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DEVELOPING GREEN BOND MARKET IN UKRAINE: STRATEGIES, CHALLENGES, AND OPPORTUNITIES

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РОЗВИТОК РИНКУ ЗЕЛЕНИХ ОБЛІГАЦІЙ В УКРАЇНІ: СТРАТЕГІЇ, ВИКЛИКИ ТА МОЖЛИВОСТІ

The article examines the concept of "green" bonds and identifies the features of financing investment projects using these innovative debt instruments. An assessment of the use of green bonds within the global stock market is conducted. Studying the best practices in implementing financial engineering methods and approaches in the bond market will ensure the financing needs of structurally important investment projects, and utilize more effective opportunities for reorganizing and implementing R&D results in production. The directions for using funds accumulated through the issuance of "green" bonds are determined. It is emphasized that the potential for developing the green bond market has broad prospects within the national stock market to accumulate funds to address systemic challenges of the national economy, which have become more acute with the outbreak of hostilities in 2022. The need for issuing green bonds, especially within the energy sector, is highlighted to ensure energy security, which involves financing the tasks of rebuilding and upgrading energy networks, reducing dependence on imported energy sources, and improving energy efficiency. The results of the assessment of the potential of the Ukrainian market for energy efficiency and "clean" energy services are presented.

The preconditions for resource support of investment projects aimed at the innovative renewal and modernization of the production capacities of the national economy using green bonds are considered. The role and place of the Concept for the Introduction and Development of the Green Bond Market in the transformation and innovative renewal of the national economic system are explored. The key reasons for hindering sustainable economic development are identified, and based on these conclusions, a set of measures to support the development of the green bond market in Ukraine is specified.

Attention is given to corporate Eurobonds, which can be seen as a promising area for the development of financial instruments in the bond segment of the Ukrainian stock market, and which are currently undervalued for several reasons.

У статті розглянуто зміст категорії "зелені" облігації та визначено особливості фінансування інвестиційних проектів із використанням даних інноваційних боргових інструментів. Проведена оцінка використання зелених облігацій в рамках світового фондового ринку. Адже, вивчення використання найкращого досвіду імплементації методів та підходів фінансового інжинірингу на ринку облігаційних позик, дозволить забезпечити потребу у фінансуванні структурно важливих інвестиційних проектів, використовувати більше ефективних можливостей для реорганізації та впровадження результатів R&D на власному виробництві. Визначено напрямки використання коштів, акумульованих на базі випуску "зелених" облігацій. Наголошено, що потенціал розвитку ринку "зелених" облігацій має широкі перспективи розвитку в межах національного фондового ринку задля акумуляції коштів на вирішення системних завдань національної економіки, потреба у розв'язанні яких лише загострилось з початком військових дій у 2022 р. Виокремлено необхідність емісії "зелених" облігацій у першочергову рамках енергетичного сектору задля забезпечення умов енергетичної безпеки, що передбачає фінансування завдань з відбудови та оновлення енергетичних мереж, скорочення залежності від імпортних енергоносіїв, підвищення енергоефективності. Представлено результати оцінки потенціалу українського ринку послуг з енергоефективності та "чистої" енергетики.

Розглянуто передумови ресурсного забезпечення інвестиційних проектів з метою інноваційного оновлення та модернізації виробничих потужностей національної економіки з використанням "зелених" облігацій. Досліджено роль та місце Концепції запровадження та розвитку ринку зелених облігацій у трансформації та інноваційному оновленні національної економічної системи. Виявлено ключові причини гальмування стійкого економічного розвитку, та на базі даних висновків уточнено комплекс заходів із підтримки розвитку ринку "зелених" облігаційних позик в Україні.

Приділено увагу корпоративним єврооблігаціям, які можна розглядати як перспективний напрямок розвитку фінансових інструментів облігаційного сегменту фондового ринку України та які на даний момент часу є недооціненими з ряду причин.

Key words: green bonds, stock market, environmental benefits, investment projects, energy sector, Eurobonds, financial literacy.

Ключові слова: зелені облігації, фондовий ринок, екологічні переваги, інвестиційні проекти, енергетичний сектор, єврооблігації, фінансова грамотність.

STATEMENT OF THE PROBLEM IN A GENERAL FORM AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

The conditions of martial law required the adaptation of key strategic documents for the development of the financial market to the current challenges of the political and economic environment. In the context of the war, the strategic goals for the development of the financial market outlined in the Financial Sector Development Strategy of Ukraine [1] needed to be revised to address both the resistance to Russian aggression and the subsequent recovery of the country.

