

DOI: 10.31617/1.2024(153)07

UDC 004:[339.92:336.76=111

## SHULGA Nataliya,

Doctor of Science (Economics), Professor, Head of the Department of Banking State University of Trade and Economics 19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-2010-5884

n.shulga@knu.edu.ua

## SAVLUK Serhii,

Doctor of Science (Economics), Associate Professor of the Department of Banking State University of Trade and Economics 19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-4709-6607

s.savluk@knu.edu.ua

## "ENVIRONMENTAL" VECTOR OF BANKING REGULATION: THE EU MODEL

*Ukraine is on the verge of joining the European Union, which requires, on the one hand, the transformation of the regulation of banking activity in accordance with the standards adopted by it, and on the other hand, the implementation of the concept of sustainable financing in all spheres of public life, including the banking system. Recently, a stable trend has emerged in the countries of the Euro zone, which consists in liaison of the mechanism of regulation of banks' activity to the goals of sustainable financing, which makes it necessary to do changes to the existing standard of requirements for the capital of credit institutions (CI) and to regulate its adequacy. The mentioned metamorphosis has also spread to the banks of Ukraine, which are only taking the first steps in the direction of introducing the key principles of sustainable financing into their practical work. Along with the above, in the near future the domestic banking sector may face the problem of "greening" the mechanism of regulation of their activity according to European standards, directives, regulations and guidelines. Solving this extremely difficult problem will require the*

## ШУЛЬГА Наталія,

д. е. н., професор, завідувач кафедри банківської справи Державного торговельно-економічного університету вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-2010-5884

n.shulga@knu.edu.ua

## САВЛУК Сергій,

д. е. н., доцент кафедри банківської справи Державного торговельно-економічного університету вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-4709-6607

s.savluk@knu.edu.ua

## "ЕКОЛОГІЧНИЙ" ВЕКТОР РЕГУЛЮВАННЯ ДІЯЛЬНОСТІ БАНКІВ: МОДЕЛЬ ЄС

*Україна знаходиться напередодні вступу до Європейського Союзу, що вимагає, з одного боку, трансформації вимог до регулювання банківської діяльності відповідно до прийнятих ним стандартів, а з іншого – реалізації концепції сталого фінансування в усіх сферах суспільного життя, включаючи банківську систему. Останнім часом у країнах Єврозони спостерігається чітка тенденція з приведення механізму регулювання діяльності банків до цілей сталого фінансування, що потребує внесення змін в існуючий стандарт вимог до капіталу кредитних інститутів (КІ) та регулювання його достатності. Це поширилося також на банки України, які роблять лише перші кроки у напрямку запровадження ключових засад сталого фінансування у свою практичну роботу. Поряд із зазначеним, перед вітчизняним банківським сектором найближчим часом може постати проблема щодо "екологізації" механізму регулювання їх діяльності згідно з європейськими стандартами, директивами, регламентами та настановами. Вирішення цієї надзвичайно складної проблеми вимагатиме від НБУ прийняття рішучих та*



Copyright © The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

*NBU to take decisive and, at the same time, well-balanced measures, which would not hinder the active development of investment and lending in a sustainable economy. The aim of the study is to reveal the key provisions of the regulation of banks in the EU, to determine the vectors of their change in accordance with the goals of sustainable financing, as well as to develop recommendations for the banking sector of Ukraine. In this research, methods of scientific knowledge were used, in particular: observation, theoretical generalization, abstraction, comparison, analysis and synthesis, induction and deduction. The main provisions of the Directive on capital requirements and regulation of capital adequacy of banks in the European Union are outlined. The essence of harmonious finance and the stages of its transformation in EU countries are revealed. The ecological vector of the regulation of banks' activities was considered, and the difficulties and prospects of its implementation in the banks of Ukraine were determined. A "chain" of step-by-step implementation of the NBU's "environmental" regulatory initiatives in Ukrainian banks is proposed based on the best European practices and the possibilities of their implementation in a country at war.*

*Keywords:* bank regulation, capital, sustainable financing, harmonious credit, ESG risks.

*разом з тим виважених заходів, які не завадили б активному розвитку інвестування та кредитування сталої економіки. Мета дослідження полягає у розкритті ключових положень регулювання діяльності банків в ЄС, визначенні векторів їх зміни відповідно до цілей сталого фінансування, а також розробленні рекомендацій для банківського сектора України. Використано методи наукового пізнання, зокрема: спостереження, теоретичного узагальнення, абстрагування, порівняння, аналізу і синтезу, індукції та дедукції. Викладено основні положення Директиви вимог до капіталу та регулювання достатності капіталу банків у Європейському Союзі. Розкрито сутність гармонійних фінансів та етапи їх трансформації у країнах ЄС. Розглянуто екологічний вектор регулювання діяльності банків, визначено труднощі та перспективи його впровадження у банках України. Запропоновано "ланцюжок" поетапного впровадження "екологічних" регуляторних ініціатив НБУ в банках України з огляду як найкращої європейської практики, так і можливостей їх реалізації в країні, яка перебуває в умовах війни.*

*Ключові слова:* регулювання діяльності банків, капітал, стале фінансування, гармонійний кредит, ESG-ризик.

