

ЕКОНОМІЧНІ НАУКИ

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OPPORTUNITY TO IMPROVE THE COMPETITIVENESS OF FOREIGN DIRECT INVESTMENT IN MONGOLIAN COAL MINING INDUSTRY

Summary. The competitiveness of foreign direct investment (FDI) of mining sector and current economic situation, investment in the mining sector and competitiveness of the coal industry in Mongolia has been studied in this research work. Mongolia is one of 25 countries which has natural resources. There are about 30 types of natural resources, including gold, silver, copper, molybdenum, lead, tin, fluorspar, phosphorite, garnet and coal. Mongolia has about 173.3 million tons of hypothetical coal reserves, and more than 300 deposits in 15 basins has been discovered. From that 37.4 billion tons of coal reserves are estimated by geological specific exploration.

Keywords: foreign direct investment, competitiveness, natural resource, coal mining industry, Mongolia.

Introduction. Mongolia is a landlocked country which is located in Central Asia. Mongolia shares a border with Russia on the north side and with People's Republic of China on the other side. At 1,564,116 square kilometers, Mongolia is the 19th-largest country with a population of around 3.2 million people. The scientists have found that territory is rich in minerals because they are located in the middle of three large watersheds and altitude of Asia according to the geology, geography and ecosystem. Mongolia has an abundance of mining resources with 1,947 deposits, over 9,000 occurrences and over 80 types of minerals.

Due to a coal export increase Mongolian FDI also has rebounded. Growth in FDI is likely to continue to remain positive by 2020. This is due to an increase in private investment in the mining and manufacturing sectors.

Mongolian economy has been based on agriculture, especially livestock, for centuries. However, in recent years, foreign companies have invested heavily in the development of Mongolian mineral deposits, which has led to the country's future economic growth, which is largely dependent on the growth and development of this major sector. Whether Mongolia can become a major competitive industry in the world is highly dependent on the legal regulations for investors who are tend to invest run business in the mining sector. Mongolia has a world-class mineral deposits, and as a result of the exploration of foreign investors, it is possible to have the largest deposits open, not only in the mining sector, but also in the overall economic growth rate. Existing deposits enrich the country's mineral resources by iron ore, lead-zinc, and uranium, and currently copper, gold and coal projects are being implemented.

Brown coal and bituminous which are produced only for domestic purpose become main products of heat supply. The products are highly demanded in domestic market as well. On the other hand, Mongolia is a central Asian country which is located between Russian Federation and People's Republic of China. Lack of its own reliable export yield and communicates with few exporting countries. China, the world's largest populated country in the world occupies 88 percent of total export price. Therefore,

mineral resources are highly dependent on international market prices.

Literature review. The World Competitiveness Center has been publishing annual competitiveness research reports since 1989. Professor Stephen Garellie is the head of the World Competitiveness Center who is a founder of competitiveness theory which is a sector of economic science has been studying competitiveness for the past 30 years. Competitiveness is a deep understanding of many factors, including political, economic, technological, cultural, psychological, and management. The competitiveness of countries is a sector of economic science, and comparisons of reality and policy on creating and developing an environment where people are more profitable.

The index system contains 20 elements and more than 300 indicators (IMD, 2017). The World Economic Forum attached great importance to international competitiveness and considered lower-cost products and better service to be two key factors affecting competitiveness (World Economic Forum, 2016). Porter proposed a diamond model (Porter, 1991), which included production factors, demand conditions, corporate strategy structure and peer competition to evaluate national competitiveness from the perspective of the value chain and industrial chain, pointing out that domestic competition has a positive influence on national competitiveness (Porter, 2010) [1, p. 842].

The product of a good entrepreneur is one of the competitiveness factors, and business entrepreneurship stimulates innovation and technological innovation. As a result, "creative destruction" occurs, and Joseph Schumpeter (1942) found that the old sectors of goods, services, and industries are always "destroyed" by the new generation.

Michael Porter (1990) studied the essence of other factors of competitiveness except of price and cost, and developed a theory of competitive advantage of the countries. Later, M. Delgado and M. E. Porter (2012) developed the concept of "Fundamental Competitiveness".

Uri (1971) defines competitiveness as the capacity to create conditions for high salaries. According to Orłowski (1982), it is the possibility to sell. According to Fagerberg (1988), it is "ability of

a country to realize central economic policy goals, especially growth in income and employment without running into balance of payment". According to Krugman and Hatsopoulos (1987), the criterion of competitiveness is not only the capacity of a country to balance its foreign trade, but also to improve the standard of living [2, p. 123].