The development of the green bond market addresses two strategic directions of the Strategy, namely "macroeconomic stability" and "the financial system working towards the country's recovery". For instance, the initiative "Sustainable Public Finance" under the goal "Macroeconomic Stability" includes the development of local loan bonds, including green and social bonds, and the expansion of the range of government bonds. The initiative "Implementation of New Types and Improvement of Existing Financial Instruments" within the consideration of the financial system as a driver for post-war economic recovery includes measures to revive the corporate bond market.

The need for the development of the green bond market in Ukraine during the post-war recovery is driven by several important factors that underscore the relevance of this research, namely:

a) Green bonds can be used to finance the restoration and modernization of energy networks, as well as to reduce dependence on imported energy resources by developing renewable energy sources and enhancing energy efficiency.

b) The green bond market opens up opportunities to attract both domestic and international investors interested in environmentally responsible investments. This will contribute to economic recovery by providing the necessary financial resources for large-scale infrastructure and innovative projects.

c) The development of the green bond market in Ukraine is an important tool for ensuring sustainable economic growth, increasing energy security, protecting the environment, and rebuilding the country after the war.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

A significant contribution to the development of methodological foundations for financing environmental investment projects, in particular, in the energy sector, using green bonds belongs to the following scientists: Alfimova A. S., Vovchenko O. S., Volosiuk M. V., Dziubak K. M., Dugienko N. O., Zelenko O. O., Kozhemiachenko O. O., Kondrat I. Y., Krylova I. I., Krylov M. S., Maksymova I. I., Primostka L. O., Ratz O. M., Rudenko M. V., Stepanenko T. O., Tulchynska S. O., Khutorna M. I., Shkodina I. V., Yaroshevych N. B. However, the issue of forming a holistic set of measures to support the development of the green bond market in the context of sustainable economic development and innovative renewal of the national economic system remains open.

FORMULATION OF THE OBJECTIVES OF THE ARTICLE (TASK STATEMENT)

The purpose of the article is to study the introduction and development of the green bonds market in Ukraine, to analyse the opportunities and challenges associated with the use of green bonds to finance investment projects, and to identify measures to support the development of this market in the context of sustainable economic development and innovative renewal of the national economic system.

SUMMARY OF THE MAIN RESEARCH MATERIAL

The Cabinet of Ministers of Ukraine has approved the Concept for the Introduction and Development of the Green Bond Market in Ukraine, as defined by the relevant Order No. 175-r of 23 February 2022 [2]. In accordance with the guidelines for implementing or financing environmental projects through the issuance of green bonds, green bonds are defined as any type of bond whose proceeds will be used exclusively to finance or refinance new and/or existing eligible green projects with clear environmental benefits [3].

Among the world's countries, the US, the EU and China have issued the largest number of green bonds and the highest value (fig. 1).

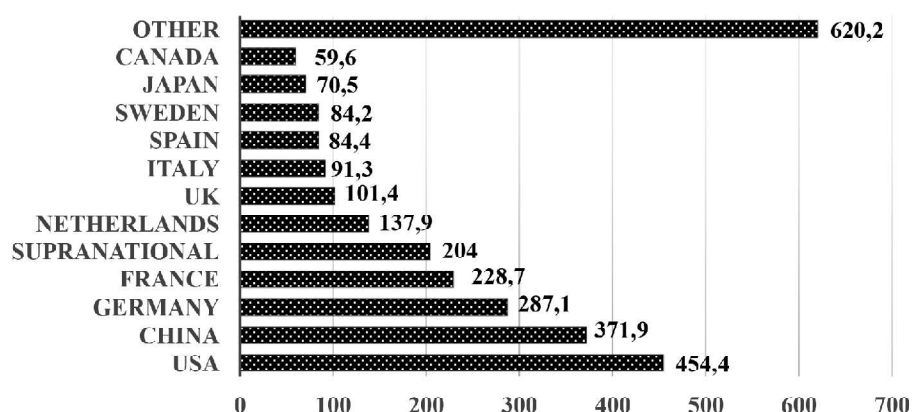


Figure 1. Regional distribution of green bond issuance by country, bn USD

Source: Built by the author based on [4].

Table 1. Distribution of green bond issuance volumes by key sectors

Sector of economy	Share, %	Issuance volume, bn USD
Energy	34,52%	965
Buildings	25,29%	707
Transport	18,67%	522
Water	7,37%	206
Waste	4,26%	119
Land Use	4,90%	137
Industry	1,04%	29
ICT	1,04%	29
Unspecified A&R	2,92%	81,6
Total	100%	2795,6

Source: Built by the author based on [4].

The areas of use of funds accumulated through the issuance of green bonds include environmental projects, namely investment and innovation activities in the following areas: alternative green energy, energy efficient technologies, household waste recycling and disposal, introduction of environmentally friendly transport, water infrastructure, and conservation and restoration of ecosystems (see Table 1).

