

Economic Evaluation of the Production Efficiency of Chemical Substances and Chemical Products in Russia and in the Kemerovskaya Oblast

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Abstract. Development of chemical industry in Russia is determined by the availability of the essential national resource sectors. The economic growth rate in the Russian economy depends on the efficient production of chemical substances and chemical products. Fluctuations of financial indicators for the chemical production in Russia in 2012-2017 show a positive trend. The development of the sector as a whole is subsequently affected by economic indicators of individual businesses in the regions. The Kemerovskaya oblast is one of the leading regions in terms of chemical substance and chemical product manufacturing with six chemical businesses operating there. Kemerovo Joint Stock Company Azot is in top five nitrogenous fertiliser manufacturers in Russia accounting for 1/3 of the total caprolactam produced in Russia. The economic efficiency evaluation of the Azot KJSC was conducted. The analysis of the performance of the business based on the processed public accounting data allowed to identify the critical points and growth drivers, the positive trends in enhancing the efficiency of a business and overcoming the crisis (negative net revenues in 2015). Better economic performance of a business finds its expression in the growing output, revenues, profit, rate of return and higher average annual cost of the capital assets. The analysis showed that the trend within the chemical industry in the region is similar to the one on the national level.

1. Introduction

Today the chemical substance and chemical product manufacturing is developing very fast in Russia. It is one of the leading sectors in the country's economy, and, moreover, Russia is one of the major chemical manufacturers in the world. This results from well-developed facilities and resources, highly-qualified experts, chemical raw materials, natural gas and oil [1].

The Russian Classification of Economic Activities (OKVED2) puts the production of chemical substances and chemical products into Section C "Manufacturing" [2], which includes products manufactured from various types of raw materials as a result of chemical processing.

Without any doubt, Russian chemical industry is an innovative and progressive economic sector. Today, technologies for the development of the chemical sector are actively developing. Experts are introducing automated equipment and nano-technologies step by step. New technologies allow to streamline the production process and manufacture new types of products with better qualities [1].

The businesses within the Russian chemical complex can be divided into the following groups:

1. General chemistry;
2. Mining and chemical;



3. Organic chemistry;
4. Other types of chemistry production businesses: household chemicals, pharmaceutical companies, microbiology companies, etc.

The production centers for nitrogenous fertilisers are in Kemerovo and Lipetsk; phosphate fertilizers are produced in the Leningradskaya oblast, Tolyatti, and the Samarsky region. Potassium fertilisers are made directly where the raw material is mined, for example, in Berezniki and Solikamsk [1].

In 2014 Russia accounted for 2.4% of the total output in the global chemical production [3, p.57].

A whole number of publications concern challenges to and trends in the chemical production development in the following regions and provinces: the Republic of Tatarstan [3, 5], the Stavropolsky krai [6], and the Volgogradskaya oblast [7].

Foreign experts also analyse the sectors of the Russian economy, from the major natural resource sectors to other key sectors. It has been said that the branches of the real sector of economy have been left with the bitter Soviet legacy [4].

The foreign publications also separately view institutional changes in Siberia after the collapse of the Soviet Union as an example of the economic development of the Russian regions. The Oxford Handbook of the Russian Economy defines Siberia as the Asian territories of Russia that constitute the Siberian Federal District, the Far Eastern Federal District and also the Yamalo-Nenetsky and Khanty-Mansiisky provinces that are rich in energy sources. The statistics in the Handbook differentiate between the Far Eastern Federal District and the other parts of Siberia [4].

Taking that into account, the performance efficiency of the production of chemical substances and chemical products is pertinent.

The goal of the research: to evaluate the efficiency of the development of the chemical industry in Russia and in the Kemerovskaya oblast.

2. Fluctuations of the major economic indicators of the chemical production in Russia

The quality of chemical products in the Russian market is getting better, and, despite the changing demand, the production can quickly adjust its technologies and manufacture the product in demand.

One of the drivers of the production modernization in the chemical sector is the consistently stricter requirements for the quality and state control technologies.

The fluctuations of the financial indicators in the chemical production in Russia in 2012-2017 (See Figure 1 and Figure 2).

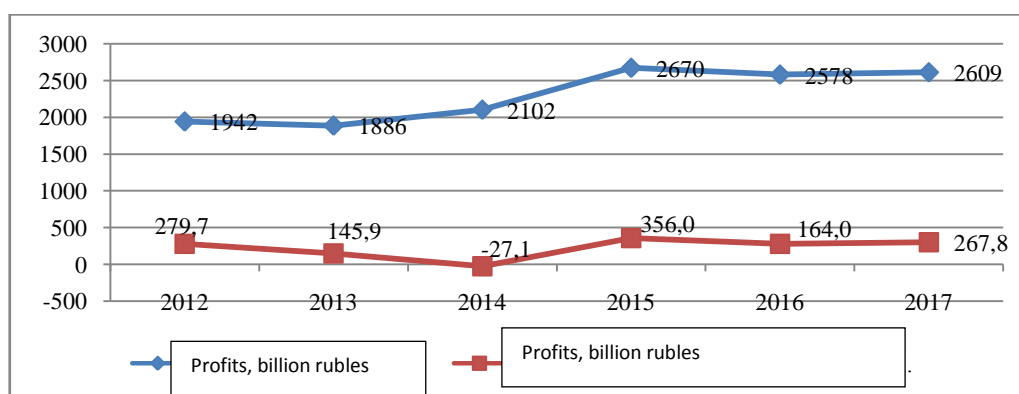


Figure 1. Financial indicators in the chemical production in Russia in 2012-2017, billion rubles. Source: compiled by the author on the basis of [8, p.189, 9].

