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Applying Advanced Artificial Intelligence to Predict the Green Bond Market in Kazakhstan: Fostering Sustainable Financial Instruments and Environmental Objectives

LYAZZAT SEMBIYEVA[1] (*Corresponding author*), AIDA ZHAGYPAROVA[2], AINUR ZHUMADILLAYEVA[3], MAKPAL ZHOLAMANOVA[4], ALMA BEKBOLSYNOVA[5] and MIRA ZHANABERGENOVA[6]

[1] Professor, L.N. Gumilyov Eurasian National University, Astana, e-mail: sembiyeva@mail.ru; Researcher ID in Web of Science: DRM-6177-2022; ORCID ID: https://orcid.org/0000-0001-7926-0443

[2] Associate Professor, Faculty of Economics of L.N. Gumilyov Eurasian national university, Astana, e-mail: Zhagyparova_Aida@mail.ru. Researcher ID in Web of Science: CEN-0033-2022; ORCID ID0000-0003-4792-9450

[3] Associate Professor, Faculty of Information Technologies at the L.N. Gumilyov Eurasian National University, Astana e-mail: ay8222@mail.ru. Researcher ID in Web of Science: AAQ-7182-2020, ORCID 0000-0003-1042-0415

[4] Associate Professor, L.N. Gumilyov Eurasian National University, Astana. e-mail: makpalzh@mail.ru. Researcher ID in Web of Science: N-4045-2014, ORCID IDhttps://orcid.org/0000-0003-0942-2376

[5] Senior Lecturer at the Department of State Audit of the Eurasian National University named after L.N. Gumilyov, e-mail: bekas.ast@mail.ru.ORCID ID: https://orcid.org/0000-0001-5259-1322, Web of Science Researcher ID AGU-3692-2022

[6] PhD in economics, Eurasian National University, e-mail: m.zhanabergenova@gmail.com. Web of Science Researcher ID: ACS-5288-2022, ORCID ID: http://orcid.org/0000-0001-7249-3586

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ABSTRACT

This study focuses on the utilization of advanced artificial intelligence methodologies for predicting the trajectory of the green bond market in Kazakhstan. The research aims to facilitate the growth of sustainable financial instruments while actively contributing to the achievement of environmental objectives. By leveraging innovative AI techniques, the analysis seeks to provide accurate forecasts, thereby aiding the development and support of the green bond market. This initiative aligns with Kazakhstan's drive for sustainable development and environmental protection, reinforcing the use of green financial instruments, such as green bonds, supported by governmental initiatives. Active development of the green bond market in Kazakhstan and in the world, as well as increased interest in sustainable financial instruments make it relevant to study the possibilities of using artificial intelligence to analyze and forecast this market. The green bond market contains a large amount of data, including information on projects, environmental performance, rates and yields. The relevance of the study is that the use of deep artificial intelligence to forecast the green bond market in Kazakhstan may lead to the development of more accurate and efficient methods of analysis and forecasting, which in turn may contribute to the development of the market for green financial instruments and contribute to the achievement of environmental goals. Kazakhstan is actively developing a sustainable development policy, including environmental protection and carbon footprint reduction, so green financial instruments such as green

bonds are receiving government support. The purpose of the study is to analyze the use of deep artificial intelligence to forecast the green bond market in Kazakhstan.

INTRODUCTION

Deep artificial intelligence (hereinafter referred to as DAI) provides powerful tools for analyzing large volumes of data and identifying patterns. This can be particularly useful when analyzing the green bond market, given the diversity of environmental projects and conditions. GII is able to process and analyze data at a higher level, which can improve the accuracy of forecasts and reduce the risks of errors. The green and sustainable finance market in Kazakhstan is actively developing. The vast majority of existing market participants are just beginning to become interested in the topic of sustainable development, issuers are revising their goals to take into account sustainability goals, and investors are changing their focus towards responsible investing.

An ecosystem approach to financing aims to connect different ways of attracting green investments at the local, regional and national levels, along with government programs to improve environmental literacy of the population, develop entrepreneurial skills and the financial literacy of companies, especially small businesses. Issuers in Kazakhstan, including the government, local corporations and financial institutions, have begun actively issuing green bonds to finance projects related to ecology and sustainability. This may include projects in the areas of renewable energy, energy efficiency, waste management and other environmental initiatives.

Thus, the ecosystem approach is “green” and includes a whole set of institutions, strategies and tools that help attract investment and create favorable conditions for the growth of “green” businesses. Financial ecosystem for venture capital, “green” based on loans and bonds, crowdfunding, as well as various methods of government financial and non-financial support and incentives. Developing a market for green and sustainable financial instruments in Kazakhstan not only helps finance environmental projects, but also promotes social and economic responsibility and helps the country move towards sustainable development. In this regard, Kazakhstan is developing and implementing regulation and standards for green financial instruments and includes defining criteria and standards for green bonds and other products, as well as measures to improve transparency and reporting.

1. RESEARCH BACKGROUND

The financial sector has greatly impacted the monetary well-being of consumers, traders and financial institutions. In the current era, artificial intelligence is redefining the boundaries of financial markets based on modern machine learning and deep learning algorithms. These methods are widely used for forecasting prices of financial instruments, analyzing market trends, identifying investment opportunities, optimizing portfolios, etc. The functioning of a country's financial market is a critical factor in determining its overall economic health, allowing economists and financial experts to assess the country's current economic condition. Among the various financial markets, the stock market stands out as a key driving force.

