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## ECONOMY

**ECONOMY**

# RESEARCH OF MULTIPLE INVESTMENT STRATEGIES USING A SHORT AND LONG POSITION

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**ABSTRACT**

The construction of an optimal portfolio of securities is one of the main tasks of managing the financial system, in which individual assets are only a component part. However, each asset also requires a separate study.
I gave the article building an investment portfolio with a zero strategy, comprising borrowing some assets and buying other assets for the same amount. The study comprised choosing the length of the historical horizon, the ranking criterion and the portfolio structure that ensured the maximum investor income.

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**Introduction.** The construction of an optimal portfolio of securities is one of the main tasks of managing the financial system, in which individual assets are only a component part. However, each asset also requires a separate study. I base inertial investment strategies on the assumption that the trend of the most profitable stocks in the past will continue, a similar assumption about the most unprofitable stocks. Therefore, in inertial strategies, the investor seeks to buy part of the most profitable shares and sell less profitable ones. Inertial strategies attract their simplicity. At the beginning of the development of such strategies, average profitability they used average profitability ranking criterion. In [1], various relations taking into account profitability and risk ranking criteria.

In this paper, three criteria were used to rank. The aim of the work was to determine the most effective criterion for a short-term ownership period of 30 days using real data not smoothed and smoothed by the Caterpillar-SSA method.

**Statement of the problem.**

The investment strategy under consideration is:

1. Asset ranking by the selected criterion.
2. The division of assets into “good” and “bad” according to the value of the criterion.
3. Simultaneous sale (short position) of “bad” assets for a certain amount and purchase (long position) for the same amount of “good” assets.
4. The formation of two portfolios of “good” and “bad” from the respective assets.
5. The definition of income of the investment strategy at the end of the ownership period, as the difference between the costs of “good” and “bad” portfolios.

The interval [t1, t2] will be called the historical horizon, [t2, t3] the period of ownership.

**Asset ranking.** Denote by ri, j the profitability of the j-th asset at the i-th moment in time. Consider the array of returns on the selected historical horizon. For each asset, we calculate the value of the selected criterion. Asset ranking is carried out according to three criteria:

We define the mean criterion for a certain period as the average value of daily stock returns., this can be written:

$$Sr = mean (r), \quad (1)$$

where mean (r) - average values of returns for a certain period;

r- daily yield.

The Sharp criterion uses average daily returns over a specified period. They define the values of the Sharp criterion:

$$Sharp = mean (r) / \sigma, \quad (2)$$

where mean (r) - average values of returns for a certain period;

σ is the standard deviation or standard deviation.

Farinelli-Bialetti criterion:

$$FT = E (r +) / E (| r- |), \quad (3)$$

where E (r) is the average return on an asset,

r + - positive asset returns,

r- - negative asset returns.

**The formation of two portfolios.**

In the described strategy, we use ten assets: shares of Rosneft, MosBirzhi, AvtoVAZ up, Sberbank, LUKOIL, GAZPROM ao, Kamaz, Armada, Neftekamsk, MTS ao for the period from December 1, 2015 to December 2, 2016 with daily intervals.

At the moment t2 - the beginning of investment for the selected criterion, we have an array of assets ranked on the historical horizon. I carried the ranking out in descending order of the criterion values. We will call the first three assets in the ranked array "good", the last three - "bad". We construct equal-weighted portfolios with the structure x = (1/3 1/3 1/3) T from the "good" and "bad" assets. We denote by wig, wib the capital at the ith moment of time of the portfolio of "good" and "bad" assets. To get the dynamics of the two portfolios, it is necessary to form a matrix of the returns of "good" and "bad assets" on the ownership interval, we denote them by rg and rb,, and the return of the portfolio of "good" assets and the return of the portfolio of "bad" assets will be got by the formulas rpg = rgx , rpb = rbx. The capital of two portfolios in the ownership interval is calculated by the formulas:

$$wi + 1g = wig (1 + rpig), w0g = w0, \quad (4)$$

$$wi + 1b = wib (1 + rpib), w0b = w0, \quad (5)$$

The following algorithm will obtain the optimal portfolio. After ranking the assets and dividing them into "good" and "bad", it solved two optimization problems. We found a portfolio structure of "good" assets that maximized the selected criterion, and of bad assets, we found a portfolio structure that minimized the criterion. Optimization problems were solved using decision blocks in MathCAD.

**Determination of the optimal parameter.**

The simulation period from December 1, 2015, to December 2, 2016, with a daily frequency of 255 days. Based on this, we can use the following values as parameters:

1) Historical horizon: 30, 50, 70, 90 days;

2) The starting point of ownership: 50, 100, 150, 200 days.

We choose the parameters for each criterion, based on 4 conditions:

1) maximization of the average value of the investor income over the period of ownership;

2) maximization of the average income of the investor for the period of ownership;

3) maximization of the point value of investor income for the period of ownership;

4) maximization of the average point value of the investor income over the ownership period.

It turned out that, regardless of the criterion, the optimal parameter for creating a portfolio of securities is: the historical horizon - 30 days, while we assume that the beginning of ownership is 50 days.

**Portfolio reform.**

Portfolio reformation consists in the formation of the portfolio with a certain periodicity from the initial set of stocks to achieve maximum income. This procedure is:

1) An investment strategy begins with an analysis of the dynamics of assets.

we select Some criterion;

• For each asset, we get the criterion value;

• Assets are ranked by criterion value;

• "Good" and "bad" it highlights assets.

2) At the beginning of each period, we selected a month, two portfolios are being built: one of the "good" shares, the other of the "bad" ones.

• Equal investments in both portfolios;

• Portfolio structure balanced.

3) The strategy for taking short and long positions is:

• Borrow the assets of the losers, sell them;

• We buy "good" shares for the amount received.

4) During the ownership period, in our case a month, the portfolio structure does not change.

5) At the end of the tenure, we sell a "good" portfolio and repay the debt.

The difference in the value of the portfolios at the end of the ownership period is our income, which can be positive or negative.

The reforming process (paragraph 1-5) continues N times, depending on the selected time and the specified parameters. For example, for the modeling period from December 1, 2015, to December 2, 2016, the historical horizon of 30 days, the beginning of ownership of 50 days and the period of ownership of 30 days, portfolio reformation can be performed 5 times.

**Comparison of numerical results.**

Because of modeling, they obtained the following arrays of investor income for the ownership period for various criteria:

Table 1.

| Initial moment | Equally Weighted | | | Optimal | | |
|---|---|---|---|---|---|---|
| | Mean | Sharpe | F-T | Mean | Sharp | F-T |
| 50 | 0,04 | 0,04 | 0,04 | 0,071 | 0,125 | 0,125 |
| 80 | 0,109 | 0,109 | 0,108 | 0,145 | 0,199 | 0,204 |
| 110 | 0,157 | 0,204 | 0,156 | 0,323 | 0,34 | 0,313 |
| 140 | 0,15 | 0,183 | 0,168 | 0,316 | 0,321 | 0,323 |
| 170 | 0,146 | 0,183 | 0,165 | 0,327 | 0,321 | 0,306 |
| 200 | 0,166 | 0,208 | 0,054 | 0,387 | 0,413 | 0,249 |

The securities portfolio was formed and reorganized based on the smoothed, according to the Caterpillar method, stock prices. It shows the results below.

Table 2.

| Initial moment | Equally Weighted | | | Optimal | | |
|---|---|---|---|---|---|---|
| | Mean | sharp | F-T | Mean | Sharp | F-T |
| 50 | 0,04 | 0,098 | 0,04 | 0,031 | 0,058 | 0,031 |
| 80 | 0,119 | 0,195 | 0,119 | 0,129 | 0,072 | 0,142 |
| 110 | 0,155 | 0,287 | 0,155 | 0,335 | 0,125 | 0,227 |
| 140 | 0,185 | 0,323 | 0,185 | 0,331 | 0,099 | 0,241 |
| 170 | 0,03 | 0,182 | 0,03 | 0,206 | -0,026 | 0,045 |
| 200 | -0,03 | 0,068 | -0,03 | 0,226 | 0,06 | 4,68* 10^-3 |

As a result of the simulations, it turned out that the investor, investing in an equal-weighted securities portfolio, according to the Mean criterion, will receive an income equal to 16.6% of the initial funds, according to the Sharp criterion - 20.8%, according to the Farinelli tibiletti criterion - 5.4 % With optimal formation, the investor will receive a higher income of 38.7%, 4.13%, 24.9%, respectively.

The smoothed data yielded a worse investment result: in an equal-weighted portfolio of securities, according to the criteria of Mean and Farinelli tibiletti, the investor will lose 3% of the invested funds, according to the Sharp criterion, he will receive 6.8. With optimal formation, the investor will receive an income of 22.6%, 6%, less than 1%, respectively.

Thus, we can say that when investing in the stocks of the companies selected by us, it is better to form an unbalanced (optimal) portfolio, using at the same time not smooth data and the Sharp criterion.

**Conclusions.** Investing securities is a difficult economic phenomenon, which comprises investing money in stocks to achieve profit or income.

In theory, there are many ways, criteria, and strategies for investing, not depending on its occurrence, goals, manifestations and other factors, but they are very difficult to distinguish. All species intersect and flow into each other. However, generating income from investing in securities can be a manageable and controllable process. Which is one of the main factors of the socio-economic situation of a single subject and the country?

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# BEGINNING OF FUNDAMENTAL REFORM OF THE STOCK MARKET IN THE REPUBLIC OF UZBEKISTAN

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Financial market, structure of financial market, segments of financial market, financial-legal policy, stock market, bond market.

**ABSTRACT**

The article studies the financial market in the context of the modern approach to the development of the secondary market in Uzbekistan. The author explores the main problems in the development of the secondary market, and also offers a new practical approach to the development of methods to eliminate existing problems. The achieved scientific results allow us to formulate conceptual approaches to the study of the financial market as an object of state regulation.

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**Introduction.** The beginning of this year was marked by an event that the last two decades have been eagerly awaiting for all participants in the domestic stock market, and especially professional ones. Finally, the authorized state body in the field of regulation of the stock market got out of the subordination of the state administration body that exercises the functions of managing state assets, ensuring antitrust regulation, and became an independent Agency independent of it.

In accordance with the Decree of the President of the Republic of Uzbekistan Sh. Mirziyayev "On measures to radically improve the system of managing state assets, antitrust regulation of the capital market", the Agency for Management of State Assets of the Republic of Uzbekistan, the Antimonopoly Committee of the Republic of Uzbekistan and the Agency for the Development of the Capital Market were created with tasks , functions and powers in relation to the regulation of the securities market, including the organizers of securities trading, the Central Securities Depository and development of corporate governance. [Electronic resource]. URL: https:// finance.uz/ (accessed: 23/03/2019).

Everyone knows that the securities market plays a huge role in the economies of countries and in the world as a whole.

Existing mechanisms and instruments of the stock market, the national economies of developed countries attract a significant part of financial resources for their development. That is why the advanced, developed countries of the world, such as the USA, Germany, Japan and others, have well-developed and developed stock market systems that allow them to attract temporarily free cash and other funds of the population, enterprises, organizations and the state itself and direct them to finance the development of their national economies. Uzbekistan is now at a turning point in new reforms, when the stock market will begin to fulfill its most important function - the function of mobilizing temporarily free funds of the population, enterprises, corporations and the state itself, and channeling them to finance the development of various sectors of the economy. In the modern world, the reality is that securities are no longer just

fictitious capital, and if their market is properly organized, they can serve as the most powerful financial lever that can bring the economy to a new, much higher level of development. In Uzbekistan, since independence, the main attention as a source of financing the economy has been given to a bank loan. It was banks, as institutions for raising funds from the population and enterprises and organizations, as well as the state, on a borrowed basis, that made huge investments in the real sector of the economy. The banks concentrated significant financial resources and qualified human resources. Over the years of independence, the state has provided all kinds of comprehensive support to the banking sector. Banks received huge funds and preferences from the state.

**Material and methods.** In 1994, the Republican Stock Exchange was established. From 1996 to 2011. The market for government securities (government current liabilities, bonds of the Central Bank) received certain development. But the stock market was mainly based on the transformation of state enterprises into joint stock companies, i.e. on privatization [2]. The issue of shares during large-scale privatization, as a result of which about five thousand state-owned enterprises turned into joint-stock companies, did not lead to the involvement of new financial resources in the turnover of enterprises and was not associated with investments, but basically meant only a change of their owner - state to private.

**Theory/calculation.** According to the authorized state body for regulating the securities market, over the entire period of development of the securities market in the country, the number of issued shares amounted to 6.3 trillion for a total amount at face value of 59.4 trillion Sums. As of October 1, 2019, the total amount of shares on the country's stock market reaches 25 trillion srms, and in relation to the country's GDP this indicator does not reach 6 percent. Approximately this indicator reaches 188% in Singapore, 112% in Malaysia, and 34% of GDP in Russia. For the previous 2018, entries in 155 share issues worth 13.4 trillion were made in the Unified State Register of Issues of Securities sums) [9]. The number of shares issued in 2018 amounted to 1.98 trillion units, the total turnover of the stock market and corporate bonds amounted to 10.71 trillion sums, up 11.53 trillion sums or 2.07 times less than the same period in 2017. [Electronic resource]. URL: http://davaktiv.uz/uz/(accessed: 07/12/2019).

In 2018, 14,045 deals worth 815.04 billion sums were concluded on the organized market, including 14,039 transactions with shares for 713.71 billion sums and 6 transactions with corporate bonds for 101.3 billion sums. The volume of transactions with shares and corporate bonds on the RSE “Tashkent” amounted to 687.88 billion sums (13,751 transactions), and on ESVT “Elsis-Savdo” - 127.16 billion sums (294 transactions) [8].

**Results.** However, the mechanism for issuing securities and their implementation in the stock market is not used efficiently. This year bonds realized only by commercial banks through currency exchange. The number of professional participants is less than 100.Sootvetstvuyuschimi authorities planned development of the stock market in the country's development strategy 2020-2025. It is planned to increase the share of securities in free circulation in relation to GDP to 10-15 percent of the end of 2025 (today it is 0.3%) [8]. This area is regulated by about 100 legal acts and many restrictions have been established. For example, banks are prohibited from acquiring shares in other business entities. There is also a restriction on the purchase of government bonds by citizens. Currently, the state owns 85 percent of the shares of 605 joint-stock companies, of which only 5 percent are traded on the stock market.

Today there are 300 specialists who have a certificate of qualification [Electronic resource]. URL: https:// finance.uz/ (accessed: 23/03/2019).

Without the development of the securities market, we cannot say that we switched to a market economy, and without significant privatization, this market cannot develop.

To develop the stock market, foreign exchanges, brokers, banks and insurance organizations should be involved in the domestic market.

**Discussion.** The assets of the banking sector are 264.5 trillion sums or more than 55 percent of GDP. Also high dollarization (in loans issued, it is 56.9%). The capital market development agency registered 21.7 trillion sums of securities this year, an increase of 62% compared to 2018. The number of appeals is examined -500, of which violations on non-payment of dividends were revealed - 200 and the payment of dividends for 7.2 billion sums were ensured. [Electronic resource]. URL: https:// finance.uz/ (accessed: 12/11/2019).

During 2018, the Central Securities Depository and investment intermediaries (acting as depositaries since 2015) registered 5,743 transactions with shares and corporate bonds worth 9.89 trillion sums. The total turnover of the secondary market for stocks and corporate bonds amounted to

1,704.4 billion sums, including: in the organized market - 487.96 billion sums (10,356 transactions); in the unorganized market - 1 216.43 billion sums (4 975 transactions). [Electronic resource]. URL: http://davaktiv.uz/uz/(accessed: 07/12/2019).

In the context of industries, based on the volume of transactions, the highest turnover ratio (the ratio of trading volume to the total authorized capital of the industry JSC) in the secondary market is observed for shares of enterprises included in the structure of the Uzfarmsanoat Agency (74.8%), business entities created with the participation of local government bodies (41.81%), Uzozikovkatholding JSC (34.6%), the Ministry of Water Economy (31.5%), the National Television and Radio Company of Uzbekistan (31%), the Uzbekkino National Agency (24.5%), JSC "Uzagrotechsanoathholding" (13.2%) [Electronic resource]. URL: https://cmda.gov.uz/ (accessed: 27/11/2019).