As a whole, in the analysed period the revenues grew from 1942 billion rubles in 2012 to 2609 billion in late 2017. 2014 witnessed a major recession.

In March 2014 the USA and the European Union member states, as well as Canada, Japan, Australia, Norway and some other states unilaterally imposed financial and economic sanctions

against manufacturing and financial organizations in the key sectors of the Russian economy [10, p. 1].

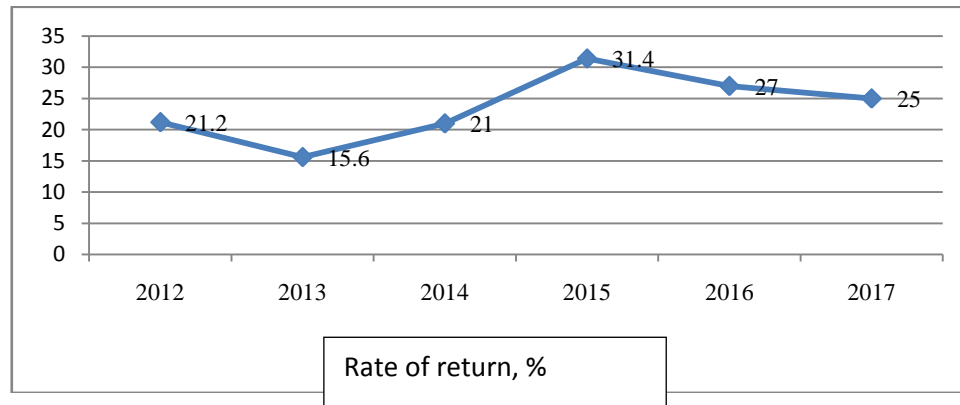


Figure 2. Rate of return on chemical products in Russia in 2012-2017, %.

Source: compiled by the author on the basis of [8, p.189, 9].

Rate of return on the sold goods, products (works and services) in the analysed period is quite high and in average is 23.5%. In 2013 there was a recession with the rate of return going down to 15.6%, however, by 2017 the situation had improved, and the rate of return reached 25%.

3. Economic efficiency assessment of the production of chemical substances and chemical products in the Kemerovskaya oblast

3.1. Economic assessment of the chemical production in the Kemerovskaya oblast

The fluctuations in the Russian small business sector as a whole is determined in the large part by its performance in the leading regions [11, p.103]. Similarly, a big industry as a whole depends on its performance in individual regions.

The Kemerovskaya oblast is one of the leading regions in terms of chemical substance and chemical product production. The industrial production in the Kemerovskaya oblast in 2017 has the following sectors:

- extraction of mineral resources – 56.99%;
- processing businesses – 35.78%;
- provision of electricity, gas and steam; air conditioning – 6.27%;
- water supply; water disposal, waste collection and treatment – 0.96% [12, p.3].

Chemical production is one of the major industries in the Kemerovskaya oblast. In 2017 this industry accounted for 1.5% of Kemerovo's GRP. It ranks the second after the iron and steel industry [12, p.4].

In order to enlarge the analytical toolkit for the purposes of regional economic analysis, P.A. Minakir, A.P. Goryunov and others proposed geographical representation of the economic space decomposition [13, p.47]. The Kemerovskaya oblast is situated in the medium (special) macroeconomic zone. This macrozone's share in the total GRP of the subjects of the Russian Federation in 2000-2015 remained almost unchanged and accounted for 64.96%-64.8%. The share of the Kuznetsko-Altaysky macroregion's GRP in the same period accounted for 6.19%-5.94% [13, p. 50, 51]. The authors claim that the macrozone system allows to make the conclusion that the natural and historical background defines the environment for the economy and population.

Chemical production in the Kemerovskaya oblast dates back to 1915. Then a by-product coke plant was constructed, as coke gas deposit had been discovered there. The chemical sector had been actively developing before WWII. But during the war, the industry received an enormous boost due to the

evacuation of industrial plants to Siberia and raw materials necessary to manufacture chemical products. By the end of the war, the chemical industry had reached its peak.

The post-war development of the industry was consistent, however, the collapse of the USSR led to the recession, which in its turn, resulted in the deterioration of the physical infrastructure and loss of valuable experts. In the 2000s the revival of the industry has begun, and now it is growing steadily. The industry's export in the Kemerovskaya oblast accounts for about 10% of the total exported goods. Before the sanctions, the Kemerovskaya oblast cooperated with many foreign partners in the chemical industry, or about 98 countries. China, Japan, Ukraine and the Netherlands were the major partners before the sanctions were imposed and the policy was changed [14, p. 1]. Later on we are going to analyse the exporting countries in 2017 in the industry.