A basic competitiveness of a country can be measured by how much support can be given for the average employee's output increase. In other words, the basic competitiveness of the country is determined by the opportunity for people to run business for them. Basic competitiveness has three interdependent relationships. These include: 1. Social infrastructure and state institutions, 2. Money and fiscal policy, 3. Microeconomic environment. Analysing the 140 countries shows that each of these factors has a positive effect on labor productivity. The ability to attract foreign investment also demonstrates that the most important influence on basic competitiveness and currently there is no such concept of denial.

The senior expert at the Energy and Economic Institute of Japan Atsuo Sagawa, 2006 believes that "Coal is dangerous for the environment, but it will remain as a major source of energy with its price and supply stability. There is a meaningful difference between being a rich nation and being a competitive nation. So how can we measure that "How are we managing our social life through the nation made by ourselves? How do we strengthening the economy which is a quality of life assurance?". It is fundamental to learn to measure competitiveness because it can not be controlled if it can not be measured and it can not be managed if it can not be controlled. Experiences of the country show that there are big competitive companies even in the poorest countries. It is hard to find countries with competitive SMEs. The developing of small and medium sized enterprises contributes to the development of the middle class. The middle class is the key to sustainable political and social development. Strong and unique image, traditional cultures of the country are big parts of competitiveness.

In the near future, large investment in Mongolia's mining sector is likely to be significant due to an increase of FDI. However, it depends on how would it be spent. Most importantly, Mongolia's development depends on the diversification of the economy and the development of other sectors through mining revenues. Generally rich and competitiveness is a completely different concept. You're rich, but you are not competitive.

Methodology. The Annual Report of the World Competitiveness is the first comprehensive study report of this type and has been continuously being published from 1989. The report is done under 338 criterion to show the competitiveness of each participating country from all side. Two-thirds of data used in the Global Competitiveness Report are based on statistical data and 1/3 are based on information from questionnaires. Therefore, the report is not just a simple survey or questionnaires. To be more specific, the number of criterions has always been increasing. The methodology was developed as a result of the great work experience of international leading scientists and economists. According to this, the country's competitiveness is divid-

ed into four main groups of factors. These include: Economic strength, Governance efficiency, Profitability of the business entity and Infrastructure.

The main objective of the index as a reflection of the current and future investment climate of Mongolia's mining and minerals sector in the mining sector of more than 50 foreign and domestic investment companies is to further improve the policy and regulation of the mining sector, and furthermore, Mongolia to create a more favorable environment for investment in the mining sector. In the future, the index will present reports and policy recommendations annually to government policy makers and decision makers.

There are two main ways to measure competitiveness. First, compare the level of development with other similar countries according to specified criteria and indicators; Second, comparisons of the actual performance of yourself or the previous year's performance.

The competitiveness of countries is a sector of economic science, and comparisons of reality and policy on creating and developing an environment where people are more profitable. There is a difference between wealthy and competitive nation.

There are many opportunities to do practical measurement in the world including The United Nations Development Program's Human Development Index, the World Bank's Business Development, the World Competitiveness Report of World Economic Forum, and the annual Competitiveness Report of the World Competitiveness Center.

Mongolia does not have its own competitiveness surveys, and some of the reports and indexes of these organizations has been seen in generally. The Economic Policy and Competitiveness Research Center was established in 2010 with a view to understanding and measuring Mongolia's competitiveness and developing a report and policy document.

The purpose of the organization is to make international standardized researches which are targeted to develop Mongolia's competitiveness in the world. The Economic Policy and Competitiveness Research Center has made Mongolian Competitiveness Report for 2010-2018.

Methods and steps to estimate the Competitiveness Index

Step 1: Determine the distribution of each parameter and normalize the distributions taking logarithm in case of abnormal distribution.

Step 2: Standardize the parameters. The baseline component for estimating and ranking the competitiveness index is the standardized evaluation for each indicator. It is important to quantify the data with different quantities obtained from statistical data and questionnaire. The standardized value shall be calculated by each equation as follows:

$$STD(x) = \frac{x^i - \mu}{\delta} \quad (1)$$

Where, x^i – x criterion, i number;

μ – x average value;

δ – x standard bias of value.