In general, enterprises of all sectors include 2.7%. The volume of transactions with shares in the secondary market last year with the participation of individuals amounted to 734.73 billion sums or 45.38% of the total volume of transactions in the secondary market. The number of valid licenses for professional activities in the securities market amounted to 138 units, in particular 16 were issued in 2018, 35 were reissued, and 8 licenses were terminated [8]. The number of professional participants in the securities market, in connection with the combination of professional activities in the stock market by individual organizations, is much less - about 80. The total number of valid qualification certificates of specialists in the securities market amounted to 325 units, including 79 - I category and 246 - II category [Electronic resource]. URL: https:// finance.uz/ (accessed: 04/08/2019).

During 2018, a total of 87 qualification certificates were issued. To revitalize the national stock market and increase its investment potential, cardinal decisions are needed [Electronic resource]. URL: https://cmda.gov.uz/ (accessed: 15/10/2019).

In 1996, a course was taken to mobilize free cash of the population and direct them to finance sectors of the national economy through the creation of investment and privatization funds. In Uzbekistan there were created more than 80 units and about the same number of management companies. In order to increase the efficiency and effectiveness of the adoption of regulations in the field of the securities market, it is necessary to constantly implement the principle of planning the development of the stock market by adopting programs for 2-year or 3-year periods.

It is advisable to develop a single document of a strategic nature - the Stock Market Code, which would combine all the laws being developed and adopted and by-laws into one document.

A well-balanced concept for the development of the national securities market is also needed, which is a guide for the long term for issuers, investors, professional participants, as well as for state regulatory bodies of the stock market). [Electronic resource] URL: http://davaktiv.uz/uz/(accessed: 07/12/2019).

In foreign financial markets, there is competition between the securities market and the bank loan market, which is the engine for the development of financial markets. Internal competition in the financial markets forces banks to lower interest rates on loans, establish more flexible conditions for issuing loans, and issuers of securities to issue them so that investors feel the benefits of investing in securities rather than banks. In Uzbekistan, such competition is practically absent. It is enough to say that only joint-stock companies have the right to raise funds for technical and technological re-equipment through the issuance of securities in the republic, of which as of October 1, 2019 there were 605 units in the republic [8]. The dominant, monopoly position in the financial markets is occupied by banks. In this regard, it is time to develop a special program to increase the competitiveness of the securities market of Uzbekistan, aimed at creating such a mechanism for its functioning that would allow attracting funds to finance enterprises not only through a bank loan, but also through the issuance of securities. The preparation of such a program is very relevant in connection with the adoption at the beginning of 2012 of the Law of the Republic of Uzbekistan “On Competition”, the effect of which now extends not only to commodity markets, but also to financial markets [8]. Therefore, the issue of demonopolizing the credit market as part of the financial market should be the subject of close attention of the newly created Agency for Antimonopoly Policy, whose predecessor until recently had practically not paid attention to the monopolistic position of banks in the financial markets. [Electronic resource]. URL: https:// finance.uz/ (accessed: 27/03/2019).

In order to revive the secondary market for corporate equity securities, it is necessary to drastically reduce the state's share in the authorized capital of joint-stock companies transferred by the state to the management of integrated corporate structures, and introduce a fundamentally new effective operating system for disclosing information by issuers.

**Conclusions.** For strategically important and well-known privatized enterprises, whose shares can claim good liquidity, but are not put up on the market, it is advisable to define small blocks of shares in relation to the total number (up to 15% of the issue amount) for their free circulation on the stock and OTC valuable markets papers. Allocation of such a package for free sale on the market would not affect the sale of the enterprise to a strategic investor, since the latter, in order to exercise complete control over the enterprise, in most cases it is enough to own a package of 50% + 1 share (of voting securities) [8]. In this case, it would be advisable to consider the issue of increasing the number of joint-stock companies created on the basis of state ownership, whose shares could be offered to a wide range of investors and, above all, the population. An increase in the share of the secondary market in the total turnover of the stock market may result from the introduction of a "golden share" in joint-stock companies during the privatization, which are of priority importance for the country's economy instead of maintaining a state share in the authorized capital. At present, in order to maintain the right of veto on certain decisions of strategic management bodies of joint stock companies, the state retains a package of more than 50% of the shares of such companies, which is immobilized. The sale of state-owned shares in private ownership with the preservation of the "golden share" of large strategic enterprises by the state would allow maintaining state control over the activities of such enterprises, replenishing the revenue part of the state budget with significant funds, and most importantly - to withdraw the largest blocks of shares from the state of immobility, which are currently the main factor restraining the development of the secondary share market). [Electronic resource]. URL: http://davaktiv.uz/uz/(accessed: 07/12/2019).

Currently, there is a serious hypertrophy of the stock market on a regional scale, expressed in the fact that the overwhelming majority of transactions with shares are in Tashkent. In particular, in 2018, the largest activity in the secondary market in terms of volumes was recorded for shares of issuers located in Tashkent city (87.2% of the total) [8]. The development of regional (local) markets of the country has a sluggish character, in the regions there is no necessary special market infrastructure (professional participants in the securities market). In some, even large areas; there are no professional participants in the securities market, carrying out the most important types of professional activity on it. To ensure effective disclosure of information, it is necessary to radically change the approach to organizing informing investors, creating a system that operates on the principle: "not the investor is looking for information, but the information finds the investor." In order to simplify the perception of information by investors on the website of the RSE "Tashkent", information on stock quotes should be provided in a short format in accordance with generally accepted international practice, by analogy with the publication of quotations in foreign publications.

In order to interest entrepreneurs in working in the stock market, it is advisable to create economic interest for market participants. In particular, it is advisable to exempt from taxes for a period of five years income received in the form of dividends on shares and interest on corporate bonds, income derived from the circulation of securities. Given that professional activities in the securities market are related to servicing, income from professional activities in the securities market should be exempt from taxes. The financial sector of Uzbekistan is one of the fastest growing in the country's economy. However, the development of the money and credit markets, the securities market, the performance of a significant number of operations in these markets, the growth of financial services and, in particular, consumer lending against the background of financial illiteracy and citizens' lack of understanding of their rights and obligations are of concern to both the state and the financial sector itself. Until now, most of the population is distrustful and skepticism of the financial sector and especially the securities market. The insufficient level of financial literacy of the population in Uzbekistan is expressed in the inability of citizens to build long-term financial plans, make effective savings, choose financial instruments, improve their quality of life, properly assess risks, and take responsibility for their financial well-being and future. The lack of financial literacy of the population is a deterrent to the development of the financial market and the economy as a whole. To increase the level of financial literacy of the population, it is advisable to develop a special program, the purpose of which should be to increase the level of knowledge of the population about the country's financial system, functioning financial instruments, skills to use modern payment products and improve the welfare of citizens of the Republic of Uzbekistan.

The significance of the program is determined by the fact that it should contribute both to the development of the personal financial culture of the citizen of the Republic of Uzbekistan, and to the improvement of the economic situation in the country as a whole.

It is necessary to abolish the long-obsolete legal norms, according to which transactions in the secondary market should be registered exclusively by bidders. In other countries, such a rule is not practiced. Currently, it is in connection with the presence of this norm in the legislation of Uzbekistan, after the conclusion of a transaction based on the results of competitive bidding, as well as a result of direct negotiations, even if there are appropriate protocols that determine the seller and buyer of securities, their quantity and price ( there are essential conditions of the transaction) the participants in the transaction are forced to take an additional action - to register the already "de facto" transaction on the stock exchange.

Securities markets of many countries are formed largely due to the issuance and circulation of bonds. In Uzbekistan, the bond market is virtually absent. [Electronic resource]. URL: https://cmda.gov.uz/ (accessed: 15/10/2019).

More than 162 thousand limited liability companies and 72 thousand private enterprises, including many large and financially stable enterprises with a positive credit history, do not have the opportunity to develop their activities through the issuance of securities. To eliminate the one-sided structure of the securities market (stocks occupy the overwhelming share in the total market turnover), to increase the competitiveness of the stock market in the financial services market, a number of measures are proposed aimed at creating an enterprise bond market. [Electronic resource]. URL: https://cmda.gov.uz/ (accessed: 14/11/2019).

To do this, it is necessary to revise the approaches regarding the conditions for issuing bonds by enterprises of the republic, providing for the following points:

- consider corporate bonds as one of the main types of securities, and corporate, infrastructural, and commercial bonds as their varieties. At the same time, to allow the issuance of enterprise bonds to state enterprises, joint-stock companies, limited liability companies, private enterprises;
- at the legislative level, determine the types of bonds of enterprises that can be issued, clearly describing the signs, conditions and mechanisms of issue, circulation and redemption, the distinctive features of each type;
- initiate the issuance of exchange-traded bonds by enterprises whose shares have successfully passed the listing procedure, are included in the exchange quotation list of the Republican Stock Exchange with significant liberalization of the conditions for their registration with the authorized state body for regulating the securities market.

To raise funds at the regional level, it is also necessary to allow the issuance of bonds to local authorities - municipal bonds.

In the conceptual documents on the development of the securities market for the medium term, it is advisable to provide for the development and implementation of the national innovative software product "Unified software and hardware complex of the securities market of Uzbekistan", which provides a multifunctional mechanism for accounting and storage of securities, conducting trading in securities, and clearing operations in the market Securities, which should be developed by domestic programmers, responding exclusively to the national the interests of the Republic of Uzbekistan.

The capital market development agency offers targets by 2025:

- The free float of securities is 10 percent of GDP or 60 trillion sums — 20 trillion sums of shares, 20 trillion government bonds and 20 trillion sums of treasury bonds [8];
- The market capitalization of shares should be increased to 80 trillion sums or 13.3% of GDP or more than 2 times higher than in 2019.

Offered:

Central Securities Depository:

- Formation of a single national depository for the stock and foreign exchange markets;
-Settlement transactions on equity securities by opening a correspondent account with the Central Bank.

Stock Exchange "Tashkent":

- Improvement of the rules;
- Introduction of hedging instruments.

Capital Market Development Agency:

- Addition and alternative to the banking sector;
- Increase in market liquidity;
- diversified financing instruments.

The implementation of the proposals and recommendations formulated above will further enhance the investment potential of the securities market and develop the economy.

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# EFFECTS OF HUMAN RESOURCE MANAGEMENT ON FINANCIAL PERFORMANCE OF BANKING SYSTEM OF THE REPUBLIC OF MOLDOVA

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**ABSTRACT**

The main objective of this study is to evaluate the efficiency of the banking system of the Republic of Moldova under the impact of the resources that influence it, focusing on human resources. The assessment of banking efficiency through financial indicators includes some indicators. Analyzing the notion of efficiency it can be seen that it is dependent on several qualitative factors, which gives it a complex character. The study of bank efficiency mainly involves a causal analysis of the factors that determine the decisions in a related risk environment. In the present paper, we intend to analyze in particular the effect of the banking staff management on bank efficiency, as it is mainly dependent on the way the bank employees' work. One of the essential factors influencing the Moldovan banking system analyzed in the present study is the efficiency of staff management.
From the analysis, it can be noticed that there is a link between the banking efficiency and the efficiency of banking staff management. Banks with better indicators of bank management efficiency also have higher banking efficiency.

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**1. Introduction.** The financial system is a crucial sector of any economy whose level of development affects the business environment, investment, economic outlook and social dimensions, including poverty. Vulnerabilities in financial systems often generate financial crises, economic depression, and tax costs. The financial sectors are also crucial for monitoring and comparing time and space (between the economies of different countries).

Financial institutions in a country are the main channels of mediation between economies and investments. More advanced financial systems quantify, aggregate and negotiate all the risks associated with a transaction, and incite those who save to invest and give them compensation according to the extent of the risks involved. When they are effective, intermediaries enable the mobilization of savings from various sources to engage them in more productive uses that benefit not only investment recipients but also the economy as a whole.

By linking those who invest with those who save, banks play a crucial role in allocating resources, diversifying risks and reducing information friction on credit markets. Limited access to credit for individuals and businesses prevents investment in human and physical capital, innovation and productivity gains. In addition to long-term economic growth, empirical evidence also shows that access to finance plays a vital role in shaping economic differences between individuals.

For the Republic of Moldova, some harsh lessons have highlighted the need to understand the principal vulnerabilities of the financial system as well as possible. The degree of development of the financial system and its fundamental element - the banking system, determines to a large extent the

real possibilities of the Moldovan economy, and the inefficiencies in the financial system can contribute to malfunctions and imbalances over time.

The contemporary banking system can be regarded as an orderly set of resources (labor, material, technical, financial, information technology) which, in interaction, constitutes a holistic formation with such new properties lacking in one supply, profitable product and quality services to customers. Each resource in its way influences the efficiency of the banking system.

From this point of view, we will analyze each of the resources that influence the banking efficiency, the primary emphasis; however, we will put it on the effectiveness of the banking staff management.

The article will be organized as follows. In the second section, there will be a review of the specialized literature on the importance of banking staff management in the context of the banking system's efficiency. The third section of the document will be devoted to describing the empirical methodology of the research. The data and variables used in the analysis will be presented in Section Four. The results of applying the method to our data and their implications will be analyzed in the fifth section. Finally, the conclusions will be presented in Section Five.

The main objective of the study is to determine the efficiency of the banking system of the Republic of Moldova under the impact of the resources that influence it, focusing on human resources.

**2. Literature review.** In the literature, studies on banking efficiency have become a domain determined by the empirical economy. These studies have developed a relatively standardized methodology in which efficiency determinants use a two-step approach. In the first stage, the efficiency and variation of productivity are evaluated (by financial coefficients or by parametric methods), and subsequently, these efficiency scores and productivity changes are regressed on the set of determinant variables. [1] Furthermore, as Sufian [2] mentions, the factors that influence the bank's performance are regressed on the overall efficiency of factor productivity. The primary purpose of the second phase of Tobit's regression is to determine which factors significantly influence productivity efficiency as a whole and to estimate the magnitude of the marginal effects of factors.

In the literature, some empirical studies on bank profitability can be identified, focusing on specific countries, while others have focused on a group of countries. For example, recent studies focusing on bank efficiency in countries such as Austria [3], the United States of America [4], Malaysia [5], South Africa [6] , but also groups of countries like Latin America [7] , Fertile Crescent Countries [8].

A central term in this study is 'staff efficiency,' which has a direct impact on bank efficiency. Paradoxically, but there seems to be a minimal number of studies on the relevance of staff in banking efficiency [9], [10]. Bowra and Niazi [11] found that HR practices and employee performance have a positive and significant relationship, and so it is essential for banks to understand that their HR practices affect employees' performance and in turn affect performance general of a bank.

**3. Methodology and data.** Analyzing the concept of efficiency can be seen that it is dependent on many qualitative factors, which gives it a complex character. The study of the efficiency of the financial system necessarily involves a causal analysis of the factors that determine the decisions in a related risk environment. Assessing the factors that influence the efficiency of the financial system is not an easy task, as some factors need to be taken into account. That is why different studies that have examined the magnitude of the financial system's efficiency have tried to highlight the variables that influence it. As a rule, in the literature, the influence factors on the financial system are divided into two categories: endogenous factors and exogenous factors.

*Endogenous factors*. These variables are decision variables specific to the entire financial system; in other words, they can directly or indirectly influence the technological process of the components of the financial system.

*Exogenous or environmental factors*. They are primarily made up of variables that describe the conditions of the environment in which the financial system develops, and those that are outside its influence and cannot be controlled by the financial system institutions. Therefore, the elements of the financial system can only, within the limits of its capacity, respond to changes in these factors and adapt to the new conditions of activity.

In such situations, the technique of factorial analysis is used in international practice because it is a method by which complex phenomena can be explained.