Also, after the collapse of the USSR, all the companies that operated in the chemical industry, were privatized. Big joint-stock companies accounted for the majority of them.

Since the early 2000s, the administration of the Kemerovskaya oblast has made the development of the chemical industry its priority. Today, the chemical industry includes 15 big and medium private companies that produce and sell about 300 chemical products. The development of the industry in the Kemerovskaya oblast plays an important part, as it promotes the development of the region's economy, employment and improves production technologies.

Chemical production and manufacture of plastic and rubber products accounts for 11.5% of the total processing industry in Kuzbass. The industry employs more than 11 thousand people [15].

In 2017 the average salary in the chemical industry is more than 35,000 rubles, and in the rubber goods production it is 24,000 rubles.

The chemical industry in the Kemerovskaya oblast is the biggest in Siberia and in the country. The Kemerovskaya oblast produces 15% of nitrogenous fertilizers, 30% of synthetic resins and plastics in Russia. Chemical industrial companies consume electricity. However, as in the Kemerovskaya oblast this industry has fewer companies in comparison to the number of coal and iron and steel industry companies, the chemical industry actually needs less electricity and heat than other major energy consumers.

The chemical industry includes the following companies:

- KJSC Azot that produces ammonia, ammonia nitrate, carbamide, nitric acid, caprolactam, ammonium sulfate and other products;
- Khimprom, LLC produces caustic soda, hydrochloric acid, cooling liquids, liquid chlorine, sodium hypochloride, polypropylene glycol, etc.
- Organika, JSC produces medicines in ampoules, lozenges, novocaine;
- Znanya, JSC manufactures industrial explosives;
- Aveksima Sibir, LLC makes acetylsalicylic acid, paracetamol, medicinal charcoal, sodium chloride (infusion solution), etc.;
- Production Union TOKEM, LLC produces ion-exchange resins, phenolic plastics, phenol resins, textile laminate.

The major produces in Kuzbass is Azot, KJSC that accounts for more than 7% of the national production of mineral fertilizers and for 40% of the produced caprolactam, which is sold in Russia and exported to more than 40 countries across the globe.

Production Union TOKEM, LLC is the only manufacturer in Russia that produces cations that are used in the energy sector and for water treatment

If a company produces nuclear-grade amberlite resins, it opens up a new promising market and ensures for Russia the import phasing out potential in the strategic industry of nuclear energy. In 2017 NPPs installed more than 150 m³ of ion-exchange resins, with the majority of them being monodispersed ion resins.

Aveksima Sibir, LLC launched modernized workshops to produce modern import phasing out medicines: Analgin, Andipal, vitamin C, acetylsalicylic acid, Bbenzopal, Dimedrol, Drotaverine, Paracetamol, and Phenobarbital. This list of finished pharmaceutical product that are going to be

produced on mass scale under the GMP standard (an international system of norms and rules that regulates the production of medicines) is far from being exhaustive.

Organika, JSC works hard to improve the healthcare product manufacture technologies, including the so-called prolonged technologies that are going to be the future of the industry. Such drugs produce longer therapeutical effect by maintaining the constant optimum level of the medical substance in the body.

Today, the company offers about 60 drugs (antibiotics, anaesthetics, cardio-vascular drugs and sleeping pills, vitamins, neuroleptics, etc.). They all meet the requirement of the leading world pharmacopoeias and are produced under the international GMP standard [15].

Exported chemical products account for 2.8% of the exported goods in the Kemerovskaya oblast.

We will conduct an economic assessment of the chemical industry of the Kemerovskaya oblast.

Let us consider the export in the Kemerovskaya oblast in 2017 (see Figure 3).

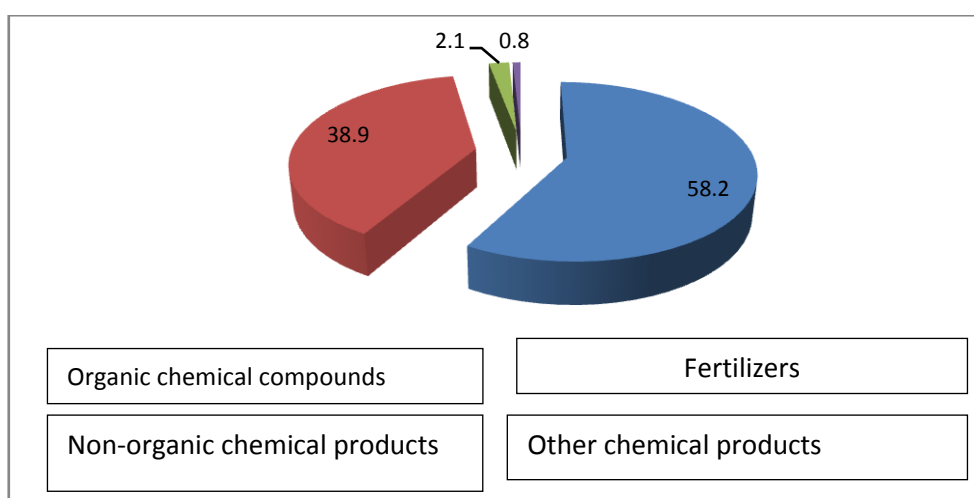


Figure 3. The export of the chemical industry in the Kemerovskaya oblast in 2017, %

Source: compiled by the author on the basis of [7].