The rise of artificial intelligence (AI) as a technology to promote economic growth and social empowerment has prompted researchers to systematically study current problems and report on related opportunities (Duan and Edwards, 2019; Kopka, 2022; Wach et al., 2023). Modern AI research is focused on shaping our daily lives, solving complex social problems and countering environmental challenges to protect the global ecosystem and sustainability (Baabdullah et al., 2022; Dubey et al., 2019; Dwivedi et al., 2021; Wamba et al., 2021). The diversity and scope of the AI literature confirms the multidisciplinary and interdisciplinary nature of research, which covers various aspects related to the quality of organizational decision making (Li et al., 2022), customer purchasing decisions (Giza & Wilk, 2021; Yeo et al., 2022), personalization products and services (Micu et al., 2022), public sector (Di Vaio et al., 2022) and many others.

Data-driven decision making requires processing large volumes of complex data, and methods based on artificial intelligence and machine learning can provide critical information to businesses in an efficient and flexible way. There are a significant number of review articles on stock price forecasting and forecasting (Polamuri et al., 2019; Deepak et al., 2021; Payal et al., 2022) caused by the fact that due to the boom of artificial intelligence and machine learning, the frequency of publications has increased significantly. Intelligent decision support systems, specifically those focusing on the role of intelligent software agents in data analysis within knowledge-based systems are debated in the paper of Popîrlan and Stefănescu (2011). Exploiting advanced technology, these intelligent software agents offer significant support by processing and analyzing complex data, providing insights, and facilitating informed decision-making useful for transactions managers.

Hazar and Babuşcu in their paper highlights the substantial influence of FinTech across diverse sectors, showcasing how these advancements streamline transactions, boost accessibility, promote financial inclusion, fortify security measures, and enhance overall efficiency within financial activities. The conclusion emphasizes the considerable potential and ongoing development of fintech, underscoring the necessity for deeper exploration and integration to maximize their advantages while addressing potential challenges in their adoption. Stock market forecasting is a regression use case since stock prices are continuous (Seethalakshmi, 2018). Most researchers tend to solve the problem of price forecasting or stock value series forecasting. It is also important to know the movement of stock prices. Therefore, it is necessary to explore the use of modern deep learning and machine learning algorithms to predict and classify stock and bond trends. Analyzing stock and bond price movements using modern deep learning and machine learning algorithms is an important tool for investors, traders and financial analysts. Here are the benefits and opportunities these methods provide:

- Price forecasting. Machine learning and deep learning techniques can be used to create models that can predict the future movements of stock and bond prices. This can help investors make more informed decisions about buying, selling or holding securities.
- Trend analysis. Machine learning algorithms can analyze large volumes of historical data and identify trends and patterns in price movements. This allows you to identify investment opportunities based on current market trends.
- Risk management. Machine learning methods can be used to assess the risk of an investment. Data analytics and risk modeling enable investors to make more informed decisions about portfolio diversification and risk management.
- Classification of assets. Machine learning models can classify assets based on various characteristics, which helps investors determine which assets are suitable for their investment goals.
- Trading strategies. Deep learning algorithms can be used to develop trading strategies, including arbitrage, high-frequency trading, and automated trading systems.
- Forecasting profitability and coupon yield. Machine learning can help estimate future stock and bond returns, as well as bond coupon yields.
- Event analysis. Machine learning methods can analyze news and event data to identify the impact of news on stock and bond prices.
- Improving the efficiency of decision making. Automating data analysis and forecasting helps increase decision-making efficiency and reduce human error.

However, it is important to understand that financial instrument markets can be subject to high volatility and sudden changes, and forecasts may not be reliable. Therefore, decisions based on analysis using machine learning, deep learning or deep artificial intelligence must be complemented by expert analysis and consideration of fundamental factors. The use of artificial intelligence (AI) in green bond forecasting can provide valuable tools for investors, issuers and regulators, improving the transparency and efficiency of the green financial instruments market. The use of AI can help improve the transparency of the green bond market and improve the reporting of environmental and sustainable projects, which is important for investors and regulators.

Green bonds are bonds whose proceeds are used to finance or refinance (in whole or in part) new and/or existing green projects and which comply with one or more green finance standards (Green Bond

Principles (GBP) of the International Capital Market Association (ICMA), Climate Bonds Standard (CBS), Climate Bonds Initiative (CBI). The starting point in the development of the green bond market is considered to be 2007, when for the first time the European Investment Bank issued green bonds in the amount of 600 million euros to finance projects in the field of renewable energy sources. The impetus for the creation of the market was a request from institutional investors - pension funds in the Scandinavian countries for a more informed approach to investing, the need to integrate ESG criteria and principles of sustainable development into the investment decision-making process. An obvious advantage of green bonds for society as a whole is support for the implementation of environmental/climate-related projects - the green bond instrument is attractive to both issuers and investors for a number of reasons (Table 1).

Table 1. Positive aspects of green bonds

for issuers	*for investors*
Strengthening the organization's reputation as an environmentally responsible business, demonstrating commitment to the principles of sustainable development	The ability to finance environmental projects with a transparent and traceable use of funds and achieve your ESG goals
Opportunity to diversify the investor base by attracting a new type of responsible investor with a green investment mandate and focus on sustainable responsible investing	Strengthening the investor's reputation as an environmentally responsible organization investing in sustainable development projects
Potentially lower acquisition costs in international markets due to the greenium discount	Investors' consideration of sustainable development factors when making investment decisions is an additional tool for timely identification of possible investment risks in the long term

Source: Compiled by the authors

2. DATA AND RESULTS

Exploring the possibilities of using deep artificial intelligence (hereinafter - AI) in forecasting the green bond market in Kazakhstan is an important and relevant task in today's world, where sustainable development and environmental sustainability play an increasingly important role. In this context, such research may include the following aspects (Figure 1).