Higher standardized evaluation indicate that the indicator has a positive impact on the competitiveness, but in some cases the value is reduced, the more likely it is to have a more positive effect on the competitiveness. In this case, multiply the standardized value by (-1).

Step 3: Calculating and ranking the general Competitiveness Index. To calculate the general competitiveness index, calculate the average standardized evaluation for each of the 20 sub-groups' criterion and using weighted average. This allows the subtraction of the subgroups to be kept constant, while the statistical information is inadequate and is likely to prevent affecting other groups, and increases the reliability of the overall results. Based on the 20 sub-groups average standardized evaluation index is calculated by the following general formula:

$$I = \frac{STD(x) - STD_{min}(x)}{STD_{max}(x) - STD_{min}(x)} \quad (2)$$

Where, I – Competitiveness Index;

$STD(x)$ – standard evaluation of criterion;

$STD_{min}(x)$ – the minimum value of standard evaluation of criterion;

$STD_{max}(x)$ – the maximum value of standard evaluation of criterion.

The four general groups of competitiveness are calculated on the simple average of the subgroups in the general index and the general index is calculated on the average of total 4 groups.

Current situation of Mongolia's FDI competitiveness of the mining sector

Mongolia was under a state planning economic system from late 1940 to 1989. During this period production and investment decisions were regulated by the government and there was no role for the private sector. Further, the economy was highly integrated with the Former Soviet Union (FSU) and the other planned economies of the Council for Mutual Economic Assistance (CMEA), and the economy was closed for foreign investment [3, p. 666].

Khindanova's works (2005, 2006 and 2007) are the only known efforts dedicated to empirically connect some measures of the geological potential and the investment climate to mining investments in a particular country [4, p. 66].

The Center for Policy Research at the Mongolian National Mining Association conducted a study on evaluating the competitiveness of the mining sector as a result of mining policy, regulatory, institutional quality, governance efficiency, infrastructure development, and developed an investment competitiveness index.

The Investment Competitiveness Index-2008 is being developed for the first time. The index is based on 15 criteria such as the economic, political sta-

Table 1
Mineral resource reserves registered in the State's integrated registration, 2018-2019

Deposit type	Unit	Registered reserves			
		2018		2019	
		ore	metal	ore	metal
Gold (rock)	<i>ths.t/kg</i>	6,537.9	18,697.9	549.0	1,674.6
Gold (placer)	<i>kg</i>	5,140.2	4,600.6	2,413.7	2,138.9
Iron	<i>ths.t</i>	44,969.8	18,287.9	3,937.6	1,476.3
Polymetallic	<i>ths.t</i>	167,692.3	–	8,633.7	–
Cooper	<i>t</i>	–	51,909.0	–	1,284.8
Zinc	<i>t</i>	–	1,174,190.0	–	78,842.5
Blue lead	<i>t</i>	–	606274.0	–	18,685.2
Gold	<i>kg</i>	–	512,904.0	–	–
Silver	<i>t</i>	–	132,224.9	–	62.1
Tin	<i>t</i>	–	–	–	547.7
Tungsten	<i>t</i>	–	–	–	75.4
Tungsten	<i>ths.t</i>	36.6	1.4	–	–
Rare earth elements	<i>ths.t</i>	356.8	125.16	–	–
Cooper Molybdenum	<i>ths.t</i>	55,871.2	–	–	–
Cooper	<i>t</i>	–	149.1	–	–
Molybdenum	<i>t</i>	–	2.2	–	–
Fluorspar	<i>ths.t</i>	6,932.0	1,239.1	570.9	324.7
Uranium	<i>ths.t</i>	51,583.2	15.5	–	–
Zinc	<i>ths.t</i>	–	–	3,273.9	–
Zinc	<i>ths.t</i>	–	–	–	308.6
Blue lead	<i>ths.t</i>	–	–	–	16.28
Silver	<i>kg</i>	–	–	–	87.83
Iron	<i>ths.t</i>	–	–	–	636.7
Coal	<i>mln.t</i>	9,662.7		4,858.8	
Silicone	<i>ths.t</i>	–		182.1	
Limestone	<i>mln.t</i>	52.7		1,061.4	
Building stone	<i>ths.t</i>	–		4,76.4	
Graphite	<i>ths.t</i>	–		347.4	
Marble	<i>ths.m³</i>	–		63,987.8	