The Figure shows that organic chemical compounds rank first in the chemical industry export in 2017 in the Kemerovskaya oblast with 58.2%. Fertilisers are the second largest export product of the Kemerovskaya oblast with 38.9%. Non-organic chemistry products rank third with 2.1%, and other chemical products go fourth with 0.8%.

Let us also consider what countries the chemical industry products from the Kemerovskaya oblast are exported to (see Figure 4).

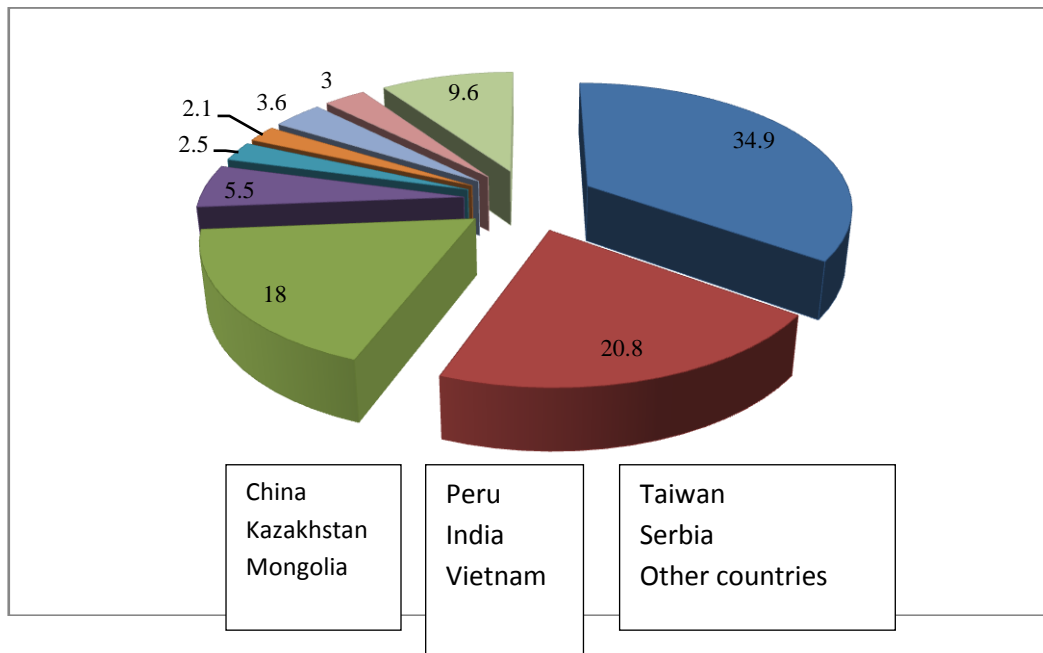


Figure 4. Consumer countries of the chemical products from the Kemerovskaya oblast in 2017, %.
Source: compiled by the author on the basis of [7].

China goes first with 34.9%. Peru ranks second with 20.8%. Taiwan is the third largest consumer country accounting for 18% of the total export. Kazakhstan is the fourth with 5.5%. India (2.5%), Serbia (2.1%), Mongolia (3.6%), Vietnam (3%), and other countries (9.6%) are also among consumer countries.

At the same time the total chemical product import reduced from \$144 470, 5 thousand in 2012 to \$75 254,7 thousand in 2015. But since 2017 the import has begun to grow and has reached 110 683,8 (see Figure 5).

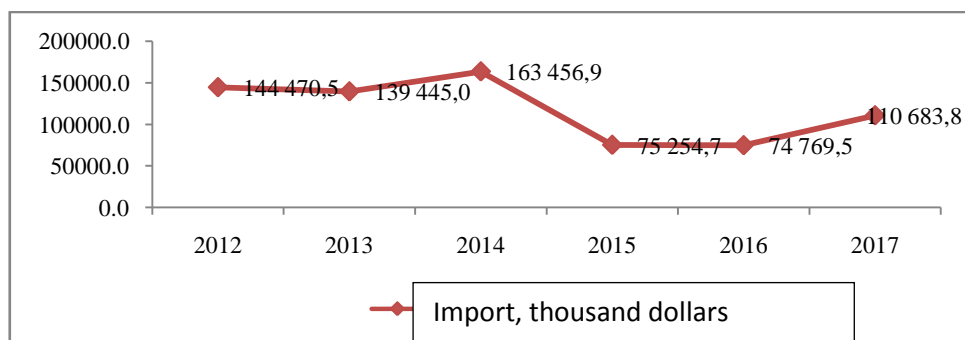


Figure 5. Chemical product import in 2012-2017.

Source: [7].