Factorial analysis has begun to be used in the study of human intelligence as a way of comparing the results of objective tests and of building matrices to define the correlations between these results and, at the same time, to identify common factors for these results. In a period, the

factorial analysis was used only in the field of psychology, later being taken up in economic analyses, when it became an established statistical method. [12]

Given that factorial analysis is based on correlation analysis, the data subject to analysis will have to meet all the conditions required by the correlation analysis: values measured on a parametric scale, normal distribution (less restrictive as the sample volume is more substantial, according to the central limit theorem). Unlike other statistical techniques, in factorial analysis, as in the case of correlation, no distinction is made between dependent variables and dependent variables.

The main problem of factorial analysis is to find variables that have as much "common" variation (information) as possible, so that condensation leaves as little useful information as possible

Another classification of the factors influencing the efficiency of the banking system, which is common in the literature, is the following: bank-specific factors; industry-specific factors; macroeconomic factors. [13]

*Factors specific to the bank.* Some of the bank's specific factors usually include size; deposits; business mix and diversification; operating efficiency.

The size of the bank is measured by the natural logarithm of total assets in most studies. Bank deposits are valued by the ratio of total deposits to total assets. To determine the level of diversification is used the ratio of other operating income to average total assets. Operational efficiency is determined by the ratio of operational expenditure to interest income.

*Factors specific to the banking industry*. The assessment of the market structure of the banking sector is achieved by using the concentration ratio, which measures the proportion of total assets of a controlled industry of the three largest companies. [14]

*Macroeconomic factors*. Banking performance may be affected by recessions and rises in many ways. During a period of slow economic activity, bank loans are more likely to fall, and credit quality may deteriorate, increasing the risk of default. We use GDP per capita growth as a proxy for cyclical production. The second crucial macroeconomic variable is the inflation rate as measured by the percentage change in the deflator. [15]

***Empirical analysis and results***. The financial system of the Republic of Moldova is a bank-based one, with the banking system accounting for 88.79% of the total assets of the financial system. In this context, banks in the Republic of Moldova have a leading role in financial intermediation.

The banking sector in the Republic of Moldova is a source of growth and capitalization of the internal market, from which in general, depends to a large extent the financial stability and sustainability of the economy. The redistribution of financial flows cannot take place, thus avoiding the banking system, and therefore the efficiency of banking activity under the current conditions is one of the priority research directions in order to identify and quantify the factors of influence on the efficiency of the banking system.

The banking system can perform financial intermediation, supply banking services, and profit-making differently.

The issue of banks' efficiency, of course, is of great importance: in fact, the exact way in which its own and borrowed funds are successfully managed and determines the success of the operation of the particular banking institution, but also the banking system as a whole.

The financial results of 2018 proved to be more favorable for Moldovan banks - net profit was 16351.14433 million MDL or 953.825496 million USD, 7% more than in the previous year. At the same time, the main contribution to the aggregate profit of the Moldovan banking system was made by the systemic banks (B.C. "MOLDOVA - AGROINDBANK" S.A.; B.C. "MOBIASBANCA - Groupe Societe Generale" S.A.; B.C. "Moldindconbank" S.A.; B.C. "VICTORIABANK" S.A.) the profit of which constituted almost 92% of the profit of the entire banking system in 2018.

Banks in the Republic of Moldova receive revenues from three primary sources: interest (40%), total operating income (43%) and fees and commissions (16%). The financial result of the bank's activity is made up of the net income for each of these business lines (revenue minus expenses), taking into account maintenance costs and additional indicators. At the same time, in 2018, net operating income exceeded profit from interest income.

In general, most studies on the assessment of banks' efficiency have focused on two methods: the financial indicators method and the econometric method.

To begin with, we will briefly analyze the financial coefficients of the Moldovan banking system.

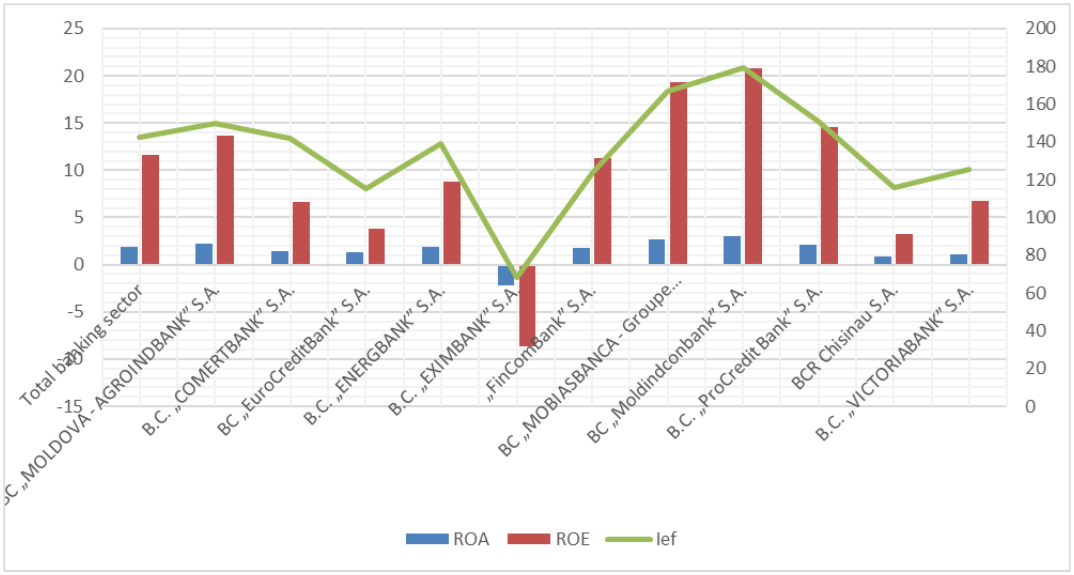


*Fig.1. Commercial Banks Profitability Indicators in Republic of Moldova, (%) [16]*

The indicators of the efficiency of the banking system in the Republic of Moldova calculated based on 11 banks indicate the following ROA-1.9%, ROE-11.6%, Ief-142.65% (the record of the Moldovan banking system in the efficiency was established in 2007 ( ROA-3,91% and ROE-23,97%)). If we analyze the effectiveness of the banks, we note that three of the four systemic banks (BC „Moldindconbank" S.A. ROA 2.96 % ROE 20.81% Ief 179.14%;BC „MOBIASBANCA - Groupe Societe Generale" S.A. ROA 2.7 % ROE 19.33% Ief 166.74%; BC „MOLDOVA - AGROINDBANK" S.A., ROA-2.2 % ROE-13.63% Ief- 149.82%) are leaders in efficiency, at the opposite is positioned BC "EXIMBANK" S.A. with the following values: ROA -2.17%, ROE-8.7%, Ief 68.51%.

The obtained results indicated that during the studied period, there was a directly proportional relationship between the evolution of the efficiency index (vertical scale) and the ROE and ROA rates. The relatively low profitability in the Moldovan banking system was mainly due to the reduction of credit (with direct consequences on the decrease in interest income) and the tightening of supervisory requirements.

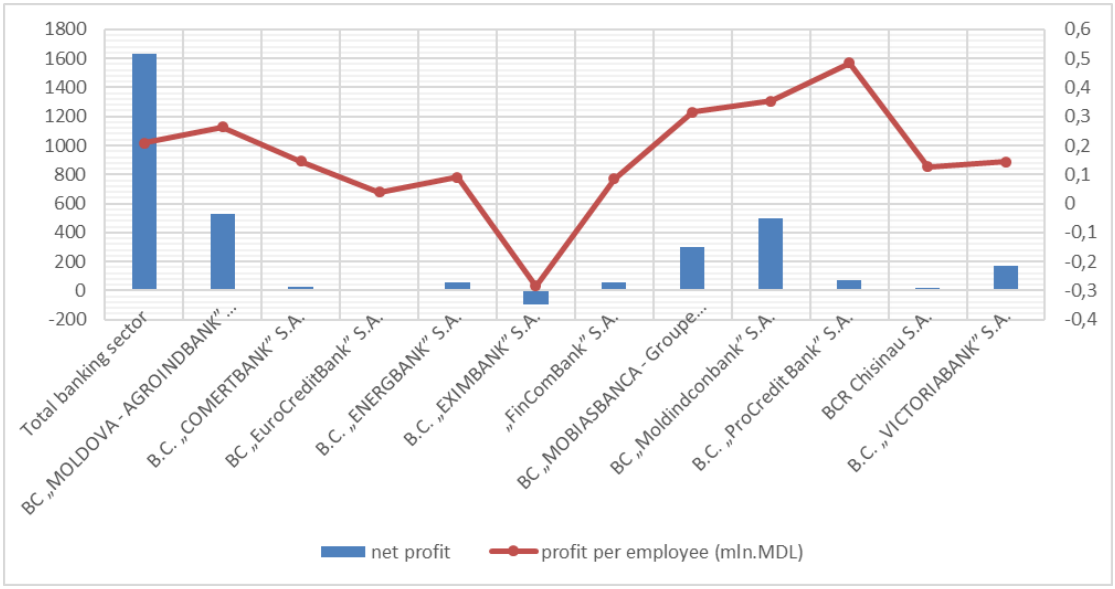


*Fig. 2. Profit per employee in moldovan banking system, (mln.MDL) [16]*

Analyzing the notion of efficiency it can be seen that it is dependent on some qualitative factors, which gives it a complex character. The study of bank efficiency mainly involves a causal analysis of the factors that determine the decisions in a related risk environment. Evaluating the factors that influence the effectiveness of the banking system is not an easy task, a large number of factors need to be considered. That is why different studies that have examined the magnitude of bank efficiency have tried to highlight the variables that influence this efficiency.

In the present study, we intend to analyze in particular the effect of the banking staff management on bank efficiency, as it is mostly dependent on the way the bank employees work. Staff efficiency is significant and essential to any organization.

To analyze the banking staff efficiency, we have looked at some indicators: profit per employee, wages as % of total expenses, wages as % of total income.

This indicator indicates the amount of profit earned per employee of the bank. The higher the profit per employee, the greater the efficiency of the bank. From the above figure, we can see the interdependence between the bank's net profit and the profit on an employee. Small banks like B.C. "ProCredit Bank" S.A., B.C. "COMERTBANK" S.A. B.C. "ENERGBANK" S.A., in terms of staff management, are more efficient because profit per employee is higher compared to net profit.

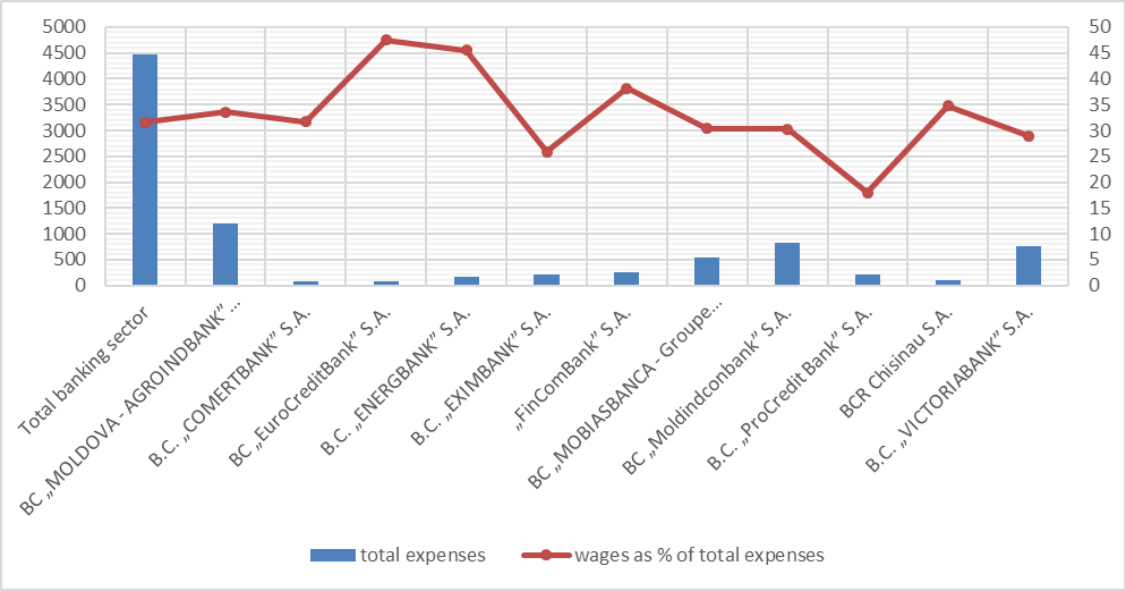


*Fig. 3. Wages as % of total expenses [16]*

The share of wages in the bank's total expenditures is a parameter that indicates the good efficiency of the bank in the case of reducing personnel costs. From the above figure, we can see that "ProCredit Bank" S.A., has the best situation of this parameter, B.C. "EuroCreditBank" S.A. recorded the most unfavorable case.


*Fig. 4. Wages as % of total income [16]*

Another indicator that can be analyzed in the context of the efficiency of personnel management is the share of wages in the bank's total income. The efficiency of the bank will increase if this indicator is diminished.

According to this indicator B.C. "ProCredit Bank" S.A., BC "MOBIASBANCA - Groupe Societe Generale" S.A. and BC "Moldindconbank" S.A. have the best situation.

Based on the analysis can be highlighted, the bank that best manages its banking staff, namely "ProCredit Bank" S.A., because its profitability indicators are higher than the average on the Moldovan banking system.

**Conclusions.** One of the main problems in the functioning of the banking system is the increase in its efficiency, determined by the level of achievement of its essential economic functions and the achievement of the objectives set by the society

The banking system is a crucial component of the national economy that should not only ensure its normal functioning but also create conditions for growth, optimization, and scientific and technological development.

Being a concept with a complex character, the efficiency of the banking system poses the issue of assessing the factors that influence it. Efficiency depends on many factors. The environment in which banks are located determines very much the managerial decisions, specialization, the bank's stability as a financial institution, its liquidity and its ability to cope with the intermediate functions.

One of the fundamental factors influencing the Moldovan banking system, analyzed in the present study, is the efficiency of the personnel management.

From the analysis, it can be noticed that there is a link between the banking efficiency and the efficiency of banking staff management. Banks with better indicators of bank management efficiency also have higher banking efficiency.

However, it is necessary to mention that the formation of an efficient bank management system also objectively requires an increase in employee motivation and professional training.

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# ANALYSIS AND RESEARCH ON CHINA MONGOLIAN TRADE COMPETITION AND COMPLEMENTARITY

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**ABSTRACT**

The development of trade between China and Mongolia should be based on complementary product trade. On this basis, products with trade potential should be continuously explored to expand the scale and structure of China-Mongolian trade and promote the continuous development of bilateral trade. This paper analyzes the current situation of economic and trade cooperation and trade complementarity between China and Mongolia, and concludes that China and Mongolia have different comparative advantages in export products. Mongolia's export is highly integrated with China's trade, and the two countries are highly complementary in trade.

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**Introduction.** Mongolia has abundant natural resources and great potential market. It is the source of mineral resources and an important industrial product market in China. China-Mongolia economic and trade cooperation has been stable year by year with frequent diplomatic exchanges. As a close cooperative partner, Mongolia is a major component of China's westward and northward promotion of the "One Belt and One Road" initiative. Generally speaking, Mongolia is the first country to share the dividends of the implementation of the One Belt and One Road initiative. Therefore, the implementation of the One Belt and One Road initiative will surely play a long-term role in strengthening regional economic cooperation between the two countries.

