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Leading Russian companies on the world steel market

Ravil M. Chusmakaev[1, 2]

[1]*Peoples Friendship University of Russia,*
6 Miklukho-Maklaya St, Moscow, 127198, Russian Federation
[2] *LLC IC Sberbank Insurance,*
3, bldg 1, Poklonnaya St, Moscow, 112270, Russian Federation
Chusmakaev@inbox.ru

Abstract. Metallurgical industry, is the 3rd most important branch of heavy industry in Russia and refers to the basic branch of the economy. In particular, ferrous metallurgy is a strategically important unit in the metallurgical complex and plays a critical role in shaping the sustainable development of the state as a whole, along with such industries as the oil and gas industry. Russian ferrous metallurgy market, is a leader in production efficiency, as well as production with the lowest CO_2 emissions, which is one of the main competitive advantages of the industry, especially with the introduction of carbon duties and the global trend to reduce carbon dioxide emissions. The steel industry has a great demand from a large number of consumers: machine building, metalworking, construction, railway production, aircraft industry, shipbuilding and many others.

Keywords: Metallurgy, Russian manufacturers, steel products, closed production cycle, pandemic, crisis

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Ведущие российские компании на мировом рынке стали

Р.М. Чусмакаев[1, 2]

[1]*Российский университет дружбы народов,*
Российская Федерация, 127198, Москва, ул. Миклухо-Маклая, 6
[2] *ООО СК «Сбербанк страхование»,*
Российская Федерация, 112270, Москва, Поклонная улица, 3к1
Chusmakaev@inbox.ru

Аннотация. Металлургическая промышленность является 3-й по значимости отраслью тяжелой промышленности России и относится к базовой отрасли экономики. В частности, черная металлургия представляет собой стратегически значимую единицу в металлургическом комплексе и играет важнейшую роль в формировании устойчивого развития государства в целом, наряду с такой отраслью, как нефтегазовая промышленность. Российский рынок черной металлургии — лидер в области эффективности производства, а также производства с наименьшим выбросом CO_2, что является одним из главным конкурентных преимуществ отрасли, особенно в условиях введения углеродных пошлин и общемировой тенденции по сокращению выбросов углекислого газа. Сталелитейная промышленность имеет большой спрос со стороны большого числа потребителей: машиностроения, металлообрабатывающей промышленности, строительства, производства железнодорожного транспорта, авиационной промышленности, судостроения и многих других.

Ключевые слова: металлургия, российские производители, стальная продукция, замкнутый производственный цикл, пандемия, кризис

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Introduction

In 2020, Russian steel companies faced a global "shock" caused by the COVID-19 pandemic. In the context of worldwide restrictions, the Russian metallurgical complex was faced with uncertainties and conditions in which decisions had to be made in the shortest possible time. First of all, metallurgical companies needed to ensure the continuity of their production by ensuring the safety of employees at their workplaces through the transfer of half of their employees to remote work. Second, steel companies needed to devise a strategy to deal with the current uncertainties and find a range of alternatives in the event that certain countries close their borders. Thirdly, steel companies needed to maintain a certain level of production in order to avoid downtime of metallurgical units, because it was very expensive. Due to the fact that Russian companies are represented on the world steel markets, they have certain advantages, which are expressed in the localization of their production, sales markets, as well as the provision of raw materials. It is worth noting that almost all metallurgical companies

in Russia are companies with a closed production cycle, which provides an additional advantage over other foreign competitors, as well as this fact has contributed to a more favorable course of the consequences of the pandemic COVID-19. The metallurgical complex of Russia is one of the basic industries of the national economy and plays an important role in the formation of the country's macroeconomic indicators. Despite the high demand for metalworking services, Russia's metalworking industry still lags far behind its Western competitors in development.