Other authors also studied chemical product external trade [16]. Some foreign authors explored the benefits of financial information and accounting for business decision-making [17]. Theory and practice of managerial and financial accounting are comprehensively explored in textbooks written by European experts [18, 19, 20].

A business plays an important role in the economy of the region, industry and the country as a whole. It is the main growth factor for the economy and its specific qualities. The main indicators that describe the development of individual businesses: indicators of vested interest efficiency, profit, rate of return, asset and labour resource efficiency usage.

3.2. Economic evaluation of the efficiency of chemical product manufacturing in Azot, KJSC

Let us consider the activities of one of the largest companies that determine the economic development of the Kemerovskaya oblast, Azot, KJSC. According to the Russian Classification of Economic Activities (OKVED2), the Kemerovskaya oblast Azot, KJSC is in Group 20.15 Fertilizers and nitrogen compounds manufacturers. Products: mineral fertilizers, caprolactam. Kemerovo Joint Stock Company Azot is in top five nitrogenous fertilizer manufacturers in Russia accounting for 1/3 of the total caprolactam produced in Russia.

Let us analyse the basic economic indicators in order to evaluate the efficiency of the development of the company. Figure 1 shows the main economic indicators for 2015-2017 on the basis of the public accounting data [21].

Table 1. Analysis of the main technical and economic indicators of Azot, KJSC.

Indicators	Year			Deviations (+/-)		Growth rate (%)	
	2015	2016	2017	2016/2015	2017/2015	2016/2015	2017/2015
Production, thousand tons	3 875	3 945	4 567	70	692	101.81	117.86
Profit, thousand rubles	36 016 496	39 263 917	42 048 137	3 247 421	6 031 641	109.02	116.75
Prime cost, thousand rubles	19 369 844	24 524 828	26 166 607	5 154 984	6 796 763	126.61	135.09
Average annual cost of the main production funds, thousand rubles	7 452 670	8 778 679	8 936 122	1 326 009	1 483 452	117.79	119.9
Returns on assets, rubles/rubles	4.83	4.47	4.71	-0.36	-0.12	92.55	97.52
Production capacity development, %	73	75	76	2	3	102.74	104.11
Average headcount of staff, people	6230	6189	6105	-41	-125	99.34	97.99
Labour productivity, thousand rubles/person	5 781,14	6 344,15	6 887,49	536.01	1 106,35	109.74	119.14
Average monthly income, thousand rubles	24.18	25.59	26.9	1.41	2.72	105.83	111.25
Net profit, thousand rubles	-3 814 368	8 039 361	8 123 791	11 853 729	11 938 159	210.77	212.98

On the basis of the presented data from Table 1, we can come to a conclusion that the economic indicators of Azot, KJSC in 2015-2017 improved, and the company showed signs of recovery, and its financial indicators improved.

Better economic indicators of the company mean increased output. In 2016 the growth was 70 thousand tons or 1.81%, and in 2017 it reached 692,000 tons or 17.86%. Such growth can be explained by the stable demand for the company's growth.

The production growth also led to the increased profits of the company. For example, in 2016 the growth was 3 247 421 thousand rubles, or 9.02%, and in 2017 the growth was 6 031 641 thousand rubles, or 16.75%. Therefore, the revenues of the company increased during the analysed period.

Increased production was also stimulated by higher costs of the production. In 2016 the rise was 5 154 984 thousand rubles, or 26.61%, and in 2017 it was 6 796 763 thousand rubles, or 35.09%. We must say that in 2016 the growth rate of the initial cost was higher than the profit growth rate, that is a negative trend for a company.

Despite the stable increase in profits of Azot, KJSC, the net profit was negative in 2015. However, since 2016 the net profit became positive and was 8 039 361 thousand rubles, and in 2017 it was 8 123 361 thousand rubles. This results from the reduced circulation costs in Azot, KJSC.

The rise in the average annual price of the capital assets also points at the increased production capacity. In 2016 the growth was 1 326 009 thousand rubles or 17.79%. In 2017 the cost of the capital assets rose by 1 483 452 thousand rubles, or 19.9%. This means that the company continuously modernizes its basic production facilities, which raises the labour productivity and improves the production technology.

When the cost of the main production facilities increases, the returns on assets slightly decreases. For example, in 2015 the indicator was 4,83 rubles/rubles, in 2016 it lowered to 4.47 rubles/rubles, and in 2017 it rose a little to 4.71%. In 2016 while the cost of the capital assets rose, the returns on assets got down to 7.45%. Under the accounting period, the returns on assets lowered insignificantly to 2.48% as a result of the increased cost of the capital assets.

The indicator of production capacity development also grew from 73% in 2015 to 76% in 2017.

There is a downward trend in terms of the number of employees in Azot, KJSC. In 2015, 6230 people worked there, while in 2016 the company employed 6189, and in 2017 only 6105 people. This trend is associated with both the production optimization and hard labour conditions for the company's employees.

Thanks to better profits, Azot, KJSC can increase the labour productivity. In 2016 the growth was by 536,01 thousand rubles per person, or by 9.74%, and in 2017 it was by 1 106,35 thousand rubles per person, or by 19.14%. However, fewer employees can increase the burden for the staff as a whole, that leads to the reducing labour productivity.