Trade complementarity and trade potential are particularly well studied in China and globally. Chinese scholar WANG Ling (2014) investigated the trade complementarities of China, South Korea, Japan and other Asian countries by using indicators such as revealed comparative advantage, and concluded that the trade complementarities of agricultural products between China, South Korea and Japan were relatively weak, but some agricultural products between China and Japan were highly complementary. Trade competitiveness and agricultural products are complementary between China and ACEAN, and there is a strong potential for cooperation between China and ACEAN. Jie Lv and Long Bin Xiang (2010) 's empirical analysis of China United State America trade between 2000 and 2006 shows that the comparative advantage between industry and international competitiveness can be obtained by using RCA and industry-based trade index. The trade gap between China and the United States indicates that the trade relationship between the two countries is stable. Yang Cheng Jia and He Ji Ye (2018) studied the China and the countries along the "area" bilateral trade competitive and complementary, found that China and the commonwealth of independent states (cis) region, central and eastern Europe bilateral trade relationship is loose, but China's "neighborhood" all the way along the country's export trade potential is stronger, "One Belt And One Road" along the country's exports to China trade potential weakening trend. Kabiru Hannafi Ibrahim (2015), a Nigerian scholar, used the trade integration index to analyze the trade complementarities between Nigeria and India, and found that Nigeria and India could improve the RCA

index of other countries highly industrial product trade. Compared with other developed countries, China-Mongolian trade cooperation is still short, its historical basis is weak, and its trade cooperation model is single. Therefore, there are few studies on trade complementarity and trade potential between China and Mongolia. Pan Yun Jiao (2016) studied the trade complementarity between China and Mongolia by using trade complementarity and other indexes to analyze the trade complementarity between the two countries, and introduced the gravity model to calculate the trade potential of the two countries. It was found that the two countries were highly complementary and the trade potential increased rapidly. These studies on trade complementarity and trade potential provide useful references for the analysis of trade complementarity and trade potential between China and Mongolia. Based on the economic and trade cooperation between China and Mongolia, this paper calculates and analyzes the data of the statistics bureau of China and Mongolia. The index analysis mainly includes the index of revealed comparative advantage, the index of trade complementarity and the index of net trade ratio.

**China-Mongolia economic and trade cooperation.**

Mongolia's foreign trade has become an important part of Mongolia's social and economic development and expansion. At the beginning of the transition period, Mongolia's foreign trade volume fell, reaching us $7 million in 1991, a steady increase compared with the mid-1990s.Trade between China and Mongolia was only $1.414 billion in 2007, but Mongolia has been working since 2010 to reform its mining industry and improve the investment environment. With the implementation of this policy, the economy has recovered and trade between the two countries has risen again. The decline of the price of mining products in the world market, the total foreign trade of Mongolia and the total trade of China and Mongolia declined in 2012-2013. However, with China and Mongolia actively promoting and coordinating the connection of "One Belt and One Road" and "Grassland Road", China-Mongolian trade has reached a new level. In 2017, Mongolia's trade with 163 countries and regions was us $10.536 billion, up 27.3 percent over the previous year, while China and Mongolian trade was us $6.72 billion, accounting for 63.92 percent of Mongolia's foreign trade. Among them, Mongolia's exports to China increased from us $257 million in 2000 to us $5.30 billion in 2017, and its imports increased from us $66 million to us $1.42 billion. In 2014 and 2017, the foreign trade volume between China and Mongolia in Mongolia increased to 62.1 percent and 64 percent respectively. Reflects the factors that affect the growth of trade between the two countries.

From the perspective of the trade structure between China and Mongolia, China's exports to Mongolia are mainly gasoline, clothing, textiles, industrial and mining equipment, electrical appliances, construction materials and consumer goods. Mongolia's exports to China are mainly leather, animal and plant medicine, wood, scrap metal, coal and iron ore and more than 20 products. As China's economy has growth. its demand for trees, coal and energy has grown beyond its domestic supply of resources. However, Mongolia is rich in minerals and raw materials, and trade between China and Mongolia is very active, so Mongolia can provide mineral resources for China. China and Mongolia have little overlap in export product mix and market. This indicates that China and Mongolia have weak export trade competition and incomparable complementary advantages in product structure.

**Analysis of trade complementarity between China and Mongolia**

In this part, Trade Integration Index, comparative advantage index and net trade ratio were used to study the trade complementarity between China and Mongolia. The research process and results are as follows:

(I) Analysis of the integration degree of China and Mongolian trade

The trade integration index (TII, 1947) was developed by economist Gordon brown. The trade integration index is widely used to measure the degree of trade interdependence between trade partners and the proportion of a country's exports to a trading partner in the country's total exports, as well as the proportion of its imports to the world's total imports. The larger the number, the closer trade links between the two countries. Its formula is:

$$TII_{ab} = \frac{(X_{ab}/X_a)}{(M_b/M_w)}, \quad (1)$$

Where, $TII_{ab}$is the trade integration degree of country a to country b; $X_{ab}$is the export amount of country a to country b; $X_a$is the total export amount of country a; $M_b$ Is the total import of country b; $M_w$ Is the world's total import; If TII is greater than 1, the two countries have close trade cooperation. If TII is less than 1, the trade cooperation between the two countries is loose.

Table 2 shows that Mongolia's trade integration degree with China between 2000 and 2017 was 7.6. China's trade integration with Mongolia is 2.02. Degree of trade interdependence is greater than 1, which means that China and Mongolia are closely linked in trade. Mongolia's trade integration with China is relatively high, which means Mongolia's economic dependence on China is high. In addition, from the overall trade integration degree, China's trade integration degree with Mongolia has a downward trend, Mongolia's trade integration with China is not so stable, and the degree of trade integration in the last three or four years also has a downward trend.

Table 1. Trade Integration Index of China and Mongolia

| *Year* | $TII_{CM}$ | $TII_{MC}$ | *Year* | $TII_{CM}$ | $TII_{MC}$ |
|---|---|---|---|---|---|
| *2000* | 4.66 | 16.2 | 2009 | 5.19 | 9.23 |
| *2001* | 4.68 | 13.22 | 2010 | 4.38 | 9.4 |
| *2002* | 4.05 | 12.22 | 2011 | 3.99 | 9.7 |
| *2003* | 3.39 | 8.53 | 2012 | 3.4 | 9.25 |
| *2004* | 3.57 | 7.92 | 2013 | 3.5 | 8.68 |
| *2005* | 2.46 | 7.69 | 2014 | 3.37 | 8.78 |
| *2006* | 3.73 | 10.47 | 2015 | 2.87 | 8.3 |
| *2007* | 3.74 | 10.43 | 2016 | 2.25 | 8.5 |
| *2008* | 3.17 | 9.22 | 2017 | 2.02 | 7.6 |

Data source: Calculated according to statistics of Mongolia and China

(II) Analysis of Trade Comparative Advantage Index

American economist Bela Balassa proposed the trade explicit comparative advantage index (RCA, 1965), which is a tool used to test trade-related comparative advantage. It represents the overall proportion of a country's total exports and exports of a certain type of product in its trade scale, as well as the relative proportion of such products in its trade in the total trade scale worldwide. In this part, SITC Rev4.0 is adopted to classify the products traded between China and Mongolia into 10 categories. Category0 is food and live animal products; 1 is beverages and tobacco; 2 types of non-edible raw materials; The three categories are fossil fuels and lubricants and raw materials; Four are animal fats; Five are chemicals; 6 categories are manufactured goods classified by raw materials; Category 7 is machinery and transportation equipment; 8 for miscellaneous products; 9 categories are unclassified products. Among them, 0-4 are primary products, 5 and 7 are technology and capital-intensive products, and 6 and 8 are labor-intensive products.

RCA is greater than 2.5, which means a country has a strong competitiveness in the market. RCA is greater than 1.25 and less than 2.5, indicating that such products of a country have very strong competitiveness in the international market. RCA is between 1.25 and 0.8, and it believes that a country's such products are relatively competitive in the international market. RCA is less than 0.8, indicating that a country has a relative disadvantage in the international market.

According to Balassa's point of view, if the export RCA of the same type of products of both countries is greater than 1, it means that the trade of such products between the two countries is competitive. If the export RCA of one country is greater than 1 and the export RCA of the other country is less than 1, it indicates that the trade of such products between the two countries is complementary. If both countries export RCA of the same type of products are less than 1, it means that both countries have a comparative disadvantage in the trade of such products. Its formula is:

$$\text{RCA} = \frac{X_a^i / X_a}{X_w^i / X_w}, \quad (2)$$

In the formula, $X_a^i$is the export volume of category I product of country a, $X_a$ is the total export volume of all products of country a, $X_w^i$is the export volume of category I products of all countries in the world, $X_w$ is the total export volume of all countries in the world.

China as an exporter of dominant comparative advantage index, starting in 2000, China's SITC7 (machinery and transport equipment), revealed comparative advantage index has more than 1, show that the comparative advantage of China's manufacturing sector has been increasing, capital and technology products are with strong international competitiveness, which is consistent with China's status as a manufacturing power, are also associated with China's role as the world's factory. In recent years, as a representative of China's high-end equipment manufacturing industry. According to statistics, China has

negotiated with 30 countries to introduce high-speed rail technology or cooperate in development, which proves the outstanding achievements of China's manufacturing industry. RCA index, according to China's relatively weak primary product competitiveness, and downward trend year by year, including SITC0 (Food and live animal products), SITC1 (Beverages and tobacco), SITC2 (Non-food raw materials), SITC3 (Fossil fuel and lubricating oil and raw materials), SITC4 (Animal fats), the reason is that China is the world's most populous country, population densities, nature resources consumption is big, so there is no comparison between the advantage of resources intensive products. However, China has obvious advantages in labor-intensive products, including SITC6 (Finished products by raw materials) and SITC8 (Miscellaneous products). In particular, SITC8 products have a strong international competitiveness of more than 2, but SITC6 (Finished products by raw materials) has shown an overall decline since 2000. In short, China's comparative advantage in capital expenditure or technology-intensive products is gradually growing, and the comparative advantage in labor-intensive products is obvious and will continue to be, but China is not competitive in resource-intensive products. This shows that China is rich in labor resources and relatively lacking in natural resources and capital factors.

Mongolia as an exporter of dominant comparative advantage index, the primary products (SITC0-4) : In addition to (SITC2) Non-food raw materials, SITC0, SITC1, SITC3, SITC4 products the RCA index of less than 1, and SITC2 products of RCA index greater than 7, the Mongolia in food and live animals products, drink and smoke, fossil fuel and lubricating oil and raw materials and animal oils and fats products exports have disadvantages, such as non-edible strong comparative advantage on the lead product export. Technology and capital intensive products (SITC5, 7): the RCA index for SITC5 chemicals is less than 0.8, indicating a disadvantage in the export of the product. The RCA index of SITC7 for machinery and transportation equipment maintained a trend of more than 1 from 2003 to 2013, indicating that Mongolia has a relatively competitive position in the export of SITC7 products. The RCA index of SITC9 unclassified products is all greater than 1, especially, some years are more than 2.5, so it can be calculated that Mongolia has a strong comparative advantage in the export of unclassified products.

Table 2 Comparative Advantage Index of China as an exporter

| *Year* | *SITC0* | *SITC 1* | *SITC 2* | *SITC 3* | *SITC 4* | *SITC 5* | *SITC 6* | *SITC 7* | *SITC 8* | *SITC 9* |
|---|---|---|---|---|---|---|---|---|---|---|
| *2000* | 0.979 | 0.150 | 0.440 | 0.157 | 0.008 | 0.482 | 1.700 | 1.140 | 1.730 | 0.015 |
| *2001* | 0.796 | 0.165 | 0.514 | 0.320 | 0.042 | 0.250 | 1.650 | 1.230 | 1.640 | 0.037 |
| *2002* | 0.749 | 0.336 | 0.450 | 0.287 | 0.100 | 0.470 | 1.625 | 1.320 | 3.100 | 0.046 |
| *2003* | 0.670 | 0.254 | 0.384 | 0.281 | 0.057 | 0.445 | 1.575 | 1.420 | 2.880 | 0.068 |
| *2004* | 0.858 | 0.506 | 0.330 | 0.243 | 0.042 | 0.443 | 1.696 | 2.260 | 2.640 | 0.046 |
| *2005* | 0.589 | 0.181 | 0.324 | 0.193 | 0.088 | 0.468 | 1.695 | 1.540 | 2.550 | 0.070 |
| *2006* | 0.530 | 0.162 | 0.268 | 0.153 | 0.103 | 0.459 | 1.804 | 1.570 | 2.410 | 0.079 |
| *2007* | 0.504 | 0.152 | 0.249 | 0.136 | 0.062 | 0.495 | 1.804 | 1.580 | 2.440 | 0.057 |
| *2008* | 0.458 | 0.150 | 0.264 | 0.138 | 0.071 | 0.560 | 1.830 | 1.570 | 2.310 | 0.030 |
| *2009* | 0.453 | 0.167 | 0.224 | 0.131 | 0.051 | 0.516 | 1.540 | 1.640 | 2.490 | 0.024 |
| *2010* | 0.521 | 0.172 | 0.184 | 0.169 | 0.038 | 0.550 | 1.683 | 1.650 | 2.390 | 0.023 |
| *2011* | 0.531 | 0.166 | 0.197 | 0.113 | 0.044 | 0.604 | 1.683 | 1.580 | 2.420 | 0.031 |
| *2012* | 0.635 | 0.127 | 0.176 | 0.116 | 0.081 | 0.554 | 1.630 | 1.570 | 2.610 | 0.023 |
| *2013* | 0.630 | 0.118 | 0.228 | 0.089 | 0.057 | 0.541 | 1.630 | 1.570 | 2.630 | 0.026 |
| *2014* | 0.638 | 0.124 | 0.337 | 0.105 | 0.085 | 0.574 | 1.710 | 1.830 | 2.660 | 0.031 |
| *2015* | 0.695 | 0.158 | 0.292 | 0.128 | 0.096 | 0.630 | 1.490 | 1.530 | 2.820 | 0.022 |
| *2016* | 0.581 | 0.167 | 0.210 | 0.079 | 0.026 | 0.581 | 0.674 | 2.340 | 2.520 | 0.087 |
| *2017* | 0.553 | 0.993 | 0.227 | 0.097 | 0.035 | 0.624 | 0.628 | 2.390 | 2.420 | 0.084 |

Data source: Calculated based on data from the China bureau of statistics.

Due to the shortage of population in Mongolia, Mongolia has an obvious disadvantage in labor-intensive products. However, the RCA index of SITC8 products in 2003-2004 was greater than 1, so it has a competitive relationship with China according to the viewpoint of Balassa. Compared with China, Mongolia's industrial development is relatively weak and the level of scientific and technological development is relatively slow. In fact, Mongolia's economy is dependent on mining products, but relatively weak, due to the demand for reserves in the international market, Mongolia's mining products exports declined.

(3) Analysis of net trade ratio.

Net trade ratio (NTR) is an important index to measure the profitability of import and export of the economy and trade welfare. In the theory, the profitability of an economy's exports relative to its imports can determine a country's level of welfare. Export-led trade growth lowers a country's welfare level, while import-oriented growth increases a country's welfare level. Its formula is;

$$NTR = \frac{X_i - M_i}{X_i + M_i}, \quad (3)$$

In the formula, NTR is the net trade ratio, X+M is the sum of a country's exports and imports of category I products, and x-m is the difference between exports and imports of category I products of a two country. NTR can be greater than negative 1 and less than and 1. The larger the import amount of class I products, the smaller the NTR value and the smaller the competitiveness.