Literature review

Within the framework of the research conducted by the author the works of Russian experts and scientists in the field of economics and international economic relations, data from statistical databases, as well as profile websites of metallurgical and international consulting companies were used. The works of Evgeny Zainulin and Alexander Lebed reveal the state of the metallurgical industry during the development of the COVID-19 pandemic. When writing the article, the works and ideas of specialists who conducted research in the metallurgical industry were used. Thus, in the work of A.I. Votinov "Assessment of the consequences of the EU cross-border carbon regulation mechanism for Russia" examines the cross-border carbon tax for ferrous metallurgy imported into the EU and discusses its impact on Russian steel producers (Votinov, 2021). L. Revinskaya in her paper "Trends in the development of global and Russian ferrous metallurgy in the crisis period" reveals the topic related to the activities of Russian metallurgical enterprises in conditions of uncertainty caused by the COVID-19 pandemic. Also L. Revinskaya in her article defines ferrous metallurgy as an indicator of economic growth, because the capacity utilization of metal production depends on the demand of related industries — consumers of metal products (Revinskaya, 2015). In the article "The current state and prospects of development of the metallurgical industry in Russia" by Prokhorova V.V. were analyzed and taken as a basis for work, ideas related to the prospects of development of the metallurgical industry in Russia in the crisis of 2020 — 2021, associated with the pandemic COVID-19 (Prokhorova & Basyuk, 2021). In the article by N.N. Gugis "Russia in the world market of ferrous metals, outlined trends in global steel production and consumption, the impact of periodic global crises on ferrous metals markets" shows the formation and development of foreign trade in ferrous metallurgy of modern Russia, and its place in the overall exports of goods of the Russian Federation and the production activities of steel companies (Gugis, 2019). From the article by E.A. Popov "The industry of scrap ferrous and nonferrous metals in Russia: state, problems and development prospects" the state, problems and development trends of the industry of scrap ferrous and nonferrous metals in Russia are considered. The author names a number of problems that have emerged in the industry at the moment. They include instability and volatility of the market, lack of balance of supply and demand, price disparity, high level of stock intensity,

lack of market transparency, the presence of illegal turnover of secondary raw materials in the market (Popov, 2021). Kirillov V.N. in his paper "Organization of ferrous metal exports at Russian enterprises" described the organization of ferrous metal exports by Russian enterprises abroad, highlighting some factors that predetermine the conduct of international trade (Kirillov, 2021). The article "The current state of the metallurgical industry in Russia and prospects for its development" by Chermisina V.N. examined the state of the metallurgical industry in Russia as of 2015. The role of metallurgy in the development of the country's economy by 2015 after the 2014 crisis is defined. The set of priority directions of development of metallurgical complex of Russia is analyzed (Chermisina, 2015).

The data on the volume of steel production in Russia for the period from 2009 to 2020 were taken from Statista statistical database.

Methods and approaches

When writing the article, a number of scientific methods and approaches were used. To determine the specifics of the metallurgical industry, as well as to reveal certain features of Russian companies, a system analysis was used. In addition to system analysis, the author used historical and comparative analysis, which allowed to determine the origins and impact of the pandemic on the development and further development of the Russian metallurgical complex.

Results

The beginning of 2020 was a turning point in the development of the domestic and global steel industry of ferrous metallurgy. The pandemic and the crisis that followed caused serious structural changes in supply and demand for steelmaking products.

The pandemic posed a serious challenge to all of humanity, causing a severe socio-economic crisis and a subsequent economic crisis. First of all, the entire global health system was hit, demonstrating unpreparedness for a pandemic of such magnitude, which put the Governments of many nations in a very difficult situation, which was to quickly revise fiscal policy and balance the budget spending in such a way as to support the health system, the most important sectors of the economy, as well as small and medium businesses.

In the first 3 months there was a serious drop in supply and demand for metallurgical products and raw materials. This was facilitated by the closure of the state borders of many states, including the restriction of logistics of steel products, both by rail and sea.

Since April 2020, a slow recovery of the industry began. It is worth noting that the recovery occurred in those countries that to varying degrees had successful antiviral interventions related to treatment, rehabilitation, and prevention of new infections and the spread of COVID-19.

The very first country to lift the restrictions was the People's Republic of China. Thus, due to its leading role in the iron and steel industry, China supported the global demand for steel products and provided strong support to all steel mills, launching the process of systematic recovery of the industry.

Advantages of Russian industry

Historically, it is believed that the main advantage of the Russian metallurgical industry is a closed production cycle, as well as providing production with its own raw materials. This makes it possible to keep costs low and minimize dependence on third-party companies. Against the background of the weak ruble and sales of steel products in dollars, metallurgists are provided with a good financial cushion, which allows them to maintain a low debt load, low indebtedness, a fairly high volume of accumulated cash, and the ability to direct large amounts of investment in the modernization and digitalization of production equipment.

