoroughly analyzed by our team of five. Industrial risks lead to a better understanding of the area, where the company operates, while overall description helps to identify the main financial risks by looking at the performance. All in all, there are 10 risks for the Oil&Gas Industry and 25 risks inherent in Gazprom.

The risk identification map on page 11 provides us with the following issues for the company:

- there are no so called routine risks which may occur frequently and have a low impact;
- most of the risks would have huge impact on the company in case of occurrence;
- the most severe risks occur with probability not less than 60%.

Insurance of the risks is possible only in case of employees, equipment and buildings. SOGAZ has been chosen, since it is the most experienced player in Oil&Gas Industry.

Gazprom has proven to be one of the most stable companies for years, which identifies its wise risk and performance management.

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**Appendix 1** — Risk identification, estimation and management

№	Risk	Risk probability	Severity of outcomes	Risk Management
1	Possibility of unconfirmed prospects for the oil and gas potential resources exploration due to risk of geological exploration	2	4	retention
2	Reduction in gas consumption in many countries that are the customers of Gazprom due to risks associated with the development of renewable energy sources	3	4	retention
3	Hydrocarbon reserve estimation risks	3	3	reduction
4	Key operations may lead to legal, financial, and reputational implications due to environmental risk	3	3	reduction
5	Cuts in revenues of PJSC Gazprom due to risks associated with the development of gas production from unconventional sources	2	4	retention
6	Risk of default on transit obligations due to Risks associated with the transit of natural gas	3	3	reduction
7	Risks of inadequate fulfillment of contract by Gazprom Group due to Risks associated with the transit of natural gas	2	4	reduction
8	Risks associated with staff shortage due to lack of qualified workforce	1	3	reduction
9	Risks in relation to the safety of employees, equipment, buildings and structures, e.g., equipment breakdowns, injury to personnel and third parties	1	2	sharing
10	License risks — loss of license to use subsoil areas, spatial boundaries	2	3	reduction
11	Foreign exchange risk — high exchange rate volatility for income and expenses denominated in different currencies	4	4	reduction

12	Provision of deferred payment to customers as well as advance payments to suppliers — risk of non-fulfillment of conditions for the repayment of receivables	3	3	reduction
13	Risk associated with attraction of borrowed funds due to introduction of sanctions by US and EU against Gazprom	2	3	reduction
14	Interest rate risk — a significant part of the Company's debt portfolio is liabilities denominated in US dollars	3	3	reduction
15	Risks of cost increase — the rising cost of equipment, technical devices, components, as well as services that form the value of capital construction objects	3	3	retention
16	Risks associated with possible changes in prices for purchased raw materials, services;	2	3	reduction
17	Risks associated with possible changes in the price of oil and petroleum products	3	4	reduction
18	Risks associated with industry competition	1	2	avoidance
19	Risks due to economic instability in the industry	2	2	avoidance
20	Implementation of strategic objectives — risk of investment losses due to alarming industry trend of the reduction of investments in the implementation of large projects	2	3	retention
21	Risk of sanctions regime strengthening, which may have an effect on the company's promising projects and the ability of its counter-parties to fulfill their obligations.	3	4	reduction
22	Risks of underestimation of the economic and political situation in countries where Gazprom expands	3	3	reduction
23	Risks associated with changes in the tax legislation of the Russian Federation	2	2	retention

24	Risks associated with modification of customs control rules and fees	2	2	retention
25	Risks of state regulation of the gas industry in the Russian Federation	2	2	retention