Average monthly salary is increasing insignificantly every year. In 2015 it was 24.18 thousand rubles, and in 2017 it already was 26.9 thousand rubles, which is by 2.72 thousand rubles, or by 11.25% more than in the industry on average.

Thus, the conducted analysis of the main technical and economic indicators shows the economic performance of Azot, KJSC stabilised. However, despite the improved economic performance of Azot, KJSC, there are some challenges that can lead to poorer financial performance of the company, and that must prevented as it is the main employer for several Russian cities.

Further, we must evaluate the financial performance of the company. Let us first evaluate the assets of the company, see Tables 2-3.

The data in Table 2 shows the fluctuations of the balance growth. For example, in 2015 the balance currency was 57 732 083 thousand rubles, and in 2017 it was 59 598 250 thousand rubles, which is higher by 1 866 167 thousand rubles, or by 3.23%.

The assets mostly consists of current assets that accounted for 63.2% in 2017. We must say that this share increased only in 2017.

Table 2. Company asset analysis, thousand rubles.

ASSETS	Year			Changes		Specific weight, %			Growth rate, %	
	2015	2016	2017	Deviation, +/- 2016	2017	2015	2016	2017	2016	2017
I. Non-current assets										
The outcomes of the research and development	2 291	1 158	482	-1133	-1 809	0.004	0.002	0.0008	50.55	21.04
Capital assets	7 452 670	8 778 679	8 936 122	1 326 009	1 483 452	12.91	15.41	14.99	117.79	119.9
Financial investments	20 263 272	20 247 861	10 014 220	- 15,411	-10 249 052	35.10	35.55	16.8	99.92	49.42
Deferred tax assets	4 497 229	2 369 651	2 019 599	-2 127 578	-2 477 630	7.79	4.16	3.39	52.69	44.91
Other non-current assets	319	244	959,947	-75	959,628	0.0006	0.00043	1.61	76.49	300923.8
Total under Section I	32 215 781	31 397 593	21 930 370	-818 188	- 10 285 411	55.80	55.12	36.8	97.46	68.07
II. Current assets										
Reserves	5 094 436	4 338 368	3 077 336	-756 068	-2 017 100	8.82	7.62	5.16	85.16	60.4
Value added tax on acquired assets	649,435	237,394	267,383	-412 041	-382 052	1.12	0.42	0.45	36.55	41.17
Accounts receivable	19 436 860	20 528 492	21 261 182	1 091 632	1 824 322	33.67	36.04	35.67	105.62	109.39
Financial investments	150,413	149,513	12 706 665	-900	12 556 252	0.26	0.26	21.32	99.40	8447.85
Cash and cash equivalents	34 681	224,360	200,731	189,679	166,050	0.06	0.39	0.34	646.92	578.79
Other current assets	150,477	85 354	154,583	- 65,123	4 106	0.26	0.15	0.26	56.72	102.73
Total under Section II	25 516 302	25 563 481	37 667 880	47 179	12 151 578	44.20	44.88	63.20	100.18	147.62
Balance	57 732 083	56 961 074	59 598 250	-771 009	1 866 167	100	100	100	98.66	103.23

Further, we will consider the contents of non-current assets of companies. The capital assets of the company increased for three years. The share of the capital assets also increased from 12.91% in 2015 to 14.99% in 2017.

The outputs of R&D decreased by 1809 thousand rubles by the end of the accounting period, that means the reduction of funds allocated on R&D and technological activities, and in the future it can negatively impact the competitiveness of the company.

Deferred tax assets also lowered during the analysed period. Long-term financial investments decreased during the analysed period by 10 249 052 thousand rubles, or by 50.58%. The majority of funds was spent on increasing the current assets of the company, and the same trend can be seen in the augmented circulating assets.

The circulating funds of the company grew from 25 516 302 thousand rubles in 2015 to 37 667 880 thousand rubles and to 12 151 578 thousand rubles, which is more by 47.62%. The current assets share in the balance of the company grew from 44.2% in 2015 to 63.2% in 2017.

The reserves of the company account for 5.16% of the balance by the end of 2017. However, the total reduction of reserves was 2 021 100 thousand rubles, or 39.67% by the end of 2017.

We must say that in 2016 the company's cash significantly increased by 189 679 thousand rubles, or by 6.4 times. In 2017 the amount of cash rose by 5.7 times. However, the share of the cash in the balance is still little with only 0.34% in 2017.

There was also a rise in short-term financial investments by 12 556 252 thousand rubles during the analysed period.

There is an insignificant increase in other current assets by 4 106 thousand rubles.

Accounts receivable form the majority of the current assets. The increased accounts receivable as a whole is caused by the rise in sales and shows a positive trend.

Table 3 shows the fluctuations in the liabilities of Azot, KJSC. The statutory capital of the company did not change in three years, but its share in the liabilities was reducing. In 2015 the share of the statutory capital was 3.86%, and in 2017 it reduced to 3.74%.