Figure 1. Steel Production in Russia 2009–2020
Source: https://www.statista.com/study/69289/steel-industry-in-russia/

Between 2014 and 2019, steel production volumes ranged from 71 to 72 million tons. For Q1 2020, total production was 18.2 million tons, and for the entire year of 2020, the Russian steel industry produced 71.6 million tons.

High efficiency indicators and successful anti-crisis management, allowed us to maintain high levels of steel production volumes.

According to general indicators, steel production volumes decreased by 3.1 % from January to May 2020 as a result of scrap deficit on the Russian domestic market. One of the most important components of steelmaking is scrap, from which 40 % of Russian steel is melted. The scrap shortage has been a long-term trend due to the depletion of quality, readily available scrap stocks in the 1990s and 2000s. Also the scrap shortage caused the reduction of electric steelmaking capacity utilization by up to 60 %[1].

[1] KPMG. (19.07.2020). Test of Strength: How Has the Pandemic Affected the Mining and Metals Market? Retrieved June 19, 2020, from https://mustread.kpmg.ru/articles/proverka-na-prochnost-kak-pandemia-povliyala-na-gorno-metallurgicheski-rynok/.

Russia's gross domestic product in 2020 showed a drop of 3%. Industrial production declined by more than 2.6%. Due to the imposition of severe restrictions by the Russian Government, all companies of the metallurgical complex operated under conditions of uncertainty, serious volatility and reduced economic activity of key consumers.

To support domestic demand and high rates of production in Russia, state support for the construction sector contributed. The support was carried out through the mechanism of monetary policy. As a result of the revision of the key refinancing rate and the state decision to support the construction sector and provide citizens with the opportunity to purchase housing at preferential rates through state support, Russian banks introduced a program of preferential mortgages for citizens at a rate of 5.9% to 6.5% for a period of 20 years. This mechanism made it possible to stimulate the demand of citizens to purchase primary and secondary housing, thereby filling the construction market with the necessary mass of money to continue construction of residential and commercial housing, which in turn helped support the demand for metal products.

In June 2020, there was an easing of quarantine restrictions in Russia, which caused an increase in demand for steel pipes, while demand for steel products of the construction sector did not show high growth, despite the fact that 70% of steel consumption is accounted for by the construction sector of the Russian economy[2].

In addition to the state support of particularly important sectors of the economy, Russian metallurgists reoriented their export volumes to the Middle East, North Africa and Southeast Asia.

According to the production results, which were provided by the metallurgical companies in 2020, Evraz of Roman Abramovich and Alexander Abramov reduced production in Russia by 1.3% to 13.6 million tons, while steel production at their U.S. subsidiaries decreased by 15.1%, which caused a decline in demand for pipes for oil and gas equipment due to lower oil and gas prices during the Coronavirus pandemic. In contrast, Novolipetsk Steel increased Russian steel production by 1% to 15.8 million tons for 2020 due to an overhaul of its steelmaking units in late 2019 and early 2020. MMK's steel production was 2.6% lower than in 2019, down 7.1%. The company management attributed this decrease to the previously planned reconstruction of Mill 2500 and the decline in business activity due to the pandemic and economic crisis. Severstal reduced steel smelting volumes by 4% or to 2.3 mln tons, which is the result of reduction of dynamical steel smelting (electrical steel) due to the sale of Long Product Mill Balakovo.[3]

Before turning to a review of 2021, the year of recovery and the test of steelmakers' strength, let's summarize the year 2020.

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[2] KPMG. (19.07.2020). Test of Strength: How Has the Pandemic Affected the Mining and Metals Market? Retrieved June 19, 2020, from https://mustread.kpmg.ru/articles/proverka-na-prochnost-kak-pandemia-povliyala-na-gorno-metallurgicheski-rynok/ .

[3] Deloitte CIS Research Center. (December 2020). Iron and Steel Market Review — 2020. Retrieved from https://www2.deloitte.com/ru/ru/pages/research-center/articles/overview-of-steel-and-iron-market-2020.html

The first quarter of 2020 can be marked as the quarter of the "world" lockdown. The world declared a global lockdown, including Russia. These 3 months were a serious test for steel mills, because it was necessary to ensure the transfer of most employees to a remote format in a short time, to ensure sanitary standards in the mills for employees transfer to a remote format was not possible, as well as provide a mechanism for monitoring the number of employees at the plants and testing, but also to leave the production level at an acceptable level without allowing a serious reduction in production.