JEL Classification: G 21, G 28

## Introduction

After the Second World Financial Crisis in 2008, banking regulation in the EU is aimed at increasing the effectiveness of the risk management system based on integrated and proactive approaches; establishing the relationship between their identification, measurement, selection of management methods, control, monitoring and buffering with banks' own capital. The financial responsibility of the owners and other stakeholders of banks for accepting excessive risk-appetite, which leads to their bankruptcy, have increased. Along with the growing requirements for regulation and supervision of the activities of banks in the contours of the new post-crisis financial architecture, in the last decade the policy of sustainable development has been actively promoted in the EU countries, which provides for the harmonization of production with nature and society, which will contribute to the transformation of the modern economy into a clean ecological system.

Ensuring sustainable development of the country requires taking into account, along with financial and operational risks, also environmental, social and governance (ESG) risks management of all business entities, including banks.

The European Central Bank (ECB), which is entrusted with the executive functions of monetary policy and direct supervision of the largest 109 banking and investment institutions registered in the member states of the European Banking Union, which account for 82% of the assets of its banking sector. The national regulators of the EU member states, which recognize the requirements of the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM) on their territory, have joined the strategy of maintaining financial stability due to the emergence of new risk factors of various origins.

The implementation of the concept of sustainable financing in the activities of credit institutions (CIs) and the ECB's introduction of new regulatory requirements for them requires, on the one hand, significant resources for their implementation, and on the other hand, there is a need for financial support for the ecologically oriented economy of countries Eurozones.

A lot of publications of foreign scientists are devoted to the problems of regulating the activities of European credit institutions. In particular, these are Oliver Wuensch, Kai Truempler, and Leticia Rubira (2023), Christos V. Gortsos (2023), Nadège Jassaud (2012). Among the numerous publications of domestic scientists on this issue, it is worth highlighting the works of Kiniv B. Yu (2015), Drachova O.V. (2023). At the same time, the paradigm of "sustainable" finance is receiving more and more attention in world scientific circles. The authors estimate that in 2023 Google Scholar will list about 17.000 publications on this topic, and for the entire period – 4.3 million. Among foreign researchers on this issue, it is appropriate to single out the scientific works of Satish Kumar et al. (2022), Muneer M. Alshater Osama F. Atayah (2023), U. Atz, T. Van Holt, Z. Liu, C Bruno (2023), among Ukrainians – Lyubich, Bortnikov (2022), Bystryakov, Klynovy (2021), for the social aspect of ESG – Savluk & Dubas (2023). However, an important scientific and practical problem remains unresolved regarding the adaptation of banking regulation to the goals of sustainable financing, the solution of which will contribute to the formation of incentives for banks to finance only those projects that involve reducing the negative impact of business entities on the environment, in particular, greenhouse gas emissions. The ECB also emphasizes the importance of solving the outlined problem, which intends to improve the regulation of banks' activities taking into account ESG risks. At the same time, it is very important to introduce such a regulatory mechanism of ESG risks, which would not create obstacles for investment and lending by banks of green technologies. Solving the dilemma of "regulating ESG risks and revitalizing the activities of banks in the contours of "sustainable" financing" is an extremely difficult task that is still unresolved.

The aim of the research is to reveal the key provisions of the regulation of banks in the EU countries, to determine the vectors of their change in accordance with the goals of sustainable financing, as well as to develop recommendations for the banking sector of Ukraine.

In the course of the research, a hypothesis was put forward regarding the need to implement the concept of sustainable financing into the regulatory mechanism of banks. In order to justify it, a study of existing developments and new initiatives regarding the regulation and supervision of the activities of banks in the EU was conducted, and the feasibility of their coordination with the ESG risk management system, which is a key determinant of sustainable financing, was proven.

In the course of the research, standards, directives, regulations and guidelines of European financial institutions, materials of the National Bank of Ukraine were used; scientific achievements of foreign and domestic scientists; various methods of scientific research, in particular theoretical generalization – in the interpretation of the Single Book of EU Financial Regulation Rules; abstraction – when identifying problems that arise in the process of implementing the concept of sustainable financing into the regulatory mechanism of banks' activities, induction and deduction – when formulating conclusions and providing recommendations.

The main part of the article consists of four interrelated sections. The first of them is devoted to the disclosure of the Directive on the capital requirements of CI. In the second, the key provisions of the capital adequacy regulation of CI are given. In the third, the essence of harmonious finance and the stages of its transformation in the EU countries are revealed. In the fourth, the environmental vector of the regulation of banks' activity is considered, the difficulties and prospects of its implementation in the banking sector of Ukraine are determined.

In order to ensure a stable and transparent EU banking sector, the European Banking Authority (EBA) has developed the Interactive Single Rulebook (2023), a key component of which is the Single Supervisory Mechanism (SSM), which is planned to be aligned with the goals of sustainable finance. In this context, it is appropriate to consider the existing documents, according to which the banks' risks and the capital to cover them are regulated in the Eurozone countries. These include: the Capital Requirements Directive (Directive 2013/36/EU) and the document on the Regulation of Capital Adequacy (Regulation (EU) No 575/2013).