Table 3. Comparative Advantage Index of Mongolia as an exporter

| *Year* | *SITC 0* | *SITCm1* | *SITC 2* | *SITC 3* | *SITC 4* | *SITC 5* | *SITC 6* | *SITC 7* | *SITC 8* | *SITC 9* |
|---|---|---|---|---|---|---|---|---|---|---|
| *2000* | 0.287 | 0.042 | 8.220 | 0.650 | 0.500 | 0.004 | 0.360 | 0.020 | 0.780 | 2.330 |
| *2001* | 0.234 | 0.033 | 7.090 | 0.430 | 0.010 | 0.060 | 0.538 | 0.344 | 0.562 | 2.157 |
| *2003* | 0.468 | 0.022 | 14.102 | 0.243 | 0.020 | 0.009 | 0.704 | 0.019 | 1.559 | 5.100 |
| *2004* | 0.351 | 0.021 | 14.800 | 0.288 | 0.014 | 0.010 | 0.320 | 0.012 | 1.410 | 6.091 |
| *2005* | 0.231 | 0.031 | 15.690 | 0.302 | 0.032 | 0.008 | 0.323 | 0.018 | 0.880 | 8.009 |
| *2006* | 0.352 | 0.039 | 19.211 | 0.327 | 0.008 | 0.009 | 0.313 | 0.030 | 0.541 | 4.522 |
| *2007* | 0.288 | 0.020 | 19.910 | 0.708 | 0.009 | 0.012 | 0.252 | 0.031 | 0.123 | 2.864 |
| *2008* | 0.189 | 0.022 | 15.941 | 0.711 | 0.010 | 0.129 | 0.041 | 0.040 | 0.140 | 5.210 |
| *2009* | 0.356 | 0.067 | 15.380 | 1.751 | 0.001 | 0.001 | 0.040 | 0.040 | 0.090 | 2.870 |
| *2010* | 0.360 | 0.190 | 12.610 | 2.580 | 0.001 | 0.001 | 0.020 | 0.020 | 0.090 | 1.710 |
| *2011* | 0.110 | 0.131 | 9.310 | 3.380 | 0.001 | 0.001 | 0.010 | 0.011 | 0.070 | 0.510 |
| *2012* | 0.220 | 0.011 | 14.430 | 0.790 | 0.004 | 0.010 | 0.010 | 0.010 | 0.090 | 1.820 |
| *2013* | 0.201 | 0.131 | 12.140 | 0.732 | 0.001 | 0.011 | 0.245 | 0.210 | 0.135 | 2.921 |
| *2014* | 0.060 | 0.020 | 15.300 | 0.788 | 0.026 | 0.089 | 0.247 | 0.289 | 0.142 | 3.013 |
| *2015* | 0.050 | 0.010 | 13.450 | 2.030 | 0.000 | 0.020 | 0.011 | 0.010 | 0.070 | 1.560 |
| *2016* | 0.040 | 0.010 | 11.240 | 1.150 | 0.010 | 0.010 | 0.090 | 0.010 | 0.040 | 1.090 |
| *2017* | 0.045 | 0.066 | 14.117 | 3.034 | 0.003 | 0.009 | 0.081 | 0.062 | 0.01 | 0.295 |

Data source: Calculated based on data from the Mongolian National Bureau of Statistics.

Table 4 shows that in primary products (sitc0-4): The net trade ratio of China's exports in SITC2, SITC3 and SITC4 products is negative, indicating that non-edible raw materials, fossil fuels and lubricants, raw materials and animal fats are the least competitive.

Technology and capital products (SITC5, 7): the net trade ratio in SITC5 and SITC7 products includes negative Numbers, so China's exports of chemicals and machinery and transport equipment are less competitive. China's trade competitiveness in SITC 6 and SITC 8 products is relatively high, especially the net trade ratio of SITC 8 products is more than 0.5, which indicates that China has the strongest competitiveness in the export of miscellaneous products. The net export trade ratio of SITC1, SITC5, SITC7 and SITC9 products is increasing year by year, and their competitiveness is gradually increasing. Due to the impact of the 2008 financial crisis, the net trade ratio of all kinds of products in China is negative, and only SITC6, SITC7 and SITC8 products with competitive advantages have relatively small trade influence.

Table 5 shows that the primary products (SITC0-4) : Mongolia in SITC0, SITC1, SITC3, net trade than SITC4 products export is negative, the food and live animals products, drink and smoke, fossil fuel and lubricating oil and raw materials, the weakest animal fat product competitiveness, but in most SITC2 is greater than 0.5, the Mongolia in non-food raw materials products, the strongest export competitiveness. Technology and capital intensive products (SITC5, 7) : the net trade ratio of SITC5 and SITC7 products was negative, and Mongolia's exports of chemicals and machinery and transport equipment were also the least competitive. Mongolia's trade competitiveness in SITC 6 and SITC 8 products was also weak, but the net trade of SITC 8 products showed a trend of decline since 2007.

Table 4. Indicators of China's Net Trade Ratio

| *Year* | *SITC 0* | *SITC1* | *SITC2* | *SITC3* | *SITC4* | *SITC5* | *SITC6* | *SITC7* | *SITC8* | *SITC9* |
|---|---|---|---|---|---|---|---|---|---|---|
| *2000* | 0.44 | 0.34 | 0.64 | 0.45 | 0.78 | 0.43 | 0.01 | 0.05 | 0.74 | 0.76 |
| *2001* | 0.44 | 0.36 | 0.68 | 0.35 | 0.75 | 0.41 | 0.02 | 0.06 | 0.71 | 0.48 |
| *2002* | 0.47 | 0.44 | 0.68 | 0.39 | 0.89 | 0.43 | 0.04 | 0.03 | 0.67 | 0.41 |
| *2003* | 0.49 | 0.40 | 0.74 | 0.45 | 0.93 | 0.42 | 0.04 | 0.01 | 0.58 | 0.15 |
| *2004* | 0.67 | 0.50 | 0.70 | 0.65 | 0.93 | 0.24 | 0.22 | 0.03 | 0.55 | 0.52 |
| *2005* | 0.68 | 0.33 | 0.71 | 0.68 | 0.85 | 0.17 | 0.24 | 0.09 | 0.56 | 0.43 |
| *2006* | 0.69 | 0.07 | 0.72 | 0.75 | 0.84 | 0.12 | 0.34 | 0.12 | 0.57 | 0.31 |
| *2007* | 0.47 | 0.43 | 0.68 | 0.39 | 0.89 | 0.43 | 0.04 | 0.04 | 0.67 | 0.41 |
| *2008* | 0.49 | 0.35 | 0.74 | 0.45 | 0.93 | 0.43 | 0.41 | 0.01 | 0.59 | 0.14 |
| *2009* | 0.35 | 0.38 | 0.81 | 0.54 | 0.93 | 0.43 | 0.15 | 0.03 | 0.51 | 0.16 |
| *2010* | 0.41 | 0.21 | 0.81 | 0.57 | 0.85 | 0.37 | 0.13 | 0.10 | 0.52 | 0.11 |
| *2011* | 0.44 | 0.07 | 0.83 | 0.67 | 0.83 | 0.32 | 0.18 | 0.12 | 0.54 | 0.07 |
| *2012* | 0.46 | 0.01 | 0.86 | 0.67 | 0.92 | 0.28 | 0.34 | 0.17 | 0.56 | 0.06 |
| *2013* | 0.41 | 0.11 | 0.89 | 0.68 | 0.89 | 0.20 | 0.36 | 0.21 | 0.55 | 0.05 |
| *2014* | 0.37 | 0.09 | 0.87 | 0.72 | 0.92 | 0.29 | 0.42 | 0.18 | 0.56 | 0.55 |
| *2015* | 0.34 | 0.12 | 0.90 | 0.83 | 0.92 | 0.26 | 0.26 | 0.17 | 0.54 | 0.85 |
| *2016* | 0.27 | 0.24 | 0.90 | 0.79 | 0.91 | 0.22 | 0.36 | 0.18 | 0.57 | 0.91 |
| *2017* | 0.07 | 0.34 | 0.89 | 0.75 | 0.81 | 0.16 | 0.46 | 0.91 | 0.61 | 0.84 |

Data source: Calculated based on data from the China bureau of statistics.

Table 5. Indicators of Mongolia's Net Trade Ratio

| *Year* | *SITC0* | *SITC1* | *SITC2* | *SITC3* | *SITC4* | *SITC5* | *SITC6* | *SITC7* | *SITC8* | *SITC9* |
|---|---|---|---|---|---|---|---|---|---|---|
| *2000* | 0.71 | 0.89 | 0.24 | 0.99 | 0.98 | 0.99 | 0.18 | 0.97 | 0.41 | 0.97 |
| *2001* | 0.60 | 0.96 | 0.18 | 0.99 | 0.99 | 0.83 | 0.15 | 0.84 | 0.41 | 0.98 |
| *2002* | 0.65 | 0.91 | 0.61 | 0.99 | 0.99 | 0.98 | 0.41 | 0.94 | 0.50 | 0.99 |
| *2003* | 0.71 | 0.93 | 0.65 | 0.99 | 0.91 | 0.98 | 0.31 | 0.95 | 0.44 | 0.99 |
| *2004* | 0.09 | 0.92 | 0.73 | 0.99 | 0.99 | 0.96 | 0.51 | 0.98 | 0.46 | 0.99 |
| *2005* | 0.83 | 0.93 | 0.76 | 0.99 | 0.98 | 0.95 | 0.32 | 0.95 | 0.85 | 0.99 |
| *2006* | 0.71 | 0.96 | 0.89 | 0.71 | 0.99 | 0.96 | 0.15 | 0.92 | 0.84 | 0.99 |
| *2007* | 0.80 | 0.97 | 0.77 | 0.65 | 0.99 | 0.95 | 0.12 | 0.85 | 0.76 | 0.99 |
| *2008* | 0.87 | 0.99 | 0.76 | 0.53 | 0.99 | 0.78 | 0.13 | 0.85 | 0.67 | 1.00 |
| *2009* | 0.75 | 0.99 | 0.72 | 0.13 | 0.77 | 0.98 | 0.20 | 0.82 | 0.74 | 0.99 |
| *2010* | 0.71 | 0.96 | 0.92 | 0.33 | 0.74 | 0.99 | 0.24 | 0.92 | 0.75 | 0.81 |
| *2011* | 0.90 | 0.95 | 0.66 | 0.33 | 0.99 | 0.98 | 0.21 | 0.96 | 0.79 | 0.83 |
| *2012* | 0.97 | 0.99 | 0.59 | 0.68 | 0.99 | 0.98 | 0.61 | 0.96 | 0.88 | 0.97 |
| *2013* | 0.97 | 0.99 | 0.75 | 0.34 | 1.00 | 0.98 | 0.75 | 0.72 | 0.75 | 0.86 |
| *2014* | 0.96 | 0.96 | 0.79 | 0.52 | 1.00 | 0.96 | 0.62 | 0.69 | 0.84 | 0.94 |
| *2015* | 0.93 | 0.88 | 0.90 | 0.59 | 0.99 | 0.96 | 0.60 | 0.27 | 0.82 | 0.73 |
| *2016* | 0.95 | 0.90 | 0.78 | 0.81 | 1.00 | 0.88 | 0.20 | 0.10 | 0.74 | 0.90 |
| *2017* | 0.89 | 0.15 | 0.87 | 0.66 | 0.74 | 0.97 | 0.65 | 0.48 | 0.92 | 0.99 |

Data source: Calculated based on data from the Mongolian National Bureau of Statistics.

The complementary products of China and Mongolia are non-edible raw materials, finished products classified according to raw materials, machinery and transportation equipment, and special products. The competitive products of China and Mongolia are miscellaneous products. The inferior

products of China and Mongolia are food and live animal products, beverage and tobacco, fossil fuel and lubricating oil, raw materials and chemical products.

**Conclusions.** The connection between the "One Belt and One Road" and the "Road to the Grasslands" proves that China and Mongolia economic and trade cooperation has reached a new stage of development, and trade and investment between the two countries are growing steadily. Through the calculation and analysis of the trade competitiveness and complementarity between China and Mongolia, it is found that the trade competitiveness between China and Mongolia is weak, while the trade potential between China and Mongolia is great.

According to the analysis of the integration degree of trade between China and Mongolia, China and Mongolia have close cooperation in trade, and Mongolia's high dependence on China for exports means that there is a large space for the development of trade between China and Mongolia. The docking of "One Belt and One Road" and "Grassland Road" initiative will surely provide more opportunities for the economic and trade cooperation between the two countries.

The explicit comparative advantage index and the net trade ratio index show that China has a competitive advantage in the export of manufactured goods, machinery and transportation equipment, and miscellaneous products classified by raw materials. Mongolia should continue to maintain the consumption of raw materials and special product competitive advantage, to achieve competitive advantage and drive the competitive disadvantage products, utilization of nature resources advantages, gradually fossil fuel and lubricating oil and raw materials exports at the same time, the introduction of foreign advanced science and technology, the fine chemical products, technology product innovation need to gradually turn competitive disadvantage.

China should make full use of its geographical advantages and remarkable achievements of reform and opening-up over the years, active play to the role of coordination and impeller in the northeast Asia cooperation, to promote the China and Russia economic corridor, as "China and Russia fate community" and "One Belt And One Road" with China the construction of a new type of regional cooperation mode endowed with new connotation, new basis, provide the momentum and cooperation framework.

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# "ECONOMIC BELT OF THE SILK ROAD": NEW OPPORTUNITIES AND PROSPECTS FOR MONGOLIA

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"One Belt and One Road" Initiative.

**ABSTRACT**

Earth is continents, seas, the developing countries, the developed countries, the centers and the borders is the One Belt-One Road initiative. On the other hand, the Sea "Silk Road" is called the "Economic Belt of the Silk Road" as a way of "New Belt and Road" for China's new long-term development strategy. "Silk Road" refers to the ancient land-based commercial trade route that originated in ancient China and connected to Asia, Africa and Europe.

In order to benefit from the "Economic Belt of the Silk Road" initiative, China has partnered with other Asian countries and created two important financial development institutions, the Asian Infrastructure Investment Bank and the Silk Road Fund.

The main objective of the initiative is to create an Eurasian trade economic integration space and cross-border transport corridors, that is, to strengthen the links between government policies and national development strategies along the route, promote international cooperation, and promote the development of joint ventures. For this purpose, the following tasks have been set: 1. Development of regional economic integration method; 2. Create an integrated transportation design for Asian transportation, connect communication networks, and develop pipeline systems; 3. Switch back to investment and trade barriers and create a good investment environment; 4. Strengthen national currency; 5. Deepening cooperation in the humanitarian field; 6. Expanding China's exports and domestic power growth will be concentrated in the western provinces (steel, lead, photovoltaic equipment, wind turbines).

The "One Belt and One Road" is a new starting point for China-global relations and human development. Utilize the geographical advantages of Mongolia, China and Russia to increase cross-border trade between Mongolia, Russia and China, creating opportunities for logistics and transportation. China is one of the Mongolia's largest sources of foreign direct investment and is seen as a huge market for Mongolia to provide services and products.

Mongolia hopes to unite its "Steppe Road" initiative with China's "One Belt and One Road" initiative. The goal of the "Steppe Road" initiative aims to expand the Mongolian economy through cross-border transportation, strengthen the road line connecting Russia and China, transform and extend the current railway line in Mongolia, and build oil and gas between Russia and China. The pipeline improves the infrastructure of Mongolia. Mongolia and other Asian countries are actively participating in the "One Belt and One Road" initiative implemented in China to reduce risks and threats and gain new opportunities and advantages in regional cooperation.

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**Introduction.** Today, the world's greatest interest is China's new initiative to revitalize the "Silk Road" of economic forms under modern conditions. This initiative opens up new opportunities for trade, economic and investment cooperation in economic corridor countries, including Mongolia. In addition, in

order to effectively implement the "One Belt and One Road" initiative, China is preparing to build new development financial institutions such as the Asian Infrastructure Investment Bank and the Silk Road Fund. Funding for these institutions will be used to implement infrastructure projects. The Silk Road Initiative made a significant contribution to the world's exchanges and cultural exchanges from the East to the West, but then declined for a while. Xi Jin Ping, President of the People's Republic of China, announced the "Silk Road" initiative in Astana, capital of Kazakhstan, on September 13, 2013, and announced that it would conduct joint operations with most of the Eurasian countries under the initiative.

The National Development and Reform Commission of the People's Republic of China issued a strategic plan on March 28, 2015, which together established the goals of "Economic Belt of the Silk Road" and the 21st Century "Maritime Silk Road". The principles and framework of the initiative, and listed five areas of cooperation such as policy-connected countries, infrastructure polarity, trade facilitation, financial integration, and increased understanding among citizens.

**Range of the "Economic Belt of the Silk Road".**

The "Economic Belt of the Silk Road" will connect Asia, Europe and Africa in five directions:

1. Connect China to Europe through Central Asia and Russia
2. Integrating China into the Middle East through Central Asia
3. Connecting China, East Asia, Southeast Asia and the Indian Ocean
4. Linking China to Europe through the South China Sea and the Indian Ocean
5. Connect China to the South Pacific through the South China Sea

The successful development of the above five areas will enable the Belt and Road to connect international transport, major cities and ports, and create six economic corridors.