Source: Data from Geology and Exploration Division, MRPAM

Table 2

FDI flow into Mongolia. Economic institutions (million. U.S. dollar)

	2012	2013	2014	2015	2016	2017	2018
<i>In the mining sector</i>	573.4	485.9668	241.4514	185.0209	323.9583	529.0875	606.3259
Total FDI	822.0	695.5042	591.9431	370.6556	447.4994	746.0923	857.8166

Source: Bank of Mongolia

tus, quality and efficiency of governance, infrastructure development, quality of geological data, stability, rationality of the mining legislation, general level of mining taxation, environmental regulations, and local citizenship, safety and security. Table 1 shows the amount and the type of natural resource.

Mining is one of the big reliance of Mongolia's economic growth, occupying 18 percent of GDP in 2018, 90 percent of exports and 19 percent of budget revenue. In recent years, due to over-dependence on coal, copper and gold exports Mongolian economy is becoming more vulnerable. Coal export price in the world market has fallen dramatically is led to a major problem in the Mongolian economy. This also led Mongolia to a loan from the international fund in order to meet the balance of payments requirements.

More than half of Mongolian foreign trade is done with China 90% of exports are exported through China. China is highly interested in participating in Mongolia's energy reserves and mineral extraction. As a result, some political issues are appeared in Mongolian Government. Since 2017, foreign and domestic investment has been increasing in the mining sector.

FDI and Competitiveness of Mongolia's coal sector

Mining productions are the important factors to the mining industry competitiveness and the concrete manifestation of the core competitiveness [5, 161]. Mongolia is located in the Central Asian Orogeny Zone. The zone consists of tectonic blocks and layers which are from ancient Paleozoic, later Paleozoic and partly from the ancient Mesozoic. As a result of these fracture, Mongolian coal basins which contain Carbon, Perm, Jura and Cretaceous sedimentary were formed. Total 300 coal deposits and basins have been identified.

Energy coal is used in coal fired power plants to produce steam and electricity. Coke coal is used to produce coke, iron and steel production. Bituminous is heated in high temperature in order to produce coke. The energy and coking coal reserves are major mineral reserves in Mongolia. Mongolia is one of the 10 countries which has the biggest natural resource. According to the Mongolian Coal Association, coal exports will reach 50 million tonnes by 2020 and by 2025, 80-100 million tonnes of coal will be exported annually and potential markets are China, Russia, Japan and South Korea.

Table 3
Average price of coal on the world market, by US\$/tons, 2015-2019

	2015	2016	2017	2018	2019.IX
<i>Thermal coal</i>	49.1	40.4	45.2	34.6	32
<i>Coking coal</i>	106.3	121.3	113.6	141.5	145.5

Source: www.infomine.com, www.sxcoal.com

Coal is not only major raw material of Mongolian mining sector but also contributing expansion of Mongolia's budget revenues. Therefore, the Ministry of Mining is paying special attention to the coal sector. Under this concept, the "Coal" program was developed. The government is supporting the policy on increasing exports of coal, expanding market and processing For Mongolia, there is only one customer, China. There is a need to create a market competition between many costumers. The government and the private sectors are seeking the solution of coal processing, enclosing added value, selling to other markets through ports.

We are pursuing a policy to supply coal to Japan, South Korea and Europe. There is some progress in this area in our private sector. The coal washing plant has begun its organization. Furthermore, the state is paying attention to the establishment of coal and chemical production in Mongolia.

Mongolian coal is trying to compete with Australian coal. When it comes to re-processing the coal and exporting coke, there is an opportunity to compete. Coal price is available to be raised due to end consumer is satisfied for the coal quality. The Tavan Tolgoi mine is one of the world's largest coking coal deposits, and Oyu Tolgoi is expected to be one of the world's largest copper mines.

Price of coal depends on production quality and it is important to ensure the market price. Therefore, coal prices need to be relative with quality.