In the second quarter of 2020, there was a 30 % reduction in economic activity, and oil and raw materials quotes have historically collapsed. This trend caused a decline in metallurgical production, tightening of banks' lending requirements, and the suspension of a number of steelmaking companies. Thanks to a decrease in the key rate of the Central Bank of Russia to 4.25 %, and agreements between the ORES countries on limiting oil production, the situation stabilized in Q2 2020.

In Q3 2020, there was an increase in prices and sales of rolled metal products in the domestic market. As a result of the pandemic, consumers revised their needs. There was an increase in demand for household appliances, electrical appliances, suburban housing, logistics and warehousing infrastructure. Due to the growth in demand for long-term goods, steel mills reoriented to the production of premium rolled metal products worldwide, including Russia.

In the 4th quarter of 2020 began the 2nd wave of COVID-19, there was a decrease in real income in Russia, the weakening of the ruble against the dollar. Despite this, the Russian government managed to stabilize the uncertainty in the country's economy and stimulate demand for metal products by introducing preferential mortgages and channeling financing to infrastructure and regional development projects.

The end of 2020 and the beginning of 2021 was the beginning of a gradual recovery of the global economy and industry. The pandemic was the result of the accelerated development of the digital economy, the transfer of business processes online, and the growth of online trade in B2C and B2B channels.

In addition to the pandemic, the Russian steel industry is faced with another factor that will affect steelmaking operations in the near future — a cross-border carbon tax.

According to the legislative proposal from the European Commission, TUR payments will start to be collected from 2026, while the mechanism itself, in the form of emissions reporting, will be effective from 2023. (transition period 2023–2025). It is assumed that from 2026 the TUR payments will be formed on the basis of the average weekly price of greenhouse gas emissions in the EU Emissions Trading Scheme (EU ETS). At the beginning of 2021, the price per ton of CO2e on the EU ETS was around €30, in May 2021 it was in the €50-55 range, and by October 2021 it had surpassed the €60 mark. It is expected that by 2030 the payment for emissions in the EU ETS could be more than 70 euros per ton of CO2e emissions, which would similarly affect the rate of payments under the TUR (Votinov, Lazarian, Radionov & Sudakov, 2021).

When calculating the value of steel with a scientist TUR will have an impact on the physical volume of exports from Russia to the EU: by analogy with prices, it is assumed

that in addition to the EU TUR there is some natural level of growth of supplies to the EU, which is set by the forecast values of the index of physical volume of exports (Votinov, Lazaryan, Radionov & Sudakov, 2021).

TUR will also have a significant positive impact on the activities of metallurgical companies in Russia, as it will encourage the management of enterprises to accelerate the process of digitalization and the process of creating a "clean" production.

Activities of Russian companies in the global steel market

The metallurgical industry is one of the strategically important sectors of the economy. The industry is the basis for the development of industries such as shipbuilding, aviation, transport and heavy machinery, defense industrial complex, rail transport, energy, construction and others (Revinskaya, 2015).

The development and growth of the national economy depends on the efficiency of the steel industry, which contributes to the restoration of competitiveness of domestic producers in world markets. Ferrous metallurgy accounts for 1.4% of GDP, 8% of industrial production and 6%; exports (Revinskaya, 2015).

One of the advantages of Russian metallurgical companies, a high degree of differentiation of their production and closed production cycle. Also, one of the advantages is trading in the dollar, which allows for large profits during the weakening of the ruble against the U.S. dollar.

Currently, some of the leading steel mills in Russia are Novolipetsk Steel (NLMK), Severstal, Evraz and Magnitogorsk Iron and Steel Works (MMK).

NLMK Group

NLMK Group, is the largest steelmaker in Russia with a high production efficiency of high quality steel products.

Thanks to its extended geographical presence, NLMK manages to maintain its leading position outside Russia. NLMK's production facilities are located in Russia (10 plants), in Europe (5 plants — Denmark, France, Belgium, Italy), in the US (3 plants), and from 2022 NLMK plans to commission a plant in India.

In European countries, NLMK Group produces flat products and thick plates. In the USA, NLMK Group produces steel and thin plate (coil) products.