Exploring the potential use of deep AI in forecasting the green bond market in Kazakhstan represents an important step towards sustainable development and efficient use of financial resources in the country. Such research can contribute to more accurate and informed decision-making both at the level of the government and at the level of private investors and financial organizations.

The green bond market is a financial market in which companies, authorities and other organizations issue bonds or other financial instruments to raise funds to be used for projects and initiatives that have a positive environmental and social impact. The main purpose of green bonds is to finance projects aimed at sustainable development, reducing environmental impact and improving social responsibility (Table 2).

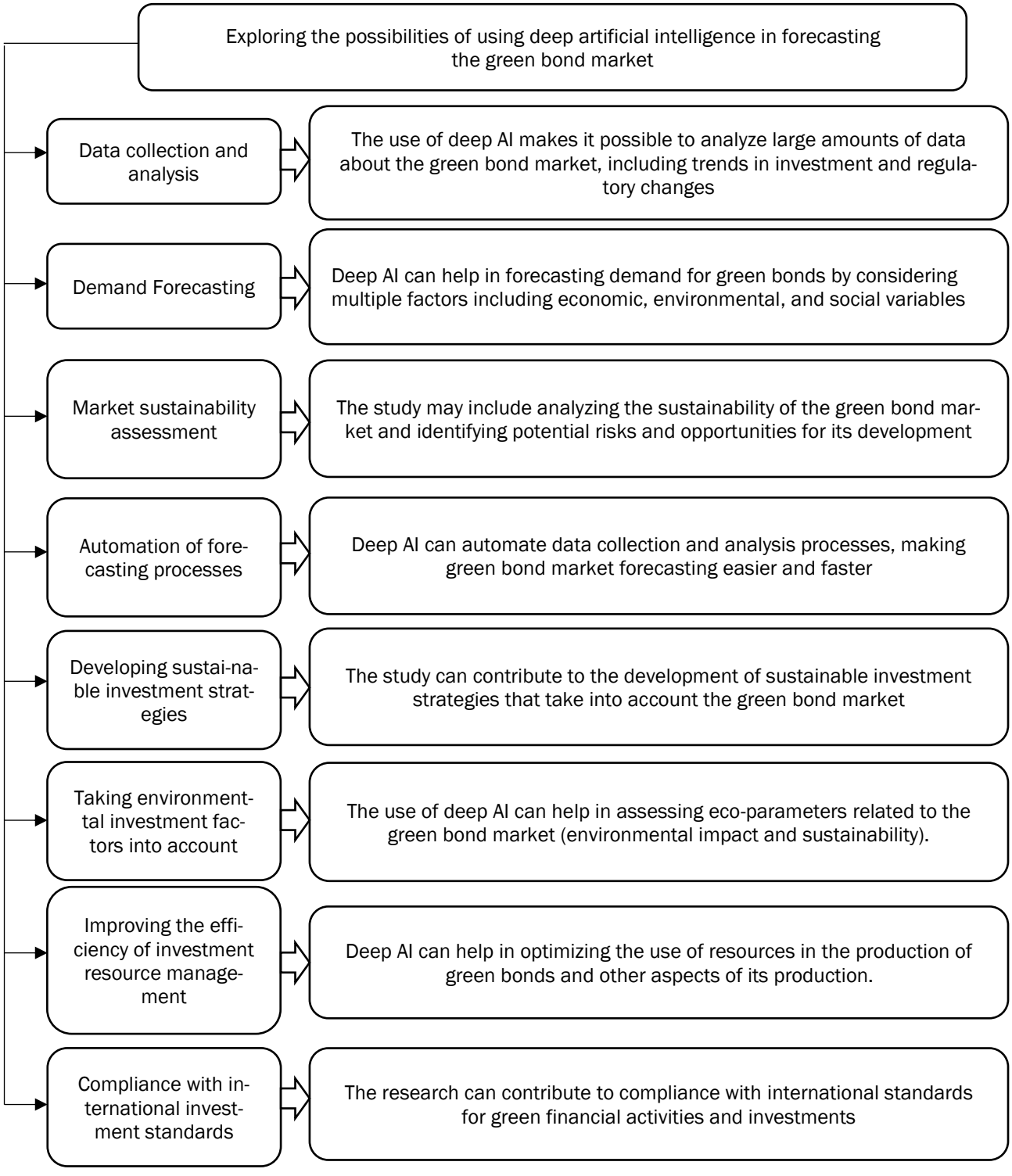

Figure 1. Exploring the use of deep artificial intelligence in green bond market forecasting

Source: Compiled by the authors

Table 2. Main characteristics of the green bond market

№	*Indicator*	*Main characteristics*
1	Environmental and social projects	Green bonds are designed to finance projects related to environmental sustainability, such as renewable energy deployment, greenhouse gas emission reductions, energy efficiency improvements and other projects with positive environmental and social impacts.
2	Strict standards	In order for a financial instrument to be considered "green," it must meet certain environmental and social standards set by international organizations or regulatory bodies. This ensures transparency and investor confidence
3	Investors with sustainable values	Investors who purchase green bonds typically have sustainable values and an interest in sustainable development. They are ready to support projects that improve the environment
4	Information transparency	Green bond issuers are required to provide information on how funds raised through green financial instruments are used and assess their impact
5	Development of regulation	Many countries are introducing green market regulation to ensure standards and protect investor interests

Source: Compiled by the authors

Green bonds allow companies and organizations to raise investment for projects that contribute to a more sustainable and environmentally friendly future. This tool is becoming increasingly popular around the world as more companies and investors commit to sustainable development. Issuing green bonds must meet four key elements (Figure 2).