## **1. Directive on bank capital requirements**

According to the Capital Requirements Directive, a number of requirements are defined.

First, the minimum amount of the bank's own funds must be EUR 5 million (in exceptional cases, from EUR 1 million); only credit institutions are allowed to collect funds from the public. In European legislation, the term "credit institutions" is more often used, which, in addition to banks, includes various types of investment companies.

Secondly, the regulatory authorities of the countries are allowed to apply a wide range of sanctions both to the CIs themselves and to the participants of the relevant financial group in case they do not comply with the capital requirements, namely: to impose fines of up to 10% of the annual profit on legal entities – owners of banks, to EUR 5 million – for natural persons and limited voting rights of shareholders who can transfer their duties to another member of the financial group; depriving shareholders of receiving dividends. Supervisory authorities may require the bank to activate a recovery plan in the event of trigger events; fine, according to the authors' calculations, for 17 types of violations, 7 of which are related to the mislead in reporting, which should be reported on the website of the regulatory body.

Thirdly, CIs should have a clear and transparent organizational structure with a focus on countering risks and an effective internal control system in accordance with the business model of their activity; effective mechanism of risk identification, management, monitoring and reporting; combine internal and external independent assessments of credit and other types of banking risk. CI employees can directly inform the regulatory authorities of their countries about undisclosed risks using dedicated communication channels.

Fourthly, CIs should form an effective and transparent management remuneration system aimed at countering risks, ensuring capital adequacy and their long-term development. In general, the reward system is presented in *Figure 1*.

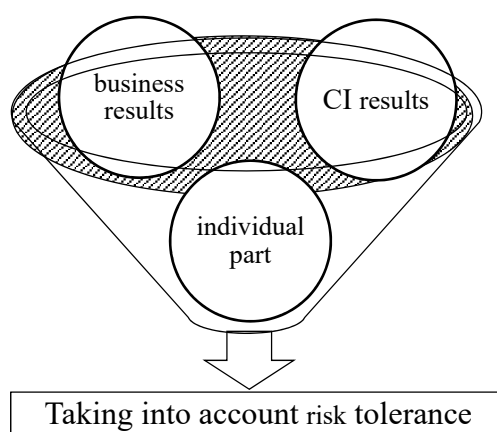


Figure 1. Reward system in credit institutions of the European Banking Union

*Source:* compiled by the authors based on (Directive 2013/36/EU, 2013).

According to the Capital Requirements Directive, certain requirements are imposed on the CI remuneration system:

- comply with the principle of gender equality;
- the remuneration procedure must be approved by the Remuneration Committee, which is established at the level of the Supervisory Board and published on the websites of CI;

- aimed at the implementation of financial and non-financial indicators, taking into account CI's tolerance for risks;
- have a fixed and variable component. The variable part of the remuneration should not be guaranteed and affect the level of capital adequacy, does not exceed the fixed part, and 50% of it should be paid in the form of shares or other capital instruments;
- take place on a multi-year basis, i.e. bonuses are not paid in the reporting or next year, but at least 40% of its total amount – based on the results of stable work over several years (4–5 years);
- provide for the obligation of CI managers to return paid bonuses or pay a significant fine in case of non-compliance with legal requirements or causing significant losses and capital loss to it. Part of the bonuses must be directed to pension funds and reimbursed to bank employees within 5 years after their retirement or dismissal.

Supervisory bodies should evaluate the effectiveness of the CI reward system, as well as receive information from it about officials who received more than EUR 1 million in bonuses per year.

Fifth, it was established that the supervision of CI activities is carried out on the basis of the SREP methodology, according to which supervisory bodies conduct inspections based on the principles of proportionality, compliance with business models, business geography, risk profile and systematicity. At the same time, the following are also taken into account: the results of stress testing, the risk of concentration; availability of clear methods and policies for risk management in CI; sufficiency of own resources to cover losses due to the occurrence of risks and liquidity buffers; level of risk management; results of assessment of the speed of transformation of assets into a liquid form based on the market situation, as well as the effect of other factors.

Sixth, in the process of evaluating CI, supervisory bodies (Supervisory examination program) are given the right to:

- increase the number of inspections;
- be present in the governing body of CI;
- oblige to provide additional reporting;
- carry out thematic inspections of significant risks;
- demand capital increase, limitation of types of risky operations and regions of CI presence;
- cancel rewards;
- limit interest payments on deposits to stakeholders;
- set increased requirements for the risk management system;
- demand the submission and activation of a plan for the restoration of banking activity;
- oblige to direct profit to capital;
- demand the formation of additional liquidity and capital buffers;
- set special requirements for liquidity standards depending on the nature of the CI business model, the quality of liquidity risk management, the

results of the SREP methodology assessment and the action of other factors that lead to the escalation of liquidity risk.

Seventh, CIs must form level 1 capital buffers (conservation, countercyclical, systemic importance, which can be combined with the systemic risk buffer according to the principle of the greatest value). The total level of capital conservation buffers can be up to 2.5% of the volume of risky assets. An individual approach to the formation of capital buffers is established depending on the results of stress testing of various types of risks in accordance with the selected CI business model, assessment of their activity according to the SREP methodology, the leverage indicator, the effectiveness of the risk management system, and the level of liquidity risk.