In accordance with the defined vectors of green bonds implementation, the development of this market is seen as a complex task that arises within the framework of reforming not only the securities market, but also covers the issues of building a joint action strategy with key stakeholders involved in the development of the transport system, agriculture, industrial sector, energy system, housing and utilities, water sector, and the preservation and restoration of natural complexes.

As the consequences of the war in Ukraine are a direct threat to the country's water security (distribution of water and water-intensive products), restricted access to clean water and sanitation, destruction of water infrastructure, contamination of jet water supplies, environmental disasters, etc.

Thus, the task is to develop politically and economically balanced actions in cooperation with the main market players to introduce the use of green bonds for the transformation and innovative renewal of the national economic system.

The potential of the green bond market has broad prospects for development within the national stock market to accumulate funds to address the systemic challenges of

the national economy, the need for which has only become more acute with the outbreak of hostilities in 2022. This primarily concerns the energy sector and ensuring energy security, which involves addressing the challenges of rebuilding and upgrading energy networks, reducing dependence on imported energy, and improving energy efficiency.

In Ukraine, green bonds were first used in the energy sector. In particular, DTEK was the first Ukrainian company to issue green bonds as specialized securities for the development of renewable energy.

The concept of introducing and developing a green bond market in Ukraine systematizes the reasons for slowing down the country's sustainable economic development based on the balanced use of natural resources by two groups of actors: the public sector and business. For the Public sector:

- 1) the prevalence of resource — and energy-intensive industries and industries with a negative impact on the environment in the structure of the national economy;
- 2) physical and moral depreciation of fixed assets in all sectors of the national economy;
- 3) inefficient system of public administration in the field of environmental protection and use of natural resources;
- 4) poor control over compliance with environmental legislation;
- 5) failure of executive authorities to consider environmental impacts when drafting legislation and regulations;
- 6) insufficient funding for environmental protection measures from the state and local budgets.

For the private sector:

- 1) lack of financial resources for investment and innovative environmental modernization of production;
- 2) high cost of attracting long-term sources of financial resources to finance business investment projects;
- 3) lack of non-budgetary forms of support for financing the implementation of environmental projects.

One of the key reasons for the slowdown in sustainable economic development is the lack of financial resources, which is proposed to be addressed through the use of an innovative financial instrument for the Ukrainian stock market — "green bonds".

According to experts, before the outbreak of hostilities in February 2022, it was planned to accumulate USD 36 billion to implement green economy projects by 2030 using green bonds.

An approximate estimate of the potential of the Ukrainian energy efficiency and clean energy services market by 2030 was USD 73 billion, but the significant destruction of energy facilities as a result of missile attacks deepened the energy crisis and delayed the implementation of planned reforms in the energy sector.

Resource support for investment projects aimed at innovative renewal and modernization of the national

economy's production capacities using green bonds is provided through:

1) increasing the level of financial literacy and financial inclusion of key market participants, including both investors and entrepreneurs;

2) involvement of international players with relevant investment experience in pilot green bonds issuance projects;

3) promoting the growth of demand for green bonds from both individual investors and institutional investors, focusing on the purpose and socially important nature of the financial instruments presented;

4) rating of green bonds with the involvement of international agencies and commercial banks, which should help to improve the credit quality of securities and, in turn, attract investors;

5) placement of "green" bonds on international stock exchanges, which will contribute to the growth of the investment image of both national issuers and the state as a whole;

6) outreach activities in foreign capital markets to attract foreign investors' attention to the issue proposals of Ukrainian issuers;

Support for the development of the green bond market involves the following set of measures:

1) Removing legislative and institutional obstacles to free trade and circulation of green bonds on the secondary stock market, which will increase their liquidity.

The liquidity of bonds is directly dependent on the sustainability of investment demand and is sold in the secondary market, where conditions for the effective redistribution of securities ownership are formed on the basis of efficient securities trading.

The liquidity of the bond market affects the interest of potential investors and is determined by the following features: price stability (small spread); speed of conclusion and implementation of purchase and sale transactions; availability of effective demand from different groups of investors in the market; low transaction costs. Among the approaches used to analyze the liquidity of the securities market, scholars also propose such parameters as viscosity, depth and recovery capacity [5].

2) Clarification of priority sectors and projects that primarily require financial support through the issuance of green bonds. It is advisable to analyze the set of priority actions of the Government for 2024 to identify projects that can be used to issue green bonds [6].

3) Verification of energy efficiency and compliance with environmental standards of investment projects using green bonds in accordance with international experience in project verification. In particular, it is envisaged to establish an accreditation regime for external verifiers and appraisers of green bonds [2].

4) Establishing business relations with foreign investment funds and financial organizations to implement the best practices of foreign experience as part of building a strategy for the development of the green bond market in the structure of the Ukrainian stock market.