Since 2020 NLMK remains among the world leaders in hot-rolled steel production.

Thanks to continuous improvements and an active process of digitalization of production, NLMK remains among the world leaders in terms of steelmaking volumes — over 17 million tonnes per year.

NLMK sales in Europe and the USA account for 18% and 17% of the Group's total sales [4].

It is worth noting that NLMK DanSteel, located in Northern Europe in Denmark, is one of the leaders in the production of steel sheets for the wind power

[4] NLMK. (b.d.). NLMK DanSteel. Retrieved from https://nlmk.com/ru/about/map-of-assets/dansteel/

industry, shipbuilding, drilling platforms, construction equipment and infrastructure in Northern Europe[5].

In 2021, NLMK DanSteel began producing high-quality premium steel products for one of the largest wind farms in the Brittany region of France. This wind farm is scheduled to start up in 2023, which will consist of 62 wind turbines[6].

Severstal

- Severstal is a vertically integrated Russian steel company and one of the leading producers of steel products in the steel and mining industry. Severstal owns assets in Europe and Russia.
- The company's main products are hot-rolled and cold-rolled steel, bent sections, pipes of various diameters, long products, metalware, etc.[7]
- Severstal, remains a world leader in production efficiency and is the leading Russian steelmaker in the digitalization of production.
- Thanks to its well-developed distribution sales network, Severstal's sales in European mills will exceed 3.2 million tons in 2021, 16 % higher than in 2020.

The distribution network consists of a network of warehouses where the Company's products are stored, as well as sales offices. This network is located in 12 countries in Northern, Central and Western Europe, and offers the services of our own and partner steel processing centers. The Severstal Distribution group of companies is the largest steel products supplier in Northern Europe. The main markets are the Baltic States, Finland, Sweden, Germany, Poland, the Czech Republic, Slovakia and other EU countries[8].

The volume of products sold by Severstal Distribution in 2021 amounted to 1, 853 million tons of steel.

For buyers and potential partners, interaction with PAO Severstal seems to be very beneficial, as Severstal provides a full range of services from warehouses to a technical and financial support center, and the closed production cycle allows for competitive pricing. All sales and exports are handled by Severstal Export GmbH[9].

The service center "Severstal — SMC — Vsevolzhsk", is a joint venture with the Japanese company Mitsui. This company provides a wide range of services for packaging, transportation, cutting, stamping, etc. The services of this industry in Russia as well as in the CIS countries. The capacity of the service center is 150,000 tons.

[5] NLMK. (b.d.). NLMK DanSteel. Retrieved from https://nlmk.com/ru/about/map-of-assets/dansteel/

[6] NLMK. (b.d.). NLMK DanSteel. Retrieved from https://nlmk.com/ru/about/map-of-assets/dansteel/

[7] PAO Severstal. (b.d.). Retrieved from https://www.severstal.com/rus/about/

[8] PAO Severstal. (b.d.). Severstal Distribution. Retrieved from https://distribution.severstal.com/rus/markets/europe/

[9] PAO Severstal. (b.d.). Severstal Distribution. Retrieved from https://distribution.severstal.com/rus/markets/europe/

EVRAZ

EVRAZ is one of the largest steel companies in Russia and the world. The Company has assets both in Russia and in the USA, Canada, Czech Republic and Kazakhstan. The Company is divided into three business segments.

The first business segment is Steel.

It focuses on servicing the domestic infrastructure and construction markets while maintaining export flexibility. EVRAZ's main products in this segment are steel products for construction and transportation purposes. Thanks to its facilities and technological development, EVRAZ ensures stable development of export sales, both of semi-finished and finished products: rails, wheels, beams, and fittings. EVRAZ iron ore assets cover 78% of steelmaking plants' needs for raw materials. EVRAZ steel segment assets are located in Russia, Kazakhstan, the Czech Republic and Switzerland.[10]

The second business segment is Coal.

This segment provides the Company with a wide range of different grades of coking coal, which it uses in its steelmaking operations and sells in Russia, Europe and Asia. The main assets of this business segment are located in the Kemerovo region and the Republic of Tyva.[11]

The third business segment "Steel. North America."