The Capital Requirements Directive is to some extent comparable to the Law of Ukraine "On Banks and Banking Activities", primarily in terms of legal status, but it covers a slightly different range of issues.

## **2. Key provisions of the document Regulation of Capital Adequacy**

The document is to some extent comparable with the NBU Instruction on the procedure for regulating the activities of banks in Ukraine. It includes requirements for:

- capital, taking into account standardized elements of credit, market, operational risks, leverage;
- asset concentration limits;
- standardized liquidity standards (short-term coverage and long-term funding);
- financial reporting and public disclosure of information.

CIs should form 3 levels of capital: first-level core capital (share capital and general reserve funds, possible inclusion of current profit with the permission of the supervisory body minus the amount of forecast dividends); additional capital of the first level, containing capital instruments; additional capital consisting of instruments not included in the core capital, primarily subordinated debt, as well as reserves provided for covering losses due to the occurrence of credit risk (general credit risk adjustments) in the amount of up to 1.25% of risk-weighted assets. It cannot be more than 50% of Tier 1 capital.

In order to strengthen the financial stability of banks, the introduced indicator of eligible liabilities (eligible liabilities) is a part of liabilities that are equated to capital and are not returned to depositors in the event of their bankruptcy. As estimated by the authors, their level together with the capital for systemic banks should be at least 18% of risk-weighted assets and at least 6.75% of all assets. Also, the leverage ratio is set as the ratio of first-tier capital to total assets and cannot be less than 3%.

Regulation 575/2013 set the requirements for CIs, which must disclose data on their risk management system, Internal Capital Adequacy Assessment Process (ICAAP), capital buffers, assessment of all material

risks, amounts of overdue debt. A separate block must disclose information about the remuneration system, namely: policies, reconciliation of the results of the banks' activities and the amount of remuneration paid, the ratio of fixed and variable parts of remuneration, the amount of payments in shares, non-monetary remuneration, the number of persons with remuneration over EUR 1 million, etc.

### **3. Harmonious finances and stages of their transformation in EU countries**

In June 2023, the European Commission issued Recommendation 2023/1425 of June 27, 2023 on the mobilization of finance for the transition to a sustainable economy (Commission Recommendation (EU) 2023/1425), which states that the Directive 2013/36/EU and documents regarding Regulation of Capital Adequacy 575/2013 are under review. Although the nature of this revision is not specified, it can be assumed that they will be amended in the light of Recommendations 2023/1425.

Before considering them, let's dwell on the definition of the concept of sustainable development, economy, finance, credits. Mostly, it is translated as sustainable development, economy, finance, credits. But the phrase "sustainable" (steady, stable) development is an oxymoron. In the Cambridge Dictionary (2024), sustainable, in addition to stable, is also interpreted as one that does not cause harm to the environment and can continue for a long time. One of the variants of the translation of sustainable is the word harmonious, therefore, in our opinion, it is better to use the following terms: "harmonious economy", "harmonious finance", "harmonious development" or "sustainable harmonious development", "harmonious credit".

Recommendations 2023/1425 are aimed at the implementation of harmonious finance in the development of the economy. By 2050, the EU plans to transition to a harmonious economy, to reduce greenhouse gas emissions by 55% already in this decade. The volume of investments in the harmonious development of the economy should increase by EUR 700 billion annually compared to the average similar costs in 2011–2020. The direction of greening the economy and society was also confirmed at the UN Climate Summit in Dubai, during which on December 13, 2023, almost 200 countries signed communiqué on the gradual abandonment of fossil fuels, the complete cessation of carbon dioxide emissions into the atmosphere by the middle of the century, the tripling of the number of renewable energy sources by 2030 and the reduction of methane emissions, which is more powerful than carbon dioxide (TSN, 2023).

Harmonious finance consists of 2 large parts:

- "green" finances are investments made in the development of a "green" economy, that is, friendly to the external environment (currently,



"green development" funds have already reached 116 billion (clause 24 Commission Recommendation (EU) 2023/1425);

- transitional (transition) finance is an investment in the conversion of existing harmful technologies into environmentally friendly production.

The scheme of transformation of harmonious finance over time is presented in *Figure 2*.