The Northern Corridor: China, Mongolia and Russia are connected by dry land, and there is a long history of economic cooperation between the three countries. In September 2014, at the Shanghai Cooperation Organization's independent meeting, the heads of state of the three countries met for the first time to discuss China-Russia, China-Mongolia, Russia-Mongolia, and the tripartite cooperation based on bilateral relations, and determined the nature of this cooperation and range. The three presidents agreed to combine the China's "Economic Belt of the Silk Road", Russia's "Eurasian Land Bridge Reform" and the Mongolian "Steppe Road". For example, strengthen railway and railway connections, construction, improve customs supervision and transportation capacity, increase public transportation, and build a China-Russian economic corridor. Later, in July 2015, the heads of state of the three countries held the second meeting in Ufa, Russia, and approved the Mid-term Roadmap for the Development of Trilateral Co-operation between China, Russia and Mongolia. It consists of two branches: Mongolia and Manzhouli. The corridor from the eastern part of China to Western Europe will reach 14 days, accounting for three times the sea transportation. In 2015, the mass production and transportation of goods from Manzhouli to Moscow reached 12-14 days.

Eurasian New Corridor: Continues 8500 kilometers from the western border of China. By continuing the railway line from Lianyungang and Xinjiang Alashankou to Rotterdam, the Netherlands, it belongs to the railways of Lanzhou and Xinjiang in China. The route runs from Chinese territory to European ports, via Kazakhstan, Russia, Belarus and Poland.

Central and Western Corridor: The corridor runs from Xinjiang to Central Asia and East Asia. It then reached the Mediterranean and the Arabian Peninsula, belonging to several countries in Central Asia; Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan, Iran and Turkey.

South Corridor: The corridor passes through Myanmar, Bangladesh and India. The center of this direction is the corridor to the Arabian Sea.

China-Pakistan Corridor: From Kashgar, Xinjiang to the Arabian Sea, including roads, railways and oil pipelines.

China-Indian Peninsula Corridor: This corridor contains East Asian countries such as Thailand, Malaysia and Vietnam. (Association of Southeast Asian Nations).

**Commodity turnovers of Mongolia with major trading partners. Correlation-regression analysis between the volume of commodity turnovers (Y), the volume of imports (X1) and the volume of exports (X2)**

Tab1e 1. China and Mongolia, Russia and Mongolia commodity turnover, import and export data

| Year | Russia | China |
|---|---|---|
| 2014 | 1,610,925.6 | 6,541,314.7 |
| 2015 | 1,097,857.9 | 5,300,061.2 |
| 2016 | 936,172.2 | 4,962,782.9 |
| 2017 | 1,284,922.4 | 6,720,000.8 |
| 2018 | 1,796,284.7 | 8,474,578.5 |

Data source: National Statistical Office of Mongolia

As can be seen from the above data, in recent years, the turnover of goods in two giant countries has been growing, but China still has a big impact on the Mongolian economy. In 2014, the total turnover was 8,152,240.3 thousand US dollars, while in 2016 Russia's turnover decreased by 42% to 936,172.2 thousand US dollars, and China's turnover decreased by 24.2% to 4,962,782.9 thousand US dollars, while the growth in 2018 was 11% and 29% respectively.

Correlation regression analysis was performed to determine the linear relationship and correlation between the parameters.

Table 2. China and Mongolia commodity turnover, imports and exports.

| Year | Import, $X_1$ | Export, $X_2$ | Trade turnovers, Y |
|---|---|---|---|
| 2010 | 970,976.00 | 2,466,365.50 | 3,737,341.50 |
| 2011 | 2,023,881.30 | 4,439,860.90 | 6,463,742.20 |
| 2012 | 1,873,415.00 | 4,059,720.30 | 5,927,135.30 |
| 2013 | 1,822,603.70 | 3,706,341.00 | 5,528,944.70 |
| 2014 | 1,467,915.90 | 5,073,398.80 | 6,541,314.70 |
| 2015 | 1,389,940.60 | 3,910,120.60 | 5,300,061.20 |
| 2016 | 1,061,163.27 | 3,901,619.60 | 4,962,782.87 |
| 2017 | 1,412,562.00 | 5,307,438.84 | 6,720,000.84 |
| 2018 | 1,969,050.20 | 6,505,528.30 | 8,474,578.50 |

Data source: National Statistical Office of Mongolia

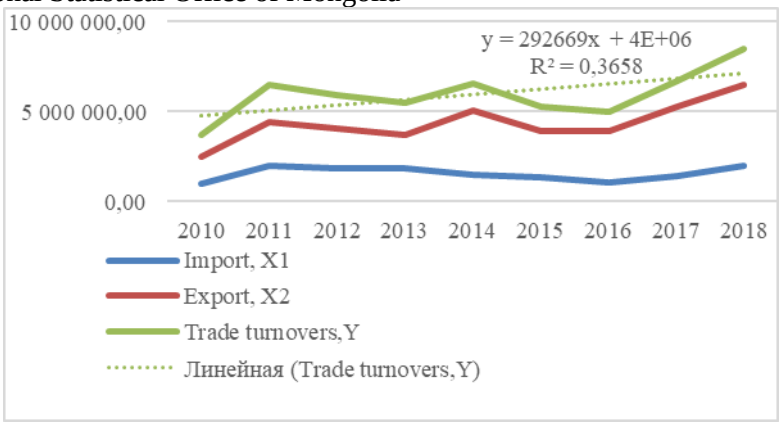


*Fig1. China and Mongolia commodity turnover, import and export analysis*

As a result of the construction of the correlation matrix obtain the following data (tab. 3).

Table 3. Correlation matrix

| | Trade turnovers, Y | Import, $X_1$ | Export, $X_2$ |
|---|---|---|---|
| Trade turnovers, Y | 1 | | |
| Import, $X_1$ | 0.523641705 | 1 | |
| Export, $X_2$ | 0.703093128 | 0.972147898 | 1 |

Data on regression analysis for commodity turnover, export and import are presented in tab. 4.

Table 4. Regression analysis for commodity turnover, export and import

| Source | SS | df | MS | Number of obs | = | 9 |
|---|---|---|---|---|---|---|
| | | | | F(2, 6) | = | 979.10 |
| Model | 1.4007e+13 | 2 | 7.0033e+12 | Prob > F | = | 0.0000 |
| Residual | 4.2917e+10 | 6 | 7.1528e+09 | R-squared | = | 0.9969 |
| | | | | Adj R-squared | = | 0.9959 |
| Total | 1.4049e+13 | 8 | 1.7562e+12 | Root MSE | = | 84574 |

| tradeturno~s | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| export | .9612074 | .0305922 | 31.42 | 0.000 | .8863509 | 1.036064 |
| import | .9130958 | .0904587 | 10.09 | 0.000 | .6917514 | 1.13444 |
| _cons | 337466.6 | 137006.5 | 2.46 | 0.049 | 2223.687 | 672709.4 |

As a result of the solutions of the equation, the following parameters were obtained:

$$Y= \beta_0+ \beta_1*X_1+ \beta_2*X_2+\varepsilon \quad (1)$$

$$Y=337466.6+0.96\ X_1+ 0.91*X_2$$

Integration of the obtained parameters should be:

$\beta_0$= 337465.8- the conditional beginning of a meaningful interpretation is not subject to;

$\beta_1$= 0.96 - coefficient of pure regression at the first factor;

$\beta_2$= 0.91 - pure regression coefficient for the second factor.

The coefficient of multiple correllation is 1, it indicates that the connection is very strong.

**New opportunities for the construction of China-Mongolia-Russia corridor**

- China-Mongolia comprehensive strategic partnership opportunity

- In August 2014, Chinese President Xi Jin Ping paid a state visit to Mongolia. The leaders of the two countries signed a joint declaration on comprehensive development of strategic partnership, which brought the two countries into a new stage of development. The declaration states: "Infrastructure construction, such as China, Mongolian railway, highway, port, coal, electricity, petroleum, chemical, copper, iron, uranium, aluminum ore, automotive industry, real estate and light industry, accelerated cooperation mines and mineral investment The project and all aspects improve the quality and quantity of bilateral actual cooperation". Mongolia has abundant mineral resources. It has only established 5 billion tons of coal and 150 million tons of oil resources in the Eastern Province, and Mongolia has the purpose of joining the China, North Korea, South Korea and Japan markets through the "Rashaant- Choibalsan" railway. The economic cooperation between China and Mongolia's comprehensive strategic partnership aims at the development of the mining industry, infrastructure development and financial development, and promotes mutually beneficial cooperation.

- Opportunities under the "One Belt and One Road" Initiative

- In 2013, China launched the "One Belt and One Road" strategy, and in 2014 established the "Silk Road Fund" and "Asian Infrastructure Investment Bank", and in 2015 the "One Belt and One Road" facility entered a realistic stage. State Councilor Yang Jie Chi said in 2014 that China will import 10 trillion US dollars of goods and invest 500 billion US dollars abroad. 500 million Chinese tourists will travel abroad. This will benefit neighboring countries and countries along the Silk Road. It is said that China will strengthen cooperation in eight areas along the "One Belt and One Road", including infrastructure cooperation. Therefore, Mongolia is an important neighbor of China's north, and an important part of the main tunnel of the China-Mongolia corridor has created an unprecedented opportunity for railway construction.

- Mongolian "Steppe Road" Facilities Opportunities

- Based on the geographical advantages of Europe and Asia and the "One Belt and One Road" Initiative, Mongolia strategically proposed the "Steppe Road" Strategy based on transit trade. The "Steppe road" consists of five projects that require $50 billion in investment. It includes 997 km of expressways connecting China and Russia, 1,100 km of transmission lines, expansion of Mongolian railways, and natural gas and natural gas pipelines. The implementation of the plan by the Mongolian government is expected to attract significant investment, increase production and increase Mongolia's energy and mining potential. According to preliminary estimates, Mongolia will receive 200 billion MNT from China's natural gas and oil pipelines by 2020. Therefore, the development strategies of China and Mongolia are interrelated and complementary. If Mongolia urgently needs infrastructure construction, China has the advantages of foreign exchange, technology and labor, and it is also very effective for the economic development of the two countries.

- Construction opportunities in China-Mongolia-Russia economic corridor

Chinese President Xi Jin Ping emphasized that China's development strategy should be coordinated to promote the development of regional economic cooperation. This reflects China's significance for regional economic development. The presidents of the three countries approved the "China-Mongolia-Russia Tripartite Cooperation Roadmap". Relevant organizations of the three countries approved the "Memorandum of Understanding on the China-Mongolia-Russia Economic Corridor Plan", "Cooperation Memorandum of Customs of the Three Countries to Create Favorable Conditions for the Development of the Three Countries", and "General Agreement on the Development and Cooperation of Border Ports of the Three Countries".

Historically, Russia's share on Mongolian railways has reached almost 50 percent. Therefore, considering Russia's legal constraints on Mongolian railways, it is best to build the Rashaant - Choibalsan railway within the scale of bilateral cooperation between China and Mongolia and Russia and Mongolia. The construction will bring precious development opportunities to the China-Mongolia corridor. These opportunities provide good opportunities for deepening China-Russia economic and trade cooperation and promoting regional economic integration in Northeast Asia.

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# THE PECULIARITY OF INVESTMENT COOPERATION OF THE REPUBLIC OF KAZAKHSTAN WITH PEOPLE'S REPUBLIC OF CHINA

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**ABSTRACT**

Investment cooperation between Republic of Kazakhstan and People's Republic of China is, first of all, that, being mutually beneficial, it provides for different in nature economic results for the interacting parties. China, as a result of this cooperation, is pursuing a solution to the problem of maintaining sustainable economic development. For Republic of Kazakhstan, investment cooperation with People's Republic of China should contribute to further maintaining sustainable economic growth and modernizing the national economy in order to effectively participate in the system of world economic relations.

Since 2015, investment flows from China to Kazakhstan have shown positive dynamics, their average annual growth is 22%. At the same time, the largest volume of FDI falls on 2018: $ 1.5 billion - 37.6% more than in 2017, and 78.6% more than in 2015. For the first half of 2019, the gross inflow of investments from China amounted to 362 million US dollars.

In the Republic of Kazakhstan from 2015 to 2019, Kazakh-Chinese projects are implemented for a total amount of $ 35 billion. During this period, 10 enterprises were launched.

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**Introduction.** The economic importance of the Republic of Kazakhstan for People's Republic of China is primarily due to the presence of natural resources in the region, the potential for their development and the need to form transport infrastructure in the Chinese direction to increase Chinese imports of goods and services. The importance of Kazakhstan is growing in connection with the implementation of the projects of the Asian-European transport corridor according to the Belt and Road Initiative. Today, China is one of the leading investors in the economy of Kazakhstan, along with countries such as the Netherlands, USA, Switzerland and Russian Federation.

The relations between the two countries over the past few years have been developing systematically, the Belt and Road Initiative directly contributes to the strengthening of partnership agreements.

The Belt and Road Initiative, within the framework of which over the past 5 years a number of major infrastructure projects have already been commissioned: the port of Lianyungang; Khorgos - East Gate dry port on the border with China; Aktau port on the Caspian Sea; the new railway corridor Kazakhstan - Turkmenistan - Iran, with a total length of about 900 km, connecting the countries of Central Asia with the Persian Gulf and the port of Bender Abbas in southern Iran; and also the international transit corridor "Western Europe – Western China", part of which passes through the Republic of Kazakhstan. Along the "Path" with the participation of Chinese companies, more than 80 zones of trade and economic cooperation were established and more than 200 thousand jobs were created.

Since 2015, investment flows from China to Kazakhstan have shown positive dynamics, their average annual growth is 22%. At the same time, the largest volume of foreign direct investments (here and

after – FDI) falls on 2018: $ 1.5 billion - 37.6% more than in 2017, and 78.6% more than in 2015. For the first half of 2019, the gross inflow of investments from China amounted to 362 million US dollars (figure 1, 2).

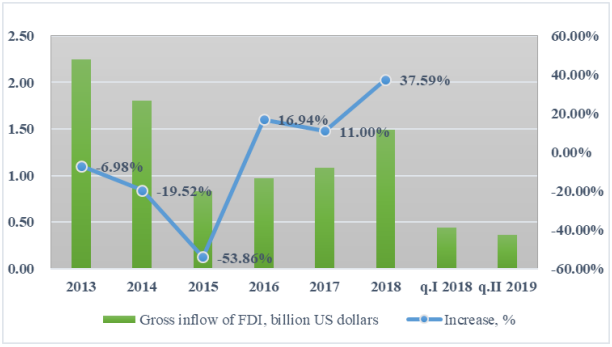


*Fig. 1. The dynamics of Gross inflow of FDI, billion US dollars*

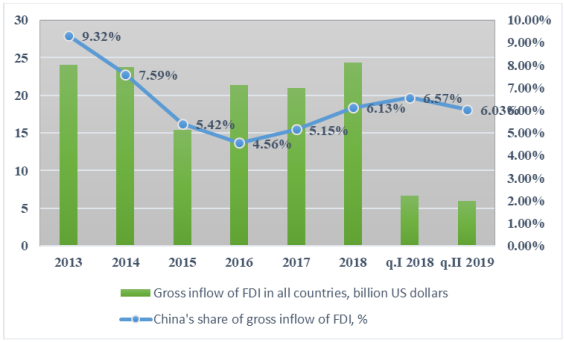


*Fig. 2. China's share of gross inflow of FDI, billion US dollars*

The liabilities of residents of the Republic of Kazakhstan to investors from People's Republic of China for the first quarter of 2019 reached $ 15.3 billion. In the total structure of Kazakhstan's liabilities (220.3 billion US dollars), China's share was 6.9% (figure 3, 4). By types of economic activity, the largest volume is concentrated in the fields of transport and storage ($ 5 billion), mining ($ 2.6 billion), manufacturing ($ 2.1 billion), and construction ($ 2 billion) (figure 5).