5) Support educational and awareness-raising activities for green bond market participants, which should be supported by coordinated actions of public authorities and self-regulatory organizations.

6) A clear division of functional responsibilities of central executive authorities involved in the implementation of the Concept for the introduction and development of the green bond market in Ukraine.

One of the important conditions for the development of the green bond market is to ensure proper conditions for the transparency of financial information on the part of issuers, since both the state and corporate segments of the national economy can issue securities. It is the standardization of approaches to financial information disclosure by issuers and the introduction of a unified system of national regulations that is the determining criterion for the transparency of stock market participants.

Thus, the Concept for the Introduction and Development of the Green Bond Market in Ukraine aims to solve a set of problems:

1) Increase the energy efficiency of enterprises in the national economy, including the reduction of fuel and energy consumption and the reduction of enterprises' dependence on energy imports;

2) Development of the Ukrainian stock market based on the implementation of the best foreign practices of developed economic systems;

3) Positive assessment of Ukraine's business and investment climate by the international community;

4) Increase the level of financial literacy of the business sector and different groups of investors;

5) Improving management approaches to minimize environmental and social risks that have a negative impact on the environment;

6) Ensure an appropriate level of guarantees for investors who place funds in green economy projects;

7) Ensuring structural restructuring and sustainable development of the national economic system on the basis of innovative renewal;

8) Promoting the implementation of strategic guidelines for the development of the national economy.

Thus, the process of forming and establishing a green bond market should be carried out simultaneously with institutional reforms in the context of developing an appropriate legal framework and ensuring sustainable economic development of the country.

In addition to green bonds, it is advisable to single out corporate Eurobonds, which can be viewed as a promising area for the development of financial instruments in the bond segment of the Ukrainian stock market and which are currently underestimated for a number of reasons.

The issuer receives a wide range of benefits from the issue of Eurobonds, namely:

1) a higher level of credit rating and reliability of the issuer, which contributes to the growth of liquidity indicators of financial instruments;

2) long-term principles of attracting borrowed resources based on the issue of bonds, which provide significant advantages in the implementation of investment projects;

3) wider opportunities to accumulate financial resources on foreign stock exchanges, due to the investment capacity of developed markets;

4) managing the debt burden;

5) reduction of the bond interest rate, which reduces the cost of borrowed resources;

6) growth of the positive image and capitalization of the corporate Eurobond issuer.

The relative disadvantages of issuing Eurobonds include the lengthy process of preparing a company to issue securities on the international market, which can take more than one year. The company's financial statements must comply with the principles of stock market transparency, which requires unification of reporting in accordance with international disclosure standards. This process involves a set of organizational and legal actions, which is also quite costly for the company. The results of audits by audit agencies should be made public. This set of measures is quite costly for the company, as it involves professional stock market participants, audit and consulting institutions.

On the one hand, the assignment of a credit rating to Eurobonds by global rating agencies underlines the company's solvency and financially stable position in the market. On the other hand, there are precedents for manipulating rating assessments, which may limit the ability to accumulate financial resources on the terms of bond issues in case of non-compliance with international disclosure standards.

Currently, Ukrainian entrepreneurs need to innovate their current operating conditions and move to qualitatively new forms of capital raising to rebuild the national economy in the post-war period. Attractive investment terms for bond issues are essential to ensure a competitive position in the national and global stock markets. In recent years, the trends of European integration and globalization of the Ukrainian financial market have been very clearly defined, which requires appropriate reform of the business environment in each of its individual segments. The use of the best practices of financial engineering methods and approaches in the bond market will help meet the need to finance structurally important investment projects, and use more effective opportunities to reorganize and implement R&D results in-house.

CONCLUSIONS AND PROSPECTS OF FURTHER INVESTIGATIONS IN THIS DIRECTION

The development and implementation of the green bond market in Ukraine present significant opportunities for addressing the systemic challenges of sustainable economic growth and post-war recovery. The study highlights the critical role of green bonds in financing environmentally beneficial projects and modernizing the national economic system.

Green bonds are pivotal in rebuilding and modernizing Ukraine's energy infrastructure, reducing dependence on imported energy, and promoting energy efficiency. The financing of projects through green bonds will contribute to ecological sustainability by supporting initiatives in alternative energy and ecosystem restoration. Promoting green bonds will enhance financial literacy among investors and entrepreneurs, fostering a more robust financial market.

The establishment of a clear and supportive regulatory environment is crucial for the successful development of the green bond market, as it ensures transparency and bolsters investor confidence.

Future research should investigate the role of technological innovation in green finance, particularly blockchain and fintech solutions, as these technologies

have the potential to enhance transparency and efficiency in the green bond market.

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