The company re-evaluates its non-current assets so that its cost equaled the market cost, however the sum of re-evaluation is going down. In 2016 the reduction was by 17 627 thousand rubles, or by 0.9%, and in 2017 it was 126 477 thousand rubles, or 7.09%. The re-evaluation share of non-current assets also decreases from 3.09% in 2015 to 2.78% in 2017.

Incremental capital of the company in the liabilities also did not change, however, its share in the liabilities is reducing. In 2015 the incremental capital accounted for 3.97%, and in 2017 for 3.84%. The surplus funds show the same trend as the incremental capital.

Undistributed losses decreased in three years, and in 2017 the company received profits in the amount of 299 704 thousand rubles. The profit lead to the positive outcomes under Section III and positive changes in the liabilities.

The long-term borrowings of Azot, KJSC during the whole analysed period increased by 8 011 353 thousand rubles, or by 20.42%. The long-term borrowings also increased from 67.96% in 2015 to 79.27% in 2017.

The short-term borrowings are decreasing. In 2016 they reduced by 3 261 178 thousand rubles, or by 13.78%. In 2017 they went down by 21 312 694 thousand rubles, or by 90.04%. As the short-term borrowings reduce, their share also decreased from 41% in 2015 to 3.96% in 2017. Such changes in the borrowings positively affect the financial performance of company.

Liabilities of the company went down throughout the period by 1 046 699 thousand rubles, or by 34.62% in comparison to 2015.

There was also a slight downward trend in terms of estimated liabilities in the total liabilities in 2016 by 2 254 thousand rubles, or by 1.45%, and in 2017 they grew by 227 953 thousand rubles, or by 146.19%. However, the share of estimated liabilities grew only in 2017 and was 0.64%.

Table 3. Analysis of the company's liabilities, thousand rubles.

ASSETS	Year			Changes			Specific weight, %			Growth rate, %	
	2015	2016	2017	Deviation, +/-		2015	2016	2017	2016	2017	
				2016	2017						
III. Equity											
Statutory capital	2 229 759	2 229 759	2 229 759	0	0	3.86	3.91	3.74	100	100	
Treasury shares	0	0	0	0	0	0	0	0	-	-	
Non-current assets re-evaluation	1 783 785	1 766 158	1 657 308	- 17,627	-126 477	3.09	3.10	2.78	99.01	92.91	
Incremental capital	2 290 310	2 290 310	2 290 310	0	0	3.97	4.02	3.84	100.0 0	100.0 0	
Surplus funds	334,44 9	334,44 9	334,44 9	0	0	0.58	0.59	0.56	100.0 0	100.0 0	
Undistributed profits (outstanding losses)	- 15 716 057	-7 750 305	299,70 4	7 965 752	16 015 761	- 27.2 2	- 13.6 1	0.50	49.31	1.91	
Total under Section III	-9 077 754	-1 129 629	6 811 530	7 948 125	15 889 284	- 15.7 2	- 1.98	11.4 3	12.44	75.04	
IV. Long-term liabilities											
Borrowed funds	39 234 126	33 768 338	47 245 479	-5 465 788	8 011 353	67.9 6	59.2 8	79.2 7	86.07	120.4 2	
Deferred tax obligations	725,90 5	869,31 6	822,87 5	143,41 1	96 970	1.26	1.53	1.38	119.7 6	113.3 6	
Estimated liabilities	0	0	0	0	0	0	0	0	0	0	
Total under Section IV	39 960 031	34 637 654	48 068 354	-5 322 377	8 108 323	69.2 2	60.8 1	80.6 5	86.68	120.2 9	
V. Short-term obligations											
Borrowed funds	23 670 626	20 409 448	2 357 932	-3 261 178	-21 312 694	41.0 0	35.8 3	3.96	86.22	9.96	
Accounts payable	3 023 256	2 889 931	1 976 557	-133 325	-1 046 699	5.24	5.07	3.32	95.59	65.38	
Estimated liabilities	155,92 4	153,67 0	383,87 7	-2 254	227,95 3	0.27	0.27	0.64	98.55	246.1 9	
Total under Section V	26 849 806	23 453 049	4 718 366	-3 396 757	-22 131 440	46.5 1	41.1 7	7.92	87.35	17.57	
Balance	57 732 083	56 961 074	59 598 250	-771 009	1 866 167	100	100	100	98.66	103.2 3	

Thus, the analysis of the liabilities and assets shows that there are some positive trends, for example, undistributed losses has become undistributed profit, and short-term borrowings reduced. It should positively affect the performance of Azot, KJSC in the future.

The performance and efficiency of the company is largely influenced by the sustainable reserve and physical resource management [29, p.131]. This is why an assessment of their management is necessary, as it directly affects the rate of return of the company. Material costs by years were the following: in 2015 - 19 369 844 thousand rubles, in 2016 - 24 524 828 thousand rubles, and in 2017 - 26 166 607 thousand rubles. The analysis of the data points out the rise in material costs in the company from 19 369 844 thousand rubles in 2015 to 26 166 607 thousand rubles in 2017, which is by 6 796 763 thousand rubles, or by 35.09% more. The increased material costs is directly associated with the larger outputs (by 6 031 641 thousand rubles, or by 16.75%), however the growth rate of material costs is much higher than that of the outputs.