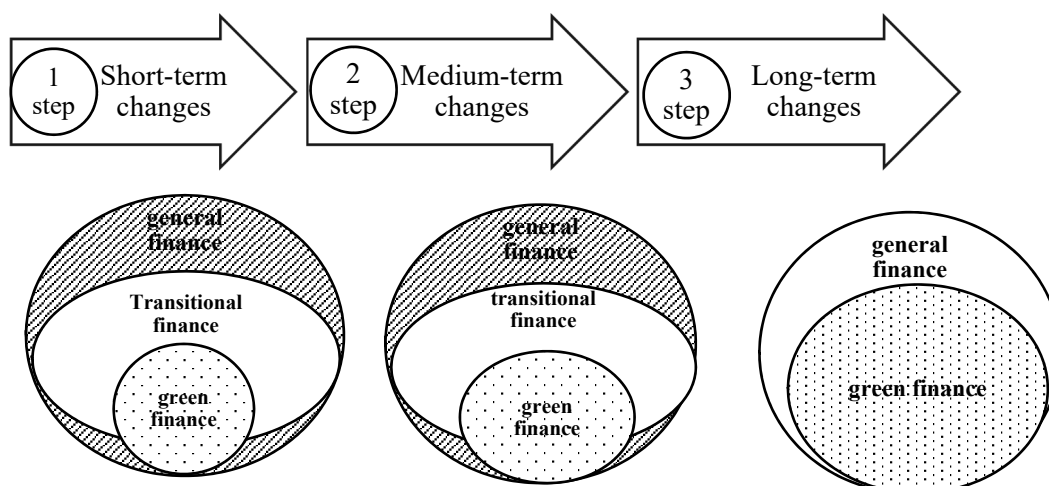


Figure 2. Stages of transformation of harmonious finance in EU countries

Source: compiled by the authors based on Commission Recommendation (EU) 2023/1425.

Large and medium-sized companies, and if possible, small ones ("economic actors" as defined in this document) must have an Activity-based transition plan, and financial institutions must provide financing for its implementation, even if their physical risks are higher traditional. The risks of financing non-environmentally friendly enterprises automatically increase due to the application of environmental fines and taxes to them and the loss of their competitive position relative to competitors that are harmonious with the external environment. The risk of non-return of ecologically inharmonious investments was called transitory.

Recommendations 2023/1425 define 4 types of harmonious finance:

- green loans, harmonious development loans, other similar types of long-term loans with a reduced rate and the possibility of their refinancing;
- European green bonds and similar debt instruments, especially for large transitional projects;
- long-term capital instruments to achieve the key parameters of the taxonomy;
- special finance: leasing of the latest equipment, structured and project finance.

An important role in the transition to a harmonious economy is assigned to the so-called ecological taxonomy. In essence, this is a universal metric for investors, which was developed in the EU back in 2018 with further improvement, in order to determine the compliance of their investments with environmental requirements and to calibrate harmonious

projects from harmful ones. The regulation on taxonomy establishes 6 environmental goals: mitigation of consequences and adaptation to climate change, rational use and protection of water and marine resources, transition to a renewable economy, prevention and control of pollution, protection and restoration of biodiversity and ecosystems (Ekolog.UA. Taxonomy EU, 2022). It is planned that the "economic actors" of the EU should fulfill the requirements of the taxonomy in 5–10 years. At the same time, banks are entrusted with the task of developing plans for their transition to environmentally friendly entrepreneurship together with clients. Starting in 2022, banks must disclose information regarding the compliance of their investments with the requirements of the taxonomy. Yes, lending risks are considered ecologically acceptable if the borrower’s activity meets the requirements of the taxonomy by more than 50%. We will consider the definition of environmentally friendly investments on the example of an energy company (*Figure 3*).

stage 1	stage 2	stage 3	stage 4	stage 5
Production structure: coal energy – 25%; hydropower – 25%; wind energy – 50%	Coal is not invested.  For hydropower plants, the emission limit is up to 100 g of CO <sub>2</sub> per 1 kW of energy.  Wind energy is not limited	Only wind energy is financed, if it is not accompanied by strong noise, composite materials are used and it is observed reducing the risk to birds	Minimal support for coal and hydropower is based on the results of independent examinations. In the process of using wind energy, compliance with eco-conventions is checked	At least 50% of the volume of electricity production must be in accordance with the taxonomy
Description	Coal power is excluded from the taxonomy, hydropower cannot be financed if the company’s compliance with the CO <sub>2</sub> limit is not clearly proven	Investor must check whether the industry meets the ecological criterion. If not, request documentation and check it	If no information is provided, the investor makes an independent assessment and provides minimal financial support	

Figure 3. An example of determining environmental investments

Source: compiled by the authors according to Report Taxonomy (2020).

#### 4. Ecological vector of bank regulation

In the course of the research, a hypothesis was put forward regarding the need to implement the concept of sustainable financing into the regulatory mechanism of banks’ activities.

Regarding the expediency of "greening" the regulation of bank activity, there are opposing positions on some of scientists and the European financial community. In particular, John H. Cochrane, a senior fellow at the Hoover Institution, expressed the opinion that financial regulation of the climate will not help, but will only further politicize central banks. The source of the next crisis will not be climate change, but other risk factors. The essence of financial regulation is to impose certain policies that will not pass through ordinary democratic lawmaking. It is impossible for some catastrophic climate-related event to trigger systemic change within the next ten years, and no hypothesis in modern science or economics describes such a development. But, if this is an ordinary fear, the only logical way to protect the financial system is a sharp increase in the amount of equity capital, because this is what protects the financial system from any risks. Identification of risks and technocratic regulation of climate investments cannot protect against unknown factors or unmodeled "tipping points" (Mind.ua, 2021).