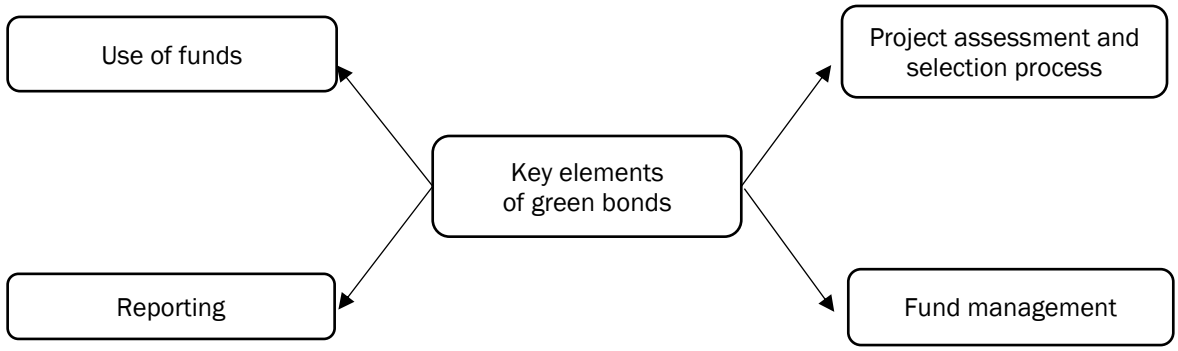

Figure 2. Main elements of green bonds

Source: Compiled by the authors

According to Figure 2, the main elements of green bonds include:

- Use of funds - the issuer must use proceeds from the placement of bonds for the implementation of environmental projects, which must be properly described in the documentation for the issue of securities.
- Project assessment and selection process - the issuer must clearly communicate its environmental sustainability goals to investors. Next, he needs to go through a procedure that will determine whether the projects qualify as green projects. Projects will also be assessed against other eligibility criteria and may be subject to additional procedures for final selection.
- Fund management - proceeds from green bonds must be credited to a special account or separately accounted for by the issuer.
- Reporting - providing up-to-date information on the use of funds, which is subject to annual updating until the funds are fully utilized and timely updating in case of significant changes.

Before issuance, the issuer prepares a Green Bond Policy in accordance with the main elements of green bonds. For a successful issue, issuers are recommended to engage an external consultant who will

help them properly prepare for an independent external assessment and complete all documentation (Doszhan, 2022). The issuance of green securities in Kazakhstan began in 2021, and the country entered the global system as an accredited member and promising partner of the global green bond market. The main result is the identification of current global trends in the development of green finance in Kazakhstan.

Green bonds are another debt instrument first implemented in Kazakhstan with the support of UNDP. Damu Fund issued its debut green bonds with the support of UNDP and the AIFC Green Finance Center (GFC) on August 11, 2020 at the Astana International Financial Center, for which it was awarded the international award "Pioneer of the Green Market" (Climate Bonds Award 2021). Over three years, sustainable development bonds worth 139.7 billion tenge have been registered on KASE, of which 85.8 billion tenge have been placed, which is less than 1% of corporate debt traded on the exchange. For comparison: the same global figure tends to 10%. To date, out of 11 ESG bonds registered on the Kazakhstan Stock Exchange, ten have been placed. Nine of them were successful, one placement did not take place.

The debut issues of ESG bonds on KASE from the Asian Development Bank (it now accounts for more than half of all sustainable bonds on the exchange) took place in November 2020. With the first issue, the issuer raised 3.9 billion tenge. The total demand for securities was represented by seven active applications, while the order book was oversubscribed almost 3 times: the total demand for subscription reached almost 11 billion tenge, which amounted to 283% of the supply volume. At the same time, another issue of ADB bonds was placed, already for 10.1 billion tenge. There were 12 active applications, seven of which were satisfied. The total demand for subscription reached 179.5% of the supply volume. Proceeds from ADB's green bond issue were used to finance two solar power plant projects in southern Kazakhstan.

In September 2021, the fourth placement of ESG bonds took place on KASE. This time from the Damu FRP. The fund raised KZT 1 billion through its debut five-year social bond issue to finance small and medium-sized businesses from the hardest-hit sectors of the economy during the COVID-19 pandemic. The securities were in slightly less demand than previous sustainable bond issues: demand for the issue was 150%, with five active participants. The coupon rate was 2.4% higher than the base rate at the time of placement. On February 21st , 2022, the Kazakhstan Stock Exchange held an initial placement of the next social bonds of the Asian Development Bank. The coupon rate on ADB bonds was 11%. Eight active bids took part in the auction; demand to supply was 140%. On February 24th , 2022, the regulator makes an extraordinary decision to increase the base rate to 13.5%, due to "the need to maintain price stability against the backdrop of a worsening geopolitical situation." The ESG bond market is freezing for a while, with no new placements taking place.

In September 2022, the Development Bank of Kazakhstan registered the issue of green bonds on the local market in the amount of 15 billion tenge, but there were no placements of securities - the bank is waiting for favorable conditions in the market. On October 20th 2022, trading in green bonds of the Asian Development Bank for 3.4 billion tenge took place. The yield on securities was at the level of the base rate of the National Bank of the Republic of Kazakhstan. This issue was the least popular among other ADB sustainable bond issues on KASE. Demand to supply was 100%; only one KASE member took part in the trades. For comparison: for two "volatile" bonds of the issuer in the second half of 2022, the demand for supply was 140 and 200%, respectively (Figure 3).