Materials-output ratio in 2015 was 0.54 rubles, it rose in 2016 and 2017 to 0.62 rubles, which by 0.08 or by 15.71% more than in 2015. Increased materials-output ratio led to relative excessive consumption of materials in the company. The excessive consumption in 2017 was 3 363 850,96 thousand rubles.

The material productivity also declined, which led to less efficient material management in the company. In 2015 it was 1.86 rubles with 1.6 rubles in 2017 that is less by 0.25 rubles, or 13.58%.

So, the efficiency analysis of material resource management shows relevant excessive consumption of materials in production and lower efficiency of material resource management.

Let us analyse the efficiency of labour resource management. The total number of employees of company went down from 6230 people in 2015 to 6105 people in 2017. This was caused by the production optimization in the analysed period and by employee turnover resulting from hazardous labour conditions. We should say that all categories of employees were reduced. For example, the number of workers decreased by 36 people, or by 1.4% during the period under consideration. The number of experts also reduced by 64 people, or by 1.93%. The number of senior managers in 2015 was 869, while in 2017 they were only 834, which is less by 35 people, or by 4.03%. The fluctuations in labour resources show that the majority of the company's employees are experts. Their share slightly increased from 44.83% in 2015 to 44.86% in 2017, which is more by 0.03%. Workers come second with 41.47% by the end of 2017, which is more by 0.25%. Managers account for the least share with only 13.66% in 2017, which is by 0.29% less than in 2015. We can come to a conclusion that the labour resources are balanced and the labour regime is well managed. Let us then consider the staff movement in Azot, KJSC.

The accounting data on the staff movement in Azot, KJSC in 2015-2017 shows that in 2015 345 people were hired, with 308 in 2016, 312 in 2017; 359 people were fired in 2015 with 349 people in 2016, and 396 in 2017. The number of the newly employed went down during the period by 33 people, or 9.57%. The number of dismissed employee increased by 37 people, or by 10.31%. Let us consider the reasons behind the dismissals. The number of people laid off due to downsizing decreased by 16 people, or by 11.03 in three years (in 2015 - 145 people, 2016 - 134 people, 2017 - 129 people). The number of people laid off due to labour misconduct grew (in 2015 - 23 people, 2016 - 4 people, 2017 - 2 people) by 2 people, or by 8.7%. This shows the necessity to conduct preventive discussions with the employees. The number of people who resigned due to personal reasons also increased by 51 people, or by 26.7% (in 2015 - 191 people, 2016 - 170 people, 2017 - 242 people). It is essential to understand the reasons behind these resignations, it can be a small salary, hard labour conditions, lack of social benefits. The analysis of the coefficients that describe the labour resource movement shows a slight fall in the hiring coefficient and a low coefficient of movement, which means that, despite the rise in the number of fired employees, the performance of the company is not affected. The payroll budget of the company grew steadily throughout the period by 13955,13 thousand rubles, or by 9.26%. This increase stimulates the rise in average monthly salary by 2781 rubles, or by 11.5%. The annual average output of an employee also increases by 1106.35 thousand rubles, or by 19.14%. Thus, we should say that the labour resources positively affect the performance of Azot, KJSC.

Table 4 shows the rate of return that describes the performance of the company.

Table 4. Fluctuations in the rate of return for KJSC Azot, %.

Indicators	2015	2016	2017
Sales profit margins	30.54	21.78	22.79
Manufacturing rate of return	56.78	34.88	36.62
Sales rate of return in terms of net earnings	-	20.21	19.32

The fluctuations in the rate of return on sales shows a recession in the analysed period from 30.54% in 2015 to 22.79% in 2017, which corresponds to the performance of the industry as a whole. The rate of return of production also shows a downward trend with the overall fall from 56.78% to 36.62%. The rate of return on net profit was negative in 2015, as the company incurred losses that year. However, in 2016-2017 the rate was positive with 19.32% in 2017, which indicates an improvement in the financial performance of the company, and, consequently, its better efficiency. The rate of return on equity can be calculated only for 2017, when the equity became positive with the rate of return on equity being 119%, as the net profit was higher than the equity. The rate of return on the company's assets can be calculated only for 2016-2017, as the company incurred net losses in 2015. The rate of return on the assets calculated on the basis of net profit slightly decreased in the period from 14.1% in 2016 to 13.6% in 2017.

As a result, the performance analysis of the company allows us to make the conclusion that the company has certain problems with solvency and financial sustainability, but in the analysed period there are positive trends in terms of profits, performance, as the rate of return is positive in the current year and the company is successfully overcoming the crisis.

4. Conclusion

Chemical industry plays an important role in the country's economy and is one of the industries where innovations are essential and successfully implemented. The development of chemical industry for the Kemerovskaya oblast's economy is a prerequisite for the success of both the traditional companies of the region and manufactures engaging in deep processing of raw materials. Azot, KJSC is a leader of the chemical industry of the region and is confidently moving towards overcoming the crisis and better performance.

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