The authors of this article do not fully share the point of view of John H. Cochrane regarding the inappropriateness of financial regulation of climatic, social and managerial risks in the banking sector, which is due to such considerations. The world community is concerned about the deterioration of the environmental situation, which has become a driver of increased risks for the normal functioning of economic entities, as well as the health of the population. The UN, international financial institutes, governments of most countries of the world, public organizations, etc., immediately responded to these challenges, which adopted a number of important documents aimed at reducing threats to the environment. Central and commercial banks have also not remained aloof from the process of supporting sustainable development. At each of these levels, a set of measures is implemented that will contribute to the formation of an ecologically clean economy through the implementation of an effective mechanism for its financing. On the other hand, at the same time, another important strategic task arises for central banks, how to create preferences or form stricter requirements for ESG risk management through regulatory procedures. Fine-tuning of the "ecological component" of the regulatory mechanism for CI is of fundamental importance. The search for a compromise solution between regulatory requirements for CI and active financing of the ecological economy turned out to be very difficult. The ECB and other international financial institutions continue to actively work on it.

The ecological vector of European development makes it possible to assume that European financial legislation will be improved in the direction of stimulating harmonious investments. Fairly high requirements for assessing ESG risks, collateral for loans, the level of equity capital taking into account buffers and other anti-risk requirements of regulators to some extent inhibit the process of banks investing significant amounts of financing in long-term environmentally friendly projects.

At the same time, for the development of harmonious lending, it is necessary to improve the risk assessment system taking into account environmental, social, and management factors, optimize the capital requirements of banks in relation to the financing of "green" projects, ensure the availability of long-term, inexpensive investment resources, and create a system of securitization of ESG risks. It is expedient to include in the incentive system of the top management of banks criteria for the harmonious development of both the CI itself and its clients, taking into account ESG risks.

In order to ensure the transparency of sustainable development in the EU countries, from 2022, CIs will form reports in accordance with the requirements of the TCFD (Task Force on Climate-Related Financial Disclosures) – an obligation to disclose "climate finance", which allows interested parties to get to know not only their environmental policy, but also to evaluate real steps regarding its practical implementation. The specified approach to reporting should also be introduced for Ukrainian banks in the post-war period.

Conducted research on the expediency and possibilities of implementing an "ecological component" in the regulation of Ukrainian banks allowed us to come to the conclusion that the simultaneous introduction of the European format of "ecological" regulation into the domestic banking sector turns out to be problematic. This is due to the lack of sufficient informational, methodical, instrumental, personnel, technical and financial support for the implementation of European developments in the activities of domestic banks. In this regard, we offer a "chain" of phased implementation of regulatory requirements taking into account the "environmental" component for Ukrainian banks.

At the first stage, it is appropriate to spread the European approach to the system of remuneration of top management for the stable work of banks. In this context it is domestic one. The National Bank of Ukraine (2023) has already developed the Regulation on remuneration policy in the bank, which was approved by the Board Resolution No. 189 of December 27, 2023, which entered into force on December 29, 2023. The NBU has updated the requirements for the remuneration policy for members of the bank's management bodies and influential persons in order to ensure their compliance with the standards of the European Union. From now on, the remuneration policy of Ukrainian banks will be aligned with EU principles of sustainable development. In our opinion, ESG factors must be taken into account in the remuneration system. For example, auditors of banks, based on the results of the assessment of their reporting according to the TCFD standard, issue a rating of A, B, C, D. If the rating is A, then the bonuses of the bank management can be increased, for example by 5%, if B – then they remain unchanged, if C – reduced by 3%, if D – reduced by 10% or not paid at all.

In authors' opinion, it would be worthwhile to introduce a methodical approach to the assessment of bank loans in view of their environmental

friendliness in the banks of Ukraine. The results of such an assessment can be translated into the correction of credit risk determined according to the NBU methodology and/or the state subsidy of environmentally friendly loans or, conversely, the taxation of "environmentally unfriendly" projects. In the process of such assessment, it is advisable to apply the "ecological traffic light" matrix in the borrower-credit format (*Figure 4*).

Borrower	"Green" borrower	The borrower fulfills the requirements of the taxonomy (+/-) 10%	The borrower does not fulfill the requirements of the taxonomy
Loan	-1%	-1%	-2% if taxonomy is performed – 5%
"Green" credit	0%	0%	+1%
Neutral credit	+1%	+2%	+5%

Figure 4. "Environmental traffic light" lending terms

Source: compiled by the authors.

The negative values shown in *Figure 4* mean a decrease in the level of credit risk/providing subsidies from the budget, and positive values mean an increase in the level of credit risk and the payment of an additional environmental fee to the budget. For example, if the borrower does not meet the requirements of the taxonomy by more than 10%, but thanks to the "green" loan will meet its general requirements, the state can compensate him with up to 5% of the loan amount, and the bank can reduce the amount of assets weighted for credit risk by 5%, which will be taken into account when calculating regulatory and core capital adequacy standards. If the borrower does not comply with the requirements of the taxonomy, but positive dynamics of its environmental indicators are observed, then the level of loan compensation due to budget funds and risk reduction will be lower, for example by 2%. In such situations, it is most appropriate to apply the exponential function, which increases the compensation and reduces the risk when the loan results approach the requirements of the taxonomy. Conversely, if the implementation of the loan project leads to the deterioration of the borrower's environmental indicators, then he pays a contribution to the budget, for example 5% of the loan amount. At the same time, the bank increases the amount of assets weighted by the borrower's credit risk by the same amount. Environmental assessments should be carried out by the banks themselves and by specially trained rating companies

that have become widespread in the world and have developed comprehensive methodologies for assessing environmental risks, such as Sustainalytics (2023).