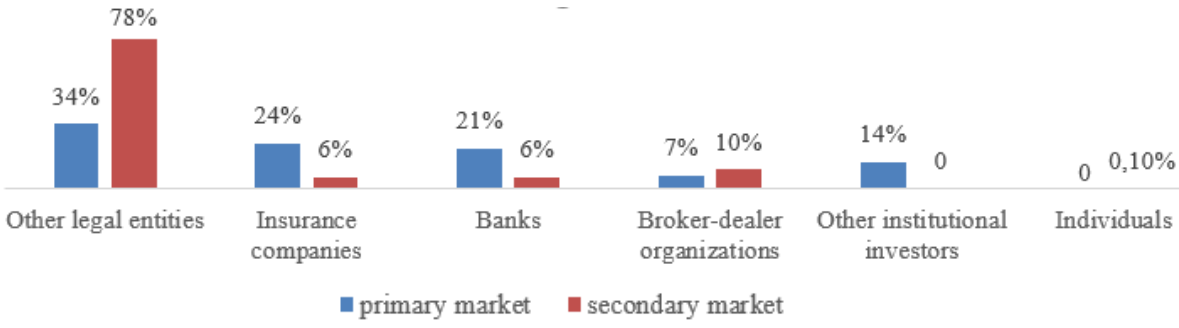

Figure 3. Purchasing ESG bonds

Source: Compiled by the authors according to https://kz.kursiv.media/

A particular ESG category is assigned to bonds based on the “open architecture” principle, when the issuer confirms compliance with one of the international ESG standards recognized by the Exchange. This structure gives issuers the flexibility to choose the most appropriate ESG standard to finance their sustainability projects. The ESG category assigned to bonds will reflect the relevant ESG standard and may include social, sustainability, blue bonds, transition bonds and other sustainability-linked bonds. The purpose of placing such green bonds is to provide loans to Kazakh enterprises implementing renewable energy projects. This is an area that is actively developing throughout the world, and “green” finance will show its effectiveness in Kazakhstan in the near future.

At the beginning of December 2022, the National Bank raises the rate to a record 16.75% since 2016 against the background of historically maximum inflation expectations. At the same time, a new instrument appears on the sustainable bond market - 15-year bonds with a floating coupon rate tied to the TONIA indicator, with a fixed margin of 3% from the national electric grid operator KEGOC. This was the first ESG placement not of a development institute, but of a company. The securities were registered within the second KEGOC bond program back in July 2021, and subsequently the bonds were reclassified as green (Figure 4).

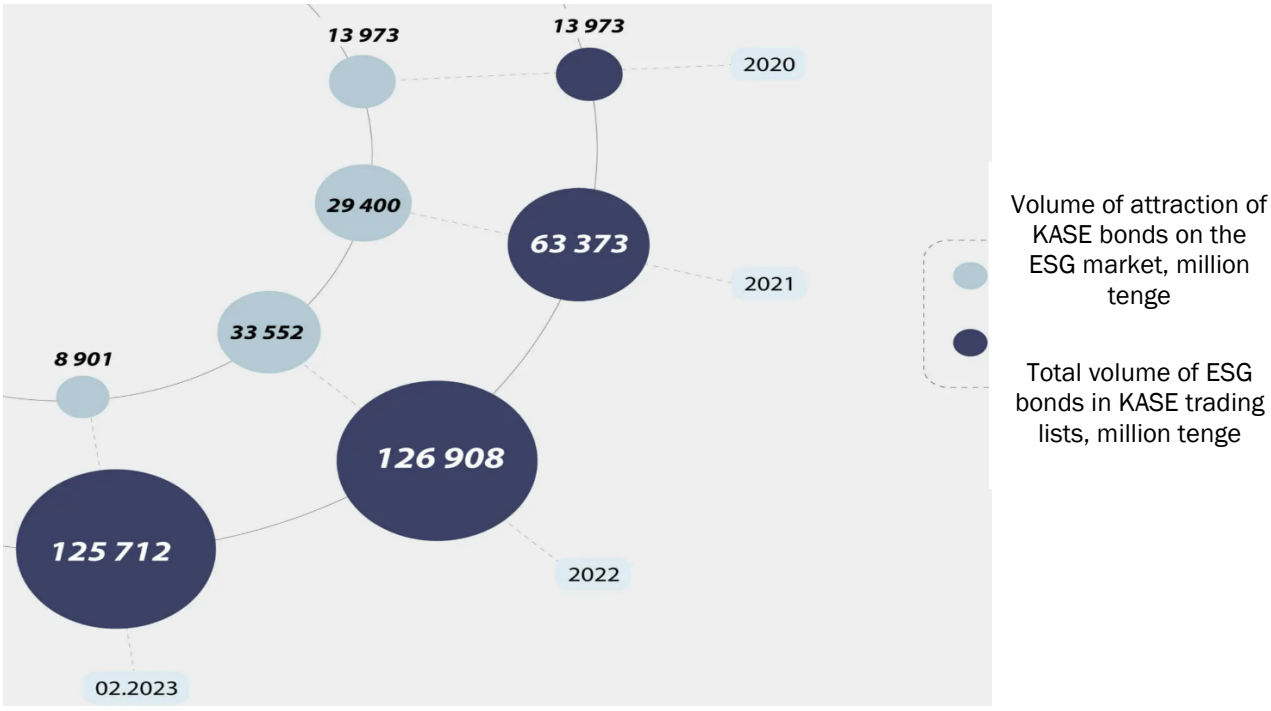

Figure 4. Green bond market in the Republic of Kazakhstan, million tenge

Source: Compiled by the authors according to https://kz.kursiv.media/

Financial institutions and private businesses are showing significant interest in green financial instruments. The green bond market is experiencing an excess of demand over supply. Figure 5 shows the dynamics of green finance indicators in Kazakhstan.