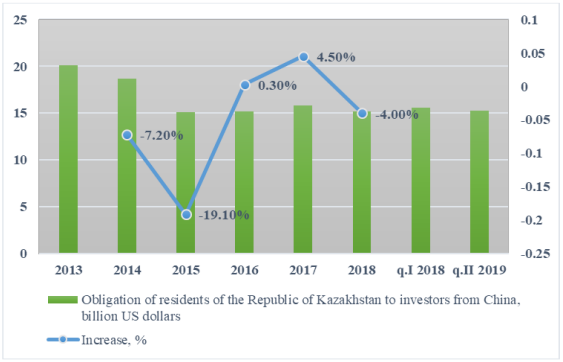


*Fig. 3. The dynamics of obligation of residents of the Republic of Kazakhstan to investors from People's Republic of China*

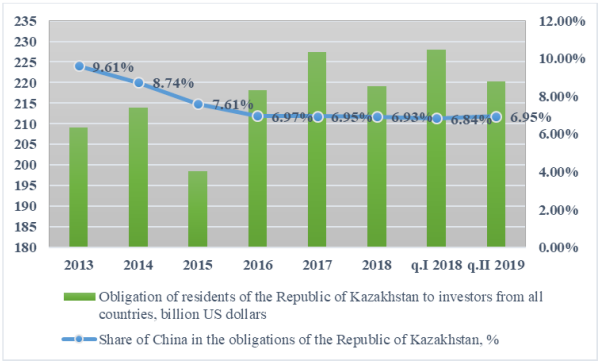


*Fig. 4. China's share in the obligation of the Republic of Kazakhstan*

Domestic investment flows into the Chinese economy in 2018 amounted to $ 41.8 million, which is 8.2% more than in 2017 ($ 38.6 million). China is among the top 10 countries in terms of gross outflow of direct investments of Kazakhstan - the share of investments was 3.2%.

As of the end of July 2019, 2.5 thousand enterprises in China were registered in Kazakhstan, of which 1.1 thousand were operating. There are also three Chinese banks operating in the country: Altyn Bank, Bank of China Kazakhstan and ICBC (Commercial and Industrial Bank of China). According to the results of the half of the year, the assets of banks reached 886.2 billion tenge, or 3.5% of the total banking sector.

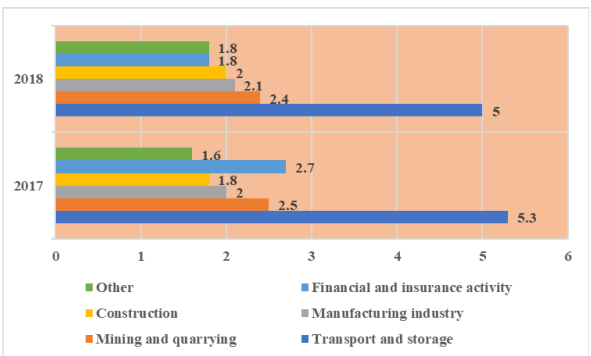


*Fig. 5. Chinese investments by the type of activity*

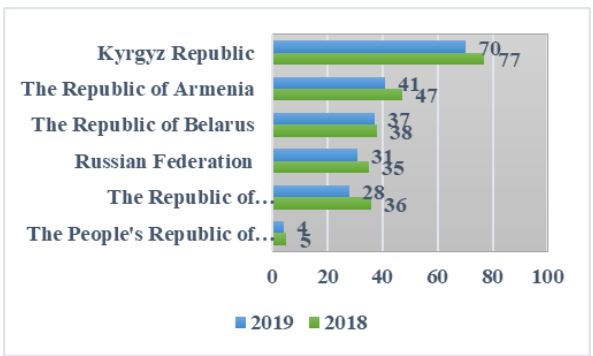


*Fig. 6. Ease of doing business rating economic (place) in 2018-2019*

So, in the Republic of Kazakhstan from 2015 to 2019, Kazakh-Chinese projects are implemented for a total amount of $ 35 billion. During this period, 10 enterprises were launched. The implementation of these projects will create about 20 thousand new permanent jobs. More detailed information on areas and volume of investments can be seen in Figure 7

The most significant projects are:

- Cement Production DanAke LLP, China Gezhouba Cement Co. Ltd. It was commissioned in December 2018. Investments totaled $ 178 million; 226 jobs were created;
- Production of JAC cars by the methods of large-knot assembly (DKD / SKD) and small-knot assembly (CKD) together with the strategic partner of SaryarkaAvtoProm LLP and JAC Motors. It was put into operation in stages: stage I in 2015, stage II - in 2017. Investments amounted to 22 million US dollars, 350 jobs were created.
- Dry port on the territory of the FEZ (free economic zone) Khorgos-East Gate, "KTZE – Khorgos Gateway" LLP, Lianyungang Port Holding Group Co. Ltd., COSCO Shipping Lines Co. Ltd. Investments totaled $ 76 million.

13 projects are under implementation; in 2019, 3 projects are expected to be launched for a total of $ 350 million.

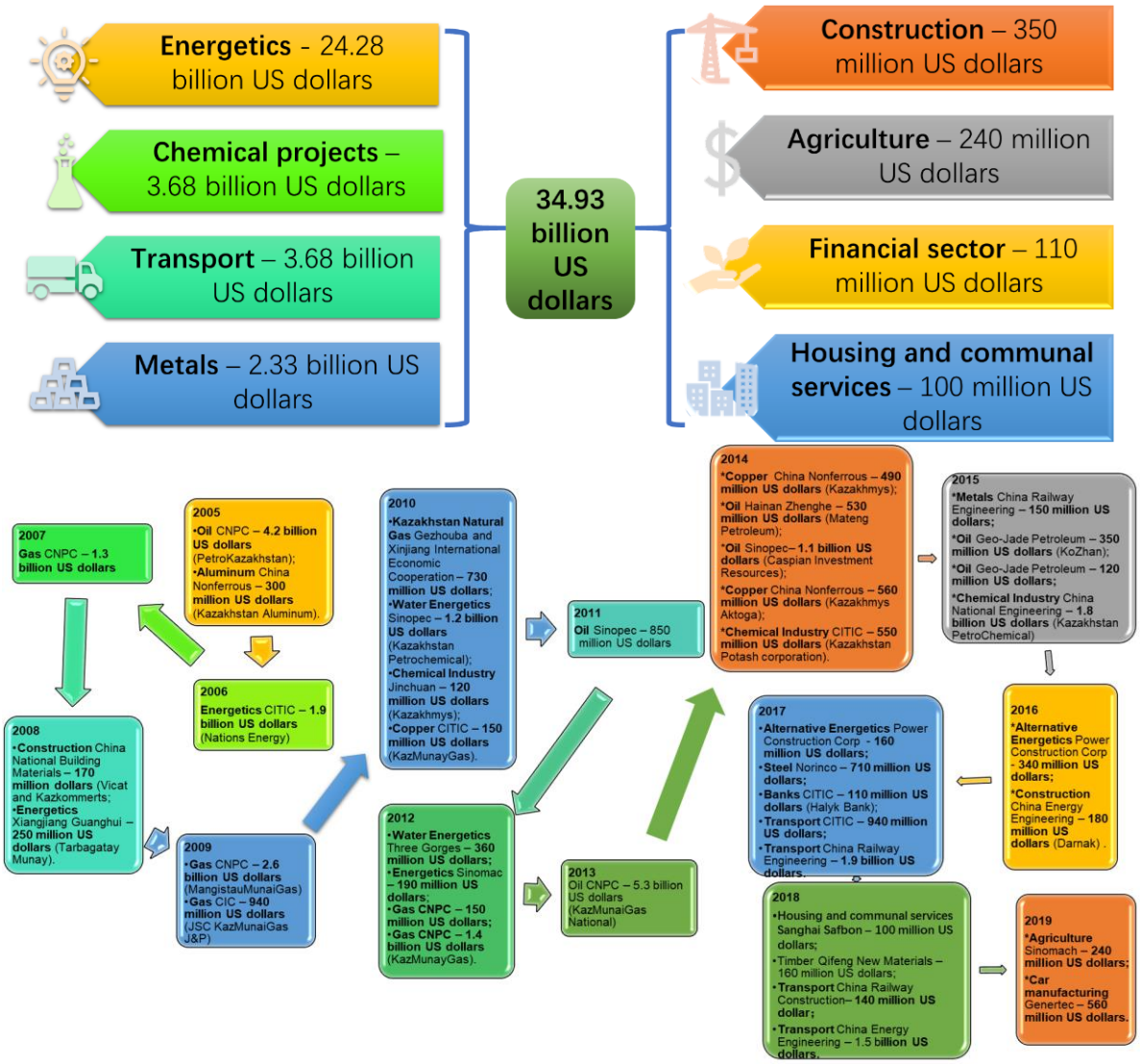


*Fig. 7. Chinese investment to the Republic of Kazakhstan and cooperative projects from 2015-2019 years*

Globalization of markets is also enhanced by the integration of the financial sector. Astana and its financial center are consolidating the investment activity of international investors. People's Republic of China is a vivid example of active participation in the development of the Republic of Kazakhstan capital market. In 2018, 5 memorandums and agreements were signed on the basis of a

financial hub (in total 13 for 2016-2018), the main purpose of which is to develop a cross-border business to provide high-quality service and develop new financial services.

As shown by the World Bank's ease of doing business rating, this is a critical indicator evaluating the business orientation of countries around the world. According to the results of the rating for 2019, The Republic of Kazakhstan rose by 8 positions and took 28th place (in 2018 - 36th), becoming the best country in the region in doing business. The nearest neighbors from the EAEU are located in the corridor from 31st to 70th place. The People's Republic of China, in turn, took 4th place (in 2018 - 5th) (figure 7).

The peculiarity of investment cooperation between Republic of Kazakhstan and People's Republic of China is, first of all, that, being mutually beneficial, it provides for different in nature economic results for the interacting parties. China, as a result of this cooperation, is pursuing a solution to the problem of maintaining sustainable economic development. For Kazakhstan, investment cooperation with China should contribute to further maintaining sustainable economic growth and modernizing the national economy in order to effectively participate in the system of world economic relations. Thanks to the strategy put forward on the basis of the Belt and Road Initiative, the implementation of this cooperation has become real and possible. For China, which has enormous potential of the domestic market, innumerable labor resources, focus on solving problems of economic development, economic cooperation on the basis of the Belt and Road Initiative, it provides an opportunity to create conditions for expanding sales markets and further developing the country's export potential.

Summing up, it is worth noting that the implementation of the strategy on the basis of the Belt and Road Initiative contributes to the strengthening and bilaterally beneficial economic development of relations between Kazakhstan and China. The active participation of Kazakhstan in the international project for the implementation of the Belt and Road Initiative contributes to the intensification of external investment flows into the national economy.

The Republic Kazakhstan, as a region possessing the richest reserves of mineral resources, including oil, natural gas, iron ores, non-ferrous, rare, rare-earth, and precious metals, as well as a favorable territorial position for implementing the Belt and Road Initiative, provides People's Republic of China with tangible benefits.

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# ВЛИЯНИЕ «ЗЕЛЕНОЙ ЭКОНОМИКИ» НА ЭКОНОМИЧЕСКОЕ РАЗВИТИЕ И ЭКОЛОГИЧЕСКУЮ БЕЗОПАСНОСТЬ КАЗАХСТАНА

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**ABSTRACT**

Kazakhstan has a huge potential for the use of renewable energy sources, while being the state with the highest rates of greenhouse gas emissions in Central Asia. Despite significant economic, social and environmental benefits, the share of renewable energy in Kazakhstan's electricity production remains low, at 1.1% in 2017. The government intends to increase this figure to 50% by 2050. While Kazakhstan is experiencing some difficulties in diversifying its economy and energy resources, the inclusive concept of green growth is particularly important for the country.

The adopted Strategy Kazakhstan 2050: A New Political Course of the Established State «Strategy - 2050» sets clear guidelines for building a sustainable and efficient economic model based on the country's transition to a green development path.

The article analyzes the current status of the transition to «green economy» including the development of renewable energy, green building, environmentally friendly transport, waste management, sustainable and efficient organic agriculture, and rational use of water resources. The scientific article focuses on the key risks, problems and obstacles to the development of the «green economy» in Kazakhstan, as well as offers recommendations and measures to solve existing problems. In addition, the article examines the methods of the government's transition to a «green economy», within which the planned tasks of a large-scale transition to a «green economy» are to be fulfilled.

The article can be useful for those who are interested in sustainable economic growth: the government, energy companies, investors in the field of renewable energy and society as a whole.

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**Введение.** Казахстан обладает огромным потенциалом использования возобновляемых источников энергии, при этом являясь государством с самыми высокими показателями выброса парниковых газов в Центральной Азии. Несмотря на наличие значительных экономических, социальных и экологических преимуществ, доля возобновляемых источников энергии в производстве электроэнергии в Казахстане остается низкой, на уровне 1,1% в 2017 году. Правительство страны намерено увеличить данный показатель до 50% к 2050 году. Пока Казахстан испытывает некоторые сложности в диверсификации экономики и энергоносителей, инклюзивная концепция зеленого роста особенно важна для страны.

В настоящем отчете проводится анализ текущего статуса перехода к «зеленой экономике», включая развития возобновляемой энергетики, зеленого строительства, экологически чистого транспорта, управления отходами, устойчивого и эффективного органического сельского хозяйства, и рационального использования водных ресурсов. В настоящем документе внимание

уделяется ключевым рискам, проблемам и препятствиям на пути развития «зеленой экономики» в Казахстане, а также предлагаются рекомендации и меры для решения существующих проблем.

Кроме того, в отчете рассматриваются методы перехода правительством к «зеленой экономике», в рамках которых предстоит выполнить намеченные задачи по крупномасштабному переходу к «зеленой экономике». Настоящий отчет может быть полезен тем, кто заинтересован в устойчивом экономическом росте: правительству, энергетическим компаниям, инвесторам в сфере возобновляемой энергетики и обществу в целом.

За последние десятилетия большинство развитых и развивающихся стран определили приоритетность устойчивости экономического роста, расширения возможностей в использовании ресурсов и сокращения вредного воздействия на окружающую среду. Концепция «зеленого роста», которая направлена на достижение устойчивого роста посредством эффективного и ответственного использования природных ресурсов, стала неотъемлемой частью экономической политики для многочисленных правительств с момента ее введения в конце 2000-х годов (Организация экономического сотрудничества и развития или ОЭСР, 2009 г.).

Несмотря на то, что быстрый экономический рост может быть достигнут за счет агрессивного потребления ограниченных ресурсов, через игнорирование показателей загрязнения окружающей среды и экологических издержек или в силу реализации других нерациональных методов, в конечном итоге такая экспансия обречена на провал, устраняя любые положительные успехи или достижения, о чем свидетельствуют многочисленные примеры по всему миру (Международный валютный фонд или МВФ, 2011 г.). Концепция инклюзивного зеленого роста выходит за рамки эффективного использования природных ресурсов и защиты окружающей среды; эта концепция подчеркивает важность сбалансированного и широкомасштабного роста как единственного решения на пути к устойчивому долгосрочному развитию.

Концепция инклюзивного зеленого роста особенно важна для Казахстана в силу того, что в ней акцент делается на:

***Устойчивый экономический рост.*** Экономика Казахстана имеет низкие показатели диверсификации, где в экономическом росте ключевая роль отводится нефти и газу, горнодобывающей промышленности и сельскому хозяйству. При этом, товары широкого потребления и сырьевые товары занимают существенную долю казахстанского экспорта. Внешняя торговля и диверсификация экономики сдерживаются рядом факторов, включая неэффективную логистику и слаборазвитую инфраструктуру, которым отводится важная роль в регионе в силу того, что Казахстан не имеет выхода к морю и зависит от соседних стран при выходе на мировые рынки. Слаборазвитая или ухудшающаяся инфраструктура приводит к высоким издержкам и потерям, особенно в области транспорта и передачи электроэнергии (Азиатский банк развития, 2006 г.).

***Возобновляемый природный капитал*** (т. е. питьевая вода и устойчивое развитие сельского хозяйства) и чистый физический капитал (например, солнечные панели, ветряные установки и зеленые системы общественного транспорта). Казахстан по-прежнему сталкивается с исторически сложившимися сложностями доступа к питьевой воде, производства и распределения электроэнергии. Кроме того, нерациональные методы ведения сельского хозяйства и потребления природных ресурсов усугубили некоторые экологические проблемы. Таким образом, Казахстан стал свидетелем экологической катастрофы в регионе Аральского моря и в ближайшем будущем столкнется с серьезными рисками безопасности водоснабжения (Программа Организации Объединенных Наций по окружающей среде или ЮНЕП, 2014 год).