At the same stage, with the support of the NBU, banks should develop internal regulations, rules, recommendations and other documents, according to which ESG risk management would be carried out, and conduct staff training. For banks of Ukraine, there is a need to develop: methods of quantitative measurement and qualitative characterization of ESG risks, determination of their impact on capital; methods of harmonizing the system of bonus rewards with the "greening" of granted credits, etc.

At the second stage, the NBU should develop procedures for supervising the management of ESG risks; information transparency standards in the context of sustainable financing; a single method of ESG rating.

In addition, with the direct participation of the NBU, the harmonization of the financial legislation of Ukraine with the requirements of the EU regarding sustainable financing should take place in the following areas:

- minimization of banking risks and maintaining the financial stability of the banking system and increasing the level of trust in it;
- ensuring stable financing of the economy in conditions of war and post-war recovery;
- the development of green banking and investing based on the formation of a long-term, inexpensive resource, which is problematic in conditions of high inflation, as well as the formation of a system of prudential incentives for ecological banking.

To solve these, not always one-vector, tasks, it is necessary to develop the Policy of Harmonious Finances and the Harmonious Taxonomy based on EU standards and defines the road map for their implementation in Ukraine.

At the same time, banks need to conduct internal testing of the regulations and recommendations of the National Bank of Ukraine, as well as their own efforts, based on the results of which it will be possible to identify key problems and draw a conclusion regarding the possibilities and deadline for their elimination.

At the third stage, it is expedient to introduce most of the European options for the regulation of "environmental" banking activity into the domestic banking sector, with the exception of establishing strict capital requirements. In our opinion, increasing the capital requirements of banks operating in a country at war will create additional "financial stress" in the economy, which currently needs significant investments in the revival of Ukraine's environment. In addition, in conditions of a high degree of uncertainty of the surrounding environment, it makes no sense for banks to form additional capital buffers. After all, due to the occurrence of extraordinary events (floods, hurricanes, wars, acts of terrorism, etc.), which are impossible to predict, banks' losses will be covered not only by capital, but also by all their own funds at their disposal.

**Conclusions**

As a result of the global financial crisis, European banks began an active phase of prudential reform of their risk management system. The regulatory directives adopted by the European Commission were aimed at strengthening the financial stability of CIs on the basis of increasing capital requirements, improving risk management, and increasing the transparency of their activities. Special attention was paid to the formation of the reward mechanism with an emphasis on minimizing risks and ensuring continuous activity, introducing a three-level system for assessing capital adequacy, establishing requirements for capital buffers, minimizing liquidity risk with the introduction of new regulations, starting stress testing of banks' activities, increasing the efficiency of corporate management and responsibility stakeholders for the results of CI activity.

In recent years, the European Union has taken a course to implement the main postulates of sustainable financing and minimize the negative impact of environmental risks on the environment. At the same time, excessive prudential regulation (taking into account the "ecological component") can complicate the long-term financing of the transition of the economy to harmonious development paths for nature and society. The outlined problem also faces Ukraine, to which is also added the task of uninterrupted financing of military needs and post-war reconstruction of the country. In this regard, a "chain" of step-by-step implementation of regulatory requirements, taking into account the "ecological" component for banks of Ukraine, is proposed, a list of measures recommended to be taken at the level of the Regulator and banks is defined, which will contribute to the continuous movement in the direction of the European vector of sustainable development, taking into account domestic realities

The main vectors of future research can be the development of the Bank Capital Regulation Standard taking into account the "ecological" component for banks of the Eurozone countries, as well as the methodology of "ecological" rating of industrial enterprises in Ukraine.

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ	REFERENCES
Christos, V. Gortsos (2023). The European Banking Regulation Handbook. <a href="https://link.springer.com/book/10.1007/978-3-031-32859-6">https://link.springer.com/book/10.1007/978-3-031-32859-6</a>	Christos, V. Gortsos (2023). The European Banking Regulation Handbook. <a href="https://link.springer.com/book/10.1007/978-3-031-32859-6">https://link.springer.com/book/10.1007/978-3-031-32859-6</a>
Commission Recommendation (EU) 2023/1425 of 27 June 2023 on facilitating finance for the transition to a sustainable economy. <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023H1425">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023H1425</a>	Commission Recommendation (EU) 2023/1425 of 27 June 2023 on facilitating finance for the transition to a sustainable economy. <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023H1425">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023H1425</a>
Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms. <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013L0036">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013L0036</a>	Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms. <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013L0036">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013L0036</a>
Interactive Single Rulebook (2023). European Banking Authority. <a href="https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook">https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook</a>	Interactive Single Rulebook (2023). European Banking Authority. <a href="https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook">https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook</a>