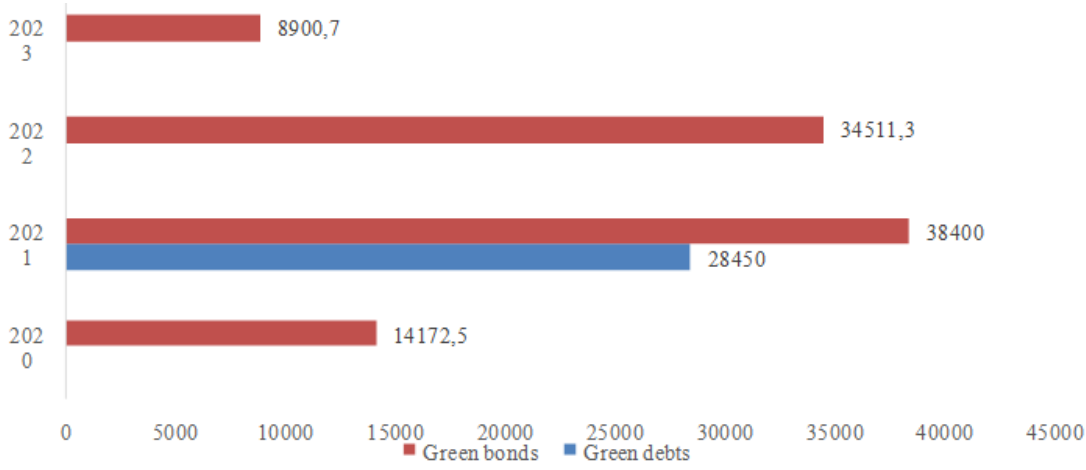

Figure 5. Volumes of green financing in Kazakhstan

Source: https://kase.kz/files/reports/KASE_meeting_2021_rus.pdf

Demand to offer for green bonds amounted to 70.2%, two active bids participated in the auction. The initially announced placement volume for the issue amounted to 23 billion tenge, 16.1 billion tenge was raised. The funds are aimed at implementing two projects related to the construction of the necessary network infrastructure (construction of a solar power plant; projects in the field of energy efficiency and development of renewable energy sources, which have ESG and SDG elements) are also being implemented (Figure 6).

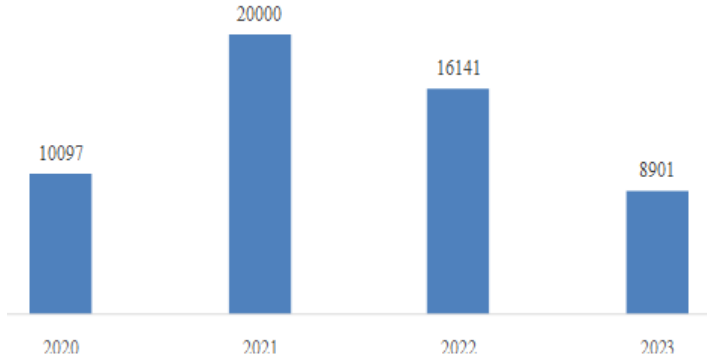

Figure 6. ESG bonds on KASE, million tenge

Source: https://kase.kz/files/reports/KASE_meeting_2021_rus.pdf

The dynamics of the global ESG bond market in 2023 will depend on the depth of the recession in a number of developed countries and interest rates of central banks, ACRA notes. According to Crédit Agricole CIB ESG FixedIncome Research, global sustainable bond issuance could rise by 30% this year compared to last year. At the same time, new instruments and Asian markets may become drivers for the market. If we conduct a comparative analysis of the state of the green bond market in the world based on two parameters Climate Bonds Initiative Green Bond Database (GBDB), Social and Sustainability Bond Database (CBDB), we will see that Kazakhstan's share in the ESG sector is very small, as shown in Figure 7.