**Результаты исследования.** За последние десятилетия большинство развитых и развивающихся стран определили приоритетность устойчивости экономического роста, расширения возможностей в использовании ресурсов и сокращения вредного воздействия на окружающую среду. Концепция «зеленого роста», которая направлена на достижение устойчивого роста посредством эффективного и ответственного использования природных ресурсов, стала неотъемлемой частью экономической политики для многочисленных правительств с момента ее введения в конце 2000-х годов [1].

Несмотря на то, что быстрый экономический рост может быть достигнут за счет агрессивного потребления ограниченных ресурсов, через игнорирование показателей загрязнения окружающей среды и экологических издержек или в силу реализации других нерациональных методов, в конечном итоге такая экспансия обречена на провал, устраняя любые положительные успехи или достижения, о чем свидетельствуют многочисленные примеры по всему миру [2].

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В соответствии с глобальным стремлением к всестороннему и устойчивому росту Казахстан принял национальные и регламентированные программы и стратегии развития, чтобы создать предпосылки для устойчивого развития. Казахстан стал первым государством в Центральной Азии, создавшим организационно-правовую основу для перехода к «зеленому росту» через принятие ряда законодательных документов, в том числе Экологического кодекса (2007), Закона о поддержке использования возобновляемых источников энергии (2009 год), и Концепции перехода к «зеленой экономике» (2013 год). Органы власти установили эффективные отношения с многочисленными международными финансовыми учреждениями и стратегическими партнерами в отношении поощрения и развития возобновляемой энергетики, чистых технологий и инфраструктуры. Более того, Казахстан содействует международному сотрудничеству в интересах устойчивого развития в рамках Партнерской программы «Зеленый мост» (Послание президента РК Н.А. Назарбаева «Стратегия Казахстана - 2050»).

Казахстан сталкивается со структурной несбалансированностью, социально-экономическими и экологическими проблемами, такими как чрезмерная зависимость от экспорта сырьевых товаров, неравномерное распределение благосостояния, низкий уровень жизни и ограниченный доступ к основным видам услугам. Экологические проблемы включают нехватку водных ресурсов, неэффективное использование природных ресурсов, высокое энергопотребление, нерациональные методы ведения сельского хозяйства и вопросы продовольственной безопасности, а также низкий уровень управления отходами.

На сегодняшний день правительством Казахстана приняты ряд стратегий и программ развития и планов мероприятий, направленных на устойчивый рост, но очевидно, что фундаментальные проблемы остаются нерешенными, в то время как усилия по региональному сотрудничеству с точки зрения их эффективности ограничены. Решение и преодоление экологических, социальных и экономических вопросов и задач потребует принятия и внедрения всесторонней политики правительством и сотрудничества между региональными органами власти.

Казахстан обладает значительным потенциалом использования возобновляемых источников энергии, который может способствовать устойчивому экономическому развитию и его росту. Потенциал ветроэнергетики в Казахстане в 10 раз превышает прогнозируемые потребности страны в электроэнергии к 2030 году. Казахстан принял нормы первичного законодательства в сфере возобновляемой энергетики и установил меры оказания поддержки, такие как доступ к электроэнергетической системе и льготные тарифы. Тем не менее, Казахстан является единственным государством в регионе, которое имеет возможности выработки как солнечной, так и ветровой энергии, что способствует стремлению развития возобновляемой энергетики.

Развитие и широкомасштабное внедрение принципов использования возобновляемых источников энергии (ВИЭ) в Казахстане сдерживается следующими факторами:

– высокие субсидии на традиционные источники энергии и низкие цены на электроэнергию;

– ограниченное долгосрочное финансирование;

– высокие первоначальные инвестиционные затраты в связи с импортом используемых технологий;

– ограниченная экспертиза в сфере ВИЭ;

– отсутствие знаний.

Переход к зеленому росту является необходимым приоритетом для Казахстана, поскольку экономическое развитие страны в настоящее время в значительной степени сосредоточено на добывающих производствах и экспорте сырьевых товаров. В то же время, в большинстве секторов экономики наблюдается относительно высокий уровень энергоемкости и загрязнения, а также низкая энергоэффективность [5]. Концепция «зеленой экономики» Казахстана направлена на повышение эффективности использования ресурсов и продвижение новых технологий для обеспечения устойчивого роста для будущих поколений (Рис.1).

Таблица 1. Сроки перехода Казахстана к зеленой экономике (2013-2050 гг.)

| >1% ВВП или 3-4 млрд. долл. США ежегодная сумма инвестиций в зеленую экономику | | |
|---|---|---|
| 2013-2020 гг. | 2020-2030 гг. | 2030-2050 гг. |
| Оптимизация распределения и эффективности ресурсов. Развитие зеленой инфраструктуры. | Рациональное использование природных ресурсов. Крупномасштабное внедрение новых ВИЭ и энергосберегающих технологий | Полный переход к модели зеленого роста. Преобразование традиционных отраслей экономики и развитие новых отраслей промышленности на основе ВИЭ |
| *Таблица составлена авторами по данным источника: министерство энергетики РК, ФНБ «Самрук-Казына»* | | |

Ожидается, что внедрение зеленых технологий позволит повысить энергоэффективность экономики Казахстана на 40-60% и сократить потребление воды на 50%. Более того, переход к модели зеленого роста позволит создать более 500 000 новых рабочих мест в традиционных и новых отраслях промышленности, улучшить условия жизни и обеспечить высокое качество жизни для всего населения страны (Концепция по переходу РК к «зеленой экономике», 2013 г.).

Переход к «зеленому росту» потребует эффективной координации усилий между органами власти, национальными и международными инвесторами и обществом, в целом. Как результат, совместная реализация государственной политики приведет к динамичному и устойчивому экономическому росту, который будет устойчив к неблагоприятным экономическим и экологическим изменениям (Рис.2).

Таблица 2. Целевые индикаторы зеленой экономики по энергоэффективности и электроэнергетика

| | | | | |
|---|---|---|---|---|
| Энергоэффективность | Снижение энергоемкости ВВП от уровня 2010 г. | 25% (10% к 2015 г.) | 30% | 50% |
| Электроэнергетика | Доля альтернативных источников в выработке электроэнергии | Солнечная и ветряная: не менее 3% к 2020 г. | 30% | 50% |
| | Газовая электростанция. Газификация регионов. | 20% Акмолинская и Карагандинская области | 25% Северные и Восточные области | 30% |
| | Снижение уровня выбросов CO2 относительно текущего в электроэнергетике | Уровень 2012 года | 15% | 40% |
| *Таблица составлена авторами по данным источника: Концепция по переходу РК к «зеленой экономике»* | | | | |

Общий объем инвестиций, необходимых для реализации программы, оценивается в среднем в 3-4 млрд. долларов США в год в течение 2014-2050 годов. Крупнейшие годовые инвестиции потребуются в 2020-2024 годах, примерно 1,8% от общего объема ВВП. Планируется, что большая часть финансирования будет привлечена за счет частных инвесторов.

Возобновляемые источники энергии включают в себя солнечные и ветряные электростанции, малые ГЭС, биотопливные установки, геотермальные и некоторые другие

виды электростанций. Учитывая географическое расположение и климатические условия Казахстана, малые ГЭС, солнечная и ветровая энергия являются наиболее перспективными возобновляемыми источниками энергии. По официальным оценкам, гидроэнергетический потенциал средних и крупных по величине рек составляет 55 млрд. кВт-ч, а потенциал малых рек - 7,6 млрд. кВт-ч в год. При этом, потенциал солнечной энергии и энергии ветра оценивается примерно в 2,5 млрд. кВт-ч в год и 1,820 млрд. кВт-ч в год соответственно. Таким образом, совокупный потенциал возобновляемых источников энергии составляет 1885 млрд. кВт-ч в год, что эквивалентно суммарной мощности 4,3 ГВт.

Ключевыми факторами развития проектов в области возобновляемых источников энергии в Казахстане являются:

1) Приверженность правительства достижению экологически благоприятного устойчивого экономического роста.

2) Механическое старение инфраструктуры генерации электроэнергии, страдающей от относительно высоких (6%) потерь при передаче и распределении электроэнергии. Развитие возобновляемых источников энергии может сократить потери за счет уменьшения расстояния передачи электроэнергии.

3) Казахстан имеет относительно высокую долю сельского населения (43%), на долю которого в настоящее время приходится около 10% общего потребления электроэнергии в стране. ВИЭ могут быть удобным источником энергии для отдаленных деревень и регионов.

4) Высокие выбросы углекислого газа из-за большой зависимости от угля для производства электроэнергии. Низкая интенсивность выбросов углерода в атмосферу возобновляемых источников энергии представляет собой привлекательный вариант для руководства страны и инвесторов.

В 2018 году количество действующих электростанций на основе ВИЭ возросло до 55, а их мощность генерации увеличилась на 15,5% по сравнению с аналогичным периодом прошлого года до 341,4 МВт в 2018 году (169,8 МВт по ГЭС, 112 МВт по ветряным электростанциям и 59 МВт по солнечным электростанциям) против 295,7 МВт в 2016 году (139,9 МВт по ГЭС, 98,2 МВт по ветряным электростанциям и 57,3 МВт по солнечным электростанциям). Такой рост произошел благодаря вводу в эксплуатацию новых ГЭС и ветряной электростанции в 30 МВт и 14 МВт соответственно. Производительность электростанций на основе биогаза в Казахстане осталась неизменной на уровне 0,4 МВт, в то время как установленные солнечные энергоустановки увеличились незначительно на 1,7 МВт. Общий объем вырабатываемой электроэнергии в 2018 году составил 1,1 млн кВтч в сравнении с 0,9 млн кВтч в 2017 году, тем самым обеспечивая 1,1% от общего объема производства электроэнергии в 2018 году против 1,0% в 2017 году.

Выработка электроэнергии из возобновляемых источников продолжает существенно расти несмотря на то, что доля возобновляемых источников энергии в общем энергетическом балансе страны остается низкой. Доля проектов в сфере ветряной и солнечной энергетики в энергетическом балансе Казахстана на конец 2018 года составляла менее 0,6%. В то же время производительность гидроэлектростанций составила примерно 12% от общего объема произведенной в Казахстане электроэнергии, выработка основной части которой была за счет крупных ГЭС, большинство из которых были построены более двух десятилетий назад.

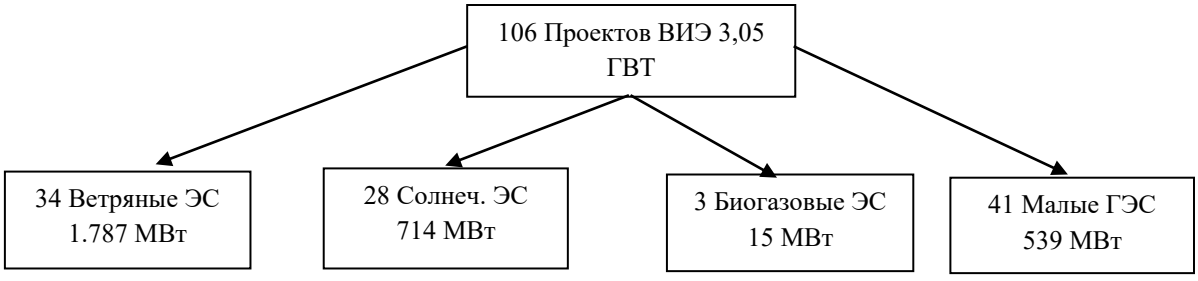


*Рис. 1. Цели развития ВИЭ в Казахстане к 2020 г.*
*Источник: Министерство энергетики РК*

Ожидается, что к 2020 году доля электроэнергии, вырабатываемой ВИЭ, увеличится до 3% от общего энергетического баланса страны, чему способствуют растущие мощности

ветровых электростанций и малых ГЭС. Также ожидается, что общее количество проектов ВИЭ достигнет 106 станций всех типов, включая 34 ветряных электростанций (1,787 МВт), 41 малых ГЭС (539 МВт), 28 солнечных (714 МВт) и 3 биогазовых станций (15 МВт). Соответственно, согласно прогнозам, общая мощность возобновляемой энергетики достигнет 3,05 ГВт. К концу 2018 года будут дополнительно введены в эксплуатацию 18 ветряных электростанций, 13 гидроэлектростанций и 7 солнечных электростанций.

За последнее десятилетие стоимость солнечных фотоэлектрических (PV) технологий снизилась более чем на 80%, а затраты, связанные с ветряными энергетическими установками, снизились на 30-40%. Ожидается, что стоимость проектов ВИЭ продолжит снижение на 25-50% в зависимости от технологии. Следовательно, темпы освоения энергоресурсов, как ожидается, будут стремительно расти в период между 2020 и 2030 годами, поскольку технологии производства возобновляемых источников энергии станут более доступными и конкурентоспособными по цене.

**Ключевые риски и проблемы развития ВИЭ в Казахстане.** Несмотря на значительный потенциал развития и внедрения проектов в сфере возобновляемой энергетики, обусловленный обширной территорией страны и различными климатическими условиями, в Казахстане по-прежнему наблюдаются препятствия и барьеры на пути внедрения и развития ВИЭ:

– низкие цены на электричество, полученное традиционными методами;

– потери при передаче электроэнергии и неэффективные технологии;

– ограниченная нормативно-правовая база, необходимая для стимулирования применения возобновляемых источников энергии, непоследовательная государственная политика и чрезмерные административные барьеры;

– ограниченная технологическая база, низкая осведомленность и информационные барьеры;

– колебания курсов валют и бизнес-среда с высоким уровнем риска;

– ограниченные возможности Единой энергетической системы (ЕЭС) Казахстана;

В связи с вышеупомянутыми факторами большинство крупных ветряных и солнечных проектов, разработанных в Казахстане, таких как ветряная электростанция Ерейментау и солнечная электростанция Бурное, были профинансированы органами власти, государственными предприятиями и международными финансовыми институтами. До сих пор крупнейшие энергетические проекты не способствовали значительному объему частных инвестиций и развитию отрасли в Казахстане. При этом, сектор возобновляемой энергетики страны может развиваться медленнее, чем ожидалось, сдерживаемый экономическими изменениями и низкой конкурентоспособностью по сравнению с традиционными видами органического топлива.

**Заключение.** Таким образом, к 2020 году достижение целевого уровня в 3% по ВИЭ в общем энергетическом балансе страны может быть чрезмерно амбициозным, что повысит экономическую эффективность республики. Казахстан обладает огромным потенциалом ВИЭ, который может обеспечить устойчивый экономический рост и доступную электроэнергию самым отдаленным регионам страны. Исторически крупные ГЭС вносят значительный вклад в энергетический баланс Казахстана, но регион также имеет потенциал биотоплива, ветра и солнечной энергии. Доля ВИЭ в энергетическом балансе страны остается низкой. В ближайшем будущем сокращение издержек, обеспечиваемое технологическими инновациями, и повышение конкурентоспособности зеленых технологий позволят повысить потенциал ВИЭ в регионе.

В то время как Казахстан признает необходимость перехода к «зеленой» экономике и устойчивому росту, содействуя реализации проектов в области ВИЭ и энергосберегающих технологий, реализуемых в настоящее время мер пока недостаточно для достижения поставленных целей. Власти инициировали ряд реформ и масштабных проектов в области окружающей среды, но общая институциональная среда остается недостаточно благоприятной для широкомасштабного внедрения «зеленых» технологий.

Особое внимание и ресурсы необходимо выделять на расширение институционального потенциала и совершенствования управления. Субсидии и другие инструменты стимулирования возможно нужно будет пересмотреть, чтобы охватить большее число инвесторов и проектов, а также обеспечить более автоматизированную институциональную структуру для новых «зеленых» проектов.

Правительству необходимо повысить надежность и эффективность существующих механизмов финансирования и скорректировать льготы для инвесторов для того, чтобы начать широкомасштабный переход к устойчивому росту. Это может быть достигнуто путем всесторонней реформации национальных экономических, бюджетных, налоговых, инвестиционных и экологических программ и конкретных инструментов поддержки бизнеса и зеленых инициатив в Казахстане.

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