Mongolia has an estimated 173.3 billion tons of hypothetical coal reserves and an forum named Coal Mongolia's is held in every year to attract investors. Foreign investors are only interested in investment by believing in the future. For them, the Mongolian coal market is becoming a "new business". Then, how to increase the competitiveness of Mongolian coal? Finding answers is the main purpose of the annual forum of Coal Mongolia. Divide coal resources into economic zones of Mongolia and describe the times when and how the resources will flow into the economy depending on the regional and coal characteristics. It is possible to develop

Table 4

Coal extraction, export (million tons)

	2011	2012	2013	2014	2015	2016	2017	2018	2019.IX
<i>Export</i>	21.3	20.9	18.4	19.5	14.5	25.8	33.4	36.6	12.3
<i>Output</i>	32.0	29.9	30.1	25.3	24.2	35.4	49.4	54.5	18.1

Source: National statistical office of Mongolia

gas like the natural gas that can meet the international standard of coal with the latest advanced technology. A certain proportion of total revenues from exploitation of coal deposits will be devoted to the country's geological survey and the policy of increasing the state's coal reserves will be pursued.

Coal is very important from other minerals. Whereas gold and copper are very small and expensive, coal is large and covers a large area. Because of the use of heavy equipment and technology, it has a negative impact on the environment. It also requires high technology and high investment.

Today, over 140 enterprises are ready to operate. It is capable of extracting more than 100 million tons of coal in total capacity. However, according to the survey, 60 to 70 million tonnes of coal will be produced annually until 2025. Last year, about 20 million tons of coal was exported and it is planned to issue 30 million tons of coal this year.

Although Mongolia is capable of exporting 100 million tons of coal a year, only 30 million tons of coal is delivered to the market, over 70 million tons of coal becoming surplus. It is important to improve the quality of coal and the deep processing should be done. In this case, coal prices will rise and the world market and available to be competitive. Our coal quality is possible to meet the demand of the world standard.

Coal prices are likely to grow in 2020 compared to the first quarter of 2019. However, the state policy should be clear and the legal environment should be stable. The Ministry of Mining is focusing on increasing coal extraction, but it has been developing a policy related only with the numbers.

China has 6 billion tons of coal consumption. Over 3.2 billion tons of coal is explored by themselves. Mongolia has exported 36 million tons of coal to China in 2018.

Mongolia is going to compete in the coal market with Australia, the US and Russia. We are geographically preferred to supply coal to China, but we have to transport a small amount of coal by road. This is causing to weaken the competitiveness of coal. Many different end products can be produced from coal.

The prospects of future coal production and mining depend on the following: "A system of mining Coal resource in a smart way and safely for the environment". The coking coal and energy coal are explored together which are closely interconnected with mineral-rich deposits of limited power. On the technical side, it is necessary to develop equally quality of the coal market. This is to ensure that mineral resources are fully utilized, and avoid the loss of natural resources.

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Mongolian coke coal is a high-quality solid coal and coal importers of the world are keen to buy it from Mongolia for a long-term with a reliable supply. In this case, international consumers are connected to the seaports with convenient facilities. Mongolia can become a coal producer and exporter country. But before that, it is important to solve equipment and heavy machinery supply for transporting large amount of coal. Since 2020, Mongolia will be a strong competitor in the coal, especially coke coal market. The reliability of coal sales will depend on transportation and production costs. At present, Mongolia's coal production costs are low but transportation costs are very high. If the transportation transit through Russia the cost will be even higher. Export coal is located in the southern Gobi region. So that, the nearest purchaser is China which has structures to the closest seaport.

Conclusion and recommendations. The industrialization of Mongolia is aimed at developing the domestic coal industry. The industrialization of society should be supported by low-cost electricity. The basis of competitiveness is about existence and survival. When it comes to a rating score, it has an advantage to competitive.

In order to improve the competitiveness of coal, we need to increase the revenue from coal exports. It is important to increase the revenue of the coal industry by enhancing the competitiveness.

Mongolia has created a competitive environment for the preservation, improvement and use of this comparative advantage of coke coal. Mongolian coal sector is one of the competitive industries in the international market. The strategy is very important for the economic development of the country. Therefore, it is necessary to support new technology, management, marketing and investment in coal development. It is time to establish an export exchange for mining products to increase the competitiveness of coal. The Ministry of Mineral Resources is required to develop a law on exchanges.

It is necessary to implement new transportation and logistics policies, such as coal processing and international railways, and railway development.

Mongolian Government and the Ministry of Mining should support the development of coke-chemicals, coal-chemical production, and the development of semi-processed and end products with high demand for foreign products which are environmentally friendly. Private mining companies are possible to attract investors and consumers thanks to the good quality of Mongolian coal.

Although the coal market of the coking coal product, the coal market, is not yet fully developed in Mongolia, but coke coal is expected to have a long-term demand on the world market.

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