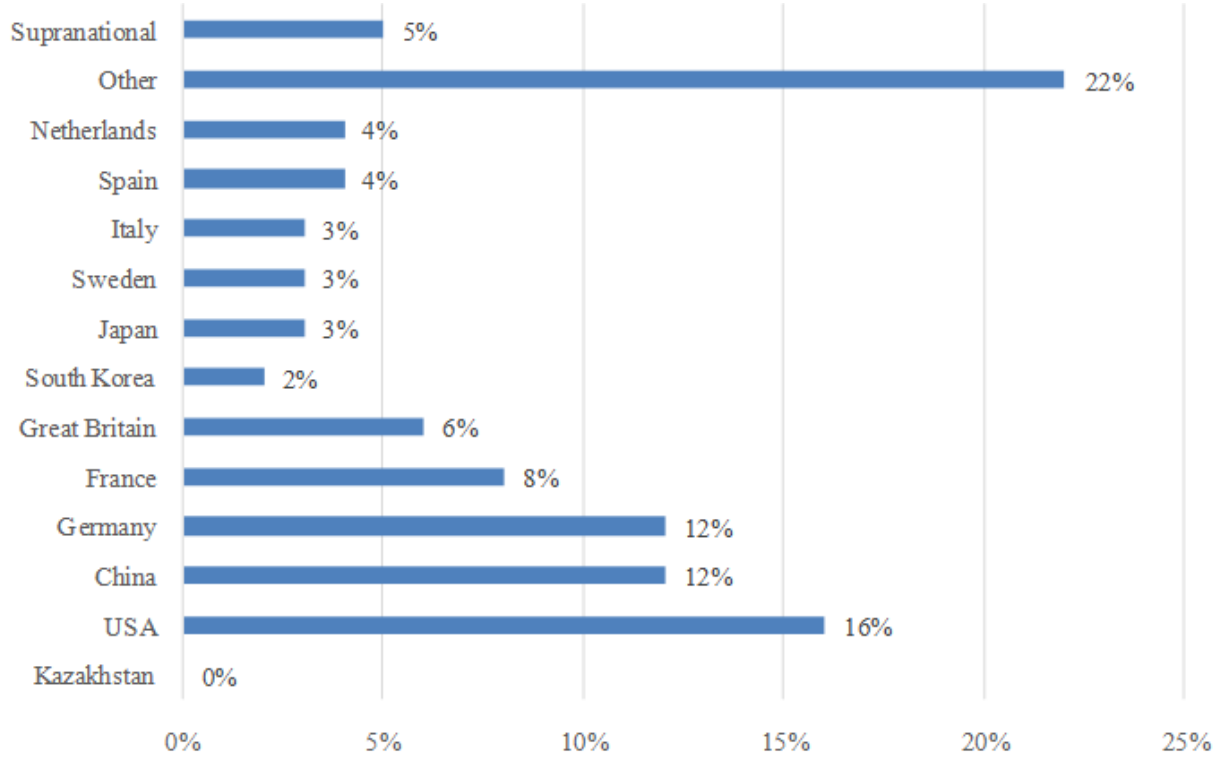

Figure 7. Annual green bond issuance volume in 2021

Source: https://www.climatebonds.net/resources/2022?field_report_type_tid=1154&field_report_language_tid=590

In 2021, the volume of placements amounted to 578.4 billion dollars, at the end of the first half of 2022 - 211 billion dollars. As of the end of the first half of 2022, the cumulative volume of green bonds issued since 2014 in the world exceeded 1.8 trillion US dollars (Figure 8).

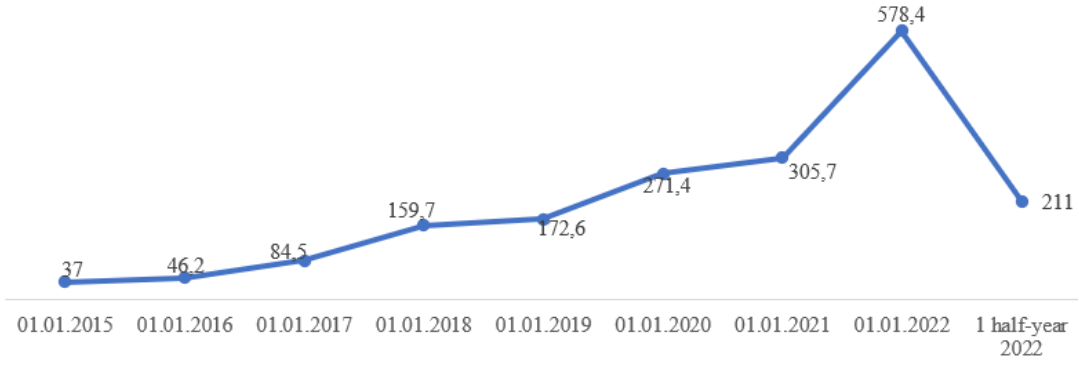

Figure 8. Volume of green bond issues in the world, billion dollars

Source: https://bondguide.moex.com/

3. APPLICATION FUNCTIONALITY

In foreign financial markets, the driver for the development of green financial instruments, as a rule, is increased demand for them from investors. Preference for green issues over similar non-green issues results in a greenium discount. In Kazakhstan, the green finance market is only at the initial stage; the

prospects for the emergence of a stable greenium depend on the subsequent actions of government authorities and other participants in this financial market. Table 3 provides information on green loans in Kazakhstan. In September 2021, the Eurasian Development Bank approved the first green loan in Kazakhstan with the full support of the CSF, within the framework of which internal documents of Batys Transit JSC were developed, including a policy in the field of green financing. The funds raised under the signed loan agreement were used by the borrower to finance the project "Construction and operation of street lighting networks in Atyrau (Environmental Code).

Table 3. Green loans in Kazakhstan

Issuer/ creditor	*Category*	*Volume, thousand tenge*	*Release date*	*Green loan recipient*	*Target*
Halyk Bank	Green loan	7900000	30.11.21	JSC "Kaz Green" Energy"	Construction of a 5 MW power plant in Karaganda region, Zhezkazgan
Development Bank Kazakhstan	Green loan	16950000	22.11.21-22.11.35		-
Eurasian Development Bank	Green loan	3600000	20.09.21	OJSC Batys Transit"	Construction and operation of street lighting networks in Atyrau

Source: https://gfc.aifc.kz/ru/

The adopted Environmental Code of the Republic of Kazakhstan, which came into force on July 1, 2021, introduces a taxonomy of green projects, provides a legislative definition of green financing, and specific tools for economic stimulation of activities aimed at environmental protection (Law of the Republic of Kazakhstan, "On the securities market"). In December 2021, a taxonomy of green projects to be financed through green bonds and loans was adopted. The taxonomy provides clear definitions of the types and technologies of green projects so that all market participants (banks, funds, investors, supervisors, users) have the same basis for defining their tasks, programs and financial products, for example the conditions for issuing green loans. In accordance with the Law of the Republic of Kazakhstan "On the Securities Market", the bond market in 2022 saw a record number of concluded transactions - 18,481, with a continuing downward trend in the average volume of one transaction. The average daily trading volume amounted to 10.2 billion tenge (on the secondary market - 4.1 billion tenge), the average daily number of transactions - 75 (on the secondary market - 67), the average volume of one transaction - 134.7 million tenge (on the secondary market - 60.4 million tenge (Table 4).