EVRAZ North America, is a leader in steel production, which combines several steel companies (Oregon Steel, Rocky Mountain Steel and IPSCO).[12]

The company is headquartered in Chicago, with production facilities in six U.S. states: Portland, Regina, Pueblo, Calgary, Camrose and Red Deer. The company owns 18 processing plants in Canada and the USA.[13]

EVRAZ is the leader in North America in the production of rails and is also the largest producer of large-diameter pipes and a leading producer of flat steel products. In Canada, EVRAZ is the leading producer of large and small-diameter pipes. One of the main consumers of pipes is the oil and gas sector .[14]

MMK

MMK is one of the world's largest steel producers and a leader among Russian ferrous metallurgy companies.

The company's assets in Russia represent a large steelmaking complex with a full production cycle, from preparation of iron ore raw materials to deep processing of ferrous metals.

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[10] EVRAZ . (b.d.). Steel. Retrieved from https://www.evraz.com/ru/company/assets/steel/

[11] EVRAZ . (b.d.). Steel. Retrieved from https://www.evraz.com/ru/company/assets/steel/

[12] EVRAZ. (b.d.). Steel, North America. Retrieved from https://www.evraz.com/ru/company/assets/steel-north-america/

[13] EVRAZ. (b.d.). Steel, North America. Retrieved from https://www.evraz.com/ru/company/assets/steel-north-america/

[14] EVRAZ. (b.d.). Steel, North America. Retrieved from https://www.evraz.com/ru/company/assets/steel-north-america/

MMK produces a wide range of steel products with a predominant share of premium products[15].

MMK Group is divided into three segments:

- Steel segment Russia — the main location is in Chelyabinsk region, Perm region. The main assets owned by the segment are MMK, MMK-Metiz, LMZ.

The share of premium products in the structure of the segment is 43 %.

The key markets for the segment are: Russia and neighbouring countries, the share of which is 87 %; exports of this segment's products account for — 13 %. The main consumers of the Segment Russia, are:

- Construction sector — the share of 72.4 %;
- Fuel and energy sector — share 19 %;
- Machine building — share of 6 %;
- Automotive industry — share 2.6 %.

Manufacturing Powers:

- Cast iron — 10.3 mln/ton per year;
- Steel — 14.5 mln/tonnes/year;
- Flat-rolled products — 12.2 — 12.9 mln/tonnes/year;
- Premium products — 6.8 mln/tonnes/year [16].

Steel Segment Turkey — the main location is in the Republic of Turkey (Iskenderun and Istanbul). The main production asset of the Segment is MMK Metalurji.

The main products manufactured by the segment are: hot-rolled steel. The premium products include cold rolled steel, galvanized steel and polymer coated steel. The key consumer markets are: Turkey, EU, Middle East, North Africa, Asia.

Segment revenue is: 518 million/dollars.

Share of premium products: 97 %.

Capacity utilization is 92 %.

- Coal mining segment — the main product is coal concentrate.

Conclusion

The Russian metallurgical industry is the second economically important industry after the oil and gas industry. Stable growth and competitive advantages are provided by diversification of its production capacities, as well as by the provision of its own raw materials, which gives strong advantages in the process of pricing for its products.

The products of Russian metallurgists are highly marginal, which is ensured by targeting the largest and economically important industries. In particular, after the COVID-19 pandemic metallurgical companies have reoriented their production and steel production of premium grades, because they are more marginal and of the highest quality, which also gives competitive advantages over other metallurgical companies.

[15] MMK. (b.d.). About the company. Retrieved from https://mmk.ru/ru/about/

[16] MMK. (b.d.). MMK Annual Report 2020. Retrieved from https://mmk.ru/ru/investor/results-and-reports/annual-reports/

Competitiveness, sustainability and stability ensure the leading position of Russian steelmakers due to the closed production cycle, as well as the active process of digitalization of production.

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Bio note / Сведения об авторе

Ravil M. Chusmakaev, PhD student at Peoples' Friendship University of Russia, Department of World Trade. Project Manager at LLC IC Sberbank Insurance. ORCID: 0000-0002-8092-6692. E-mail: Chusmakaev@inbox.ru

Чусмакаев Равиль Маратович, аспирант кафедры мировой торговли экономического факультета, Российский университет дружбы народов. Руководитель проектов в компании ООО СК «Сбербанк страхование». ORCID: 0000-0002-8092-6692. E-mail: Chusmakaev@inbox.ru