Table 4. Main indicators of trading on the bond market

Indicator	*2018*	*2019*	*2020*	*2021*	*2022*
Trading volume, billion tenge, incl.	2309,4	2715,6	2691,2	1980,8	2488,8
– primary market	1858,2	1953,7	2239,4	1143,7	1492,2
– secondary market	451,2	761,9	451,8	837,0	996,7
Number of transactions, pcs.	2203	2704	3203	8839	18481
– primary market	137	363	1033	980	1978
– secondary market	2066	2341	2170	7859	16503
Average number of transactions per day, pcs.	9	11	13	36	75
Average volume of one transaction, million tenge	1048,3	1004,3	840,2	224,1	134,7

Source: https://kase.kz/

In the context of the main categories of investors in the primary corporate bond market, the share of banks was 27.0%, broker-dealer organizations – 2.9%, other institutional investors – 11.1%, other legal entities – 58.1%, individuals – 0 ,8 %. The share of participation of non-residents was 3.5%. Let's consider the forecast values of trading volume on the bond market of the Republic of Kazakhstan, including green bonds for 2023-2026 (Figure 8).

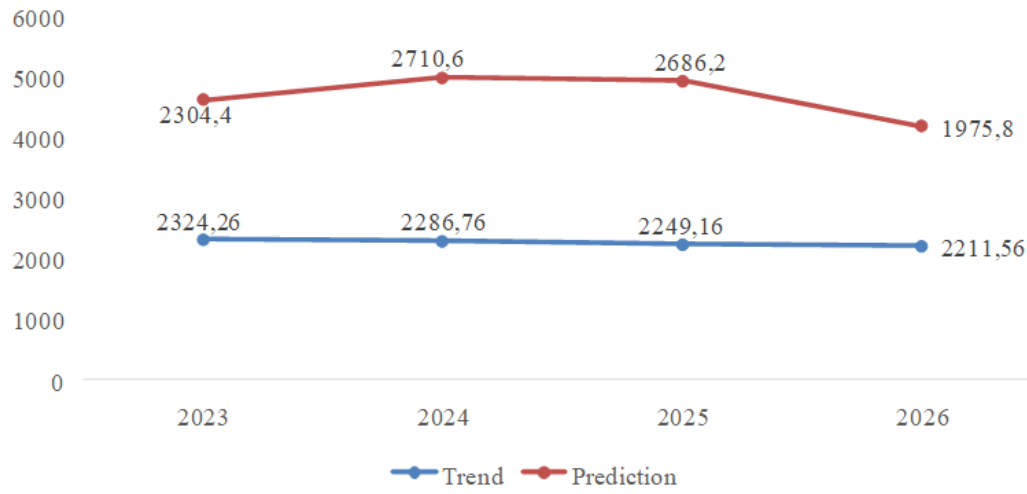

Figure 9. Forecast values of trading volume on the bond market of the Republic of Kazakhstan, including green bonds, billion tenge

Source: Compiled by the authors

The results of the regression analysis are presented in Table 5. To stimulate the growth of the bond market, including green bonds, it is important to develop transparent and attractive investment terms, actively communicate the benefits to investors and support issuers implementing green projects. Developing a green bond market may also require collaboration with international investors and financial institutions.

Table 5. Regression analysis results

CONCLUSION

Regression statistics	
Multiple R	0,1956533
R-squared	0,0382802
Normalized R-squaredт	-0,2822931
Standard error	344,08396
Observations	5

Analysis ofvariance

	df	*SS*	*MS*	*F*	*Significanceof F*
Regression	1	14137,6	14137,6	0,119412	0,752485
Residual	3	355181,3	118393,7707		
Total	4	369318,9			

	Coef ficients	*Standard error*	*t-statistic*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Y-section	78389,16	219794	0,356648259	0,744965	-621094	777871,9	-621094	777871,9
Variable X 1	-37,6	108,8089	-0,345559963	0,752485	-383,878	308,6785	-383,878	308,6785

Source: own

The slight increase in forecast trading volumes on the bond market, including green bonds, may be due to several factors:

- Lack of investor awareness and awareness - Investors may not be sufficiently aware of the benefits of green bonds, and therefore may not show sufficient interest in this instrument.
- Lack of regulatory incentives - in some cases, insufficient development of green regulation and government incentives can slow down the development of the green bond market. Effective regulation and tax incentives can help attract investors.
- Lack of supply of green bonds - if issuers (corporations, government, etc.) do not offer enough green bonds to the market, this can limit trading growth. It is important that issuers actively implement green projects and issue bonds to finance them.
- Global economic and financial conditions, such as changes in interest rates, global financial crises or geopolitical events, may influence investors' decision to participate in the bond market.
- Economic instabilities in a country or region may reduce investor interest in long-term investments, including bonds.
- Corporate and banking problems - problems with borrowers (corporations or banks) issuing bonds can impair creditworthiness and, as a result, investor interest.
- Competition with other financial instruments - investors may prefer other financial instruments, such as shares or deposits, instead of bonds, especially if they expect higher returns.

CONCLUSION

The use of advanced technologies and artificial intelligence (AI) to predict the green bond market in Kazakhstan can play an important role in promoting sustainable financial instruments and environmental goals. Artificial intelligence can be used to process and analyze a variety of data on the state of the environment, environmental trends and climate change, allowing to assess the impact of environmental factors on the green bond market and predict potential risks and opportunities.

The effective use of artificial intelligence to predict the green bond market helps attract investment in environmentally significant projects, promotes sustainable development and contributes to the achievement of Kazakhstan's environmental goals, thereby enabling investors to invest financial resources in promising green bond investment projects.

The development of the green bond market with the use of artificial intelligence contributes to sustainable development, providing a balance between financial gain and environmental care.In general, the effective use of artificial intelligence in forecasting the green bond market provides a strategic opportunity for Kazakhstan to achieve its environmental goals and attract investment in projects that promote sustainable development.

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