Muneer, M. Alshater Osama F. Atayah (2023). <i>Journal of Sustainable Finance and Investment: A bibliometric analysis</i> . <a href="https://www.tandfonline.com/doi/abs/10.1080/20430795.2021.1947116">https://www.tandfonline.com/doi/abs/10.1080/20430795.2021.1947116</a>	Muneer, M. Alshater Osama F. Atayah (2023). <i>Journal of Sustainable Finance and Investment: A bibliometric analysis</i> . <a href="https://www.tandfonline.com/doi/abs/10.1080/20430795.2021.1947116">https://www.tandfonline.com/doi/abs/10.1080/20430795.2021.1947116</a>
Nadège, Jassaud (2012). <i>European Union Banking Regulatory Framework and Authorities: An Overview</i> . <a href="https://www.elibrary.imf.org/display/book/9781484387665/ch016.xml">https://www.elibrary.imf.org/display/book/9781484387665/ch016.xml</a>	Nadège, Jassaud (2012). <i>European Union Banking Regulatory Framework and Authorities: An Overview</i> . <a href="https://www.elibrary.imf.org/display/book/9781484387665/ch016.xml">https://www.elibrary.imf.org/display/book/9781484387665/ch016.xml</a>
Oliver, Wuensch, Kai, Truempler, & Leticia, Rubira (2023). <i>The EU banking regulation framework and its impact on banks</i> . <a href="https://www.oliverwyman.com/our-expertise/insights/2023/jan/the-eu-banking-regulatory-framework-and-its-impact-on-banks-and-the-economy.html">https://www.oliverwyman.com/our-expertise/insights/2023/jan/the-eu-banking-regulatory-framework-and-its-impact-on-banks-and-the-economy.html</a>	Oliver, Wuensch, Kai, Truempler, & Leticia, Rubira (2023). <i>The EU banking regulation framework and its impact on banks</i> . <a href="https://www.oliverwyman.com/our-expertise/insights/2023/jan/the-eu-banking-regulatory-framework-and-its-impact-on-banks-and-the-economy.html">https://www.oliverwyman.com/our-expertise/insights/2023/jan/the-eu-banking-regulatory-framework-and-its-impact-on-banks-and-the-economy.html</a>
Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms. <a href="https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32013R0575">https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32013R0575</a>	Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms. <a href="https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32013R0575">https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32013R0575</a>
Report Taxonomy (2020). <a href="https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf">https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf</a>	Report Taxonomy (2020). <a href="https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf">https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf</a>
Sustainalytics (2023). <a href="https://www.sustainalytics.com/esg-ratings">https://www.sustainalytics.com/esg-ratings</a>	Sustainalytics (2023). <a href="https://www.sustainalytics.com/esg-ratings">https://www.sustainalytics.com/esg-ratings</a>
Satish, Kumar, Dipasha, Sharma, Sandeep, Rao, Weng, Marc Lim & Sachin, Kumar Mangla (2022). <i>Past, present, and future of sustainable finance: insights from big data analytics through machine learning of scholarly research</i> . <a href="https://link.springer.com/article/10.1007/s10479-021-04410-8">https://link.springer.com/article/10.1007/s10479-021-04410-8</a>	Satish, Kumar, Dipasha, Sharma, Sandeep, Rao, Weng, Marc Lim & Sachin, Kumar Mangla (2022). <i>Past, present, and future of sustainable finance: insights from big data analytics through machine learning of scholarly research</i> . <a href="https://link.springer.com/article/10.1007/s10479-021-04410-8">https://link.springer.com/article/10.1007/s10479-021-04410-8</a>
Savluk, S., & Dubas, A. (2023). <i>Social banking in post-war recovery</i> . <i>Scientia fructuosa</i> , 149(3), 4-16. <a href="https://doi.org/10.31617/1.2023(149)01">https://doi.org/10.31617/1.2023(149)01</a>	Savluk, S., & Dubas, A. (2023). <i>Social banking in post-war recovery</i> . <i>Scientia fructuosa</i> , 149(3), 4-16. <a href="https://doi.org/10.31617/1.2023(149)01">https://doi.org/10.31617/1.2023(149)01</a>
U. Atz, T. Van Holt, Z. Liu, C. Bruno (2023). <i>Does sustainability generate better financial performance? review, meta-analysis, and propositions</i> . <a href="https://www.tandfonline.com/doi/abs/10.1080/20430795.2022.2106934">https://www.tandfonline.com/doi/abs/10.1080/20430795.2022.2106934</a>	U. Atz, T. Van Holt, Z. Liu, C. Bruno (2023). <i>Does sustainability generate better financial performance? review, meta-analysis, and propositions</i> . <a href="https://www.tandfonline.com/doi/abs/10.1080/20430795.2022.2106934">https://www.tandfonline.com/doi/abs/10.1080/20430795.2022.2106934</a>
Бистряков, І, & Клиновий, Д.(2021). <i>Гармонізація інтересів стейкхолдерів у системі сталих фінансів. Економіка природокористування і сталий розвиток</i> , 10 (29), 30-38. <a href="https://ecops.kiev.ua/files/2021(10)%D0%96%D1%83%D1%80%D0%BD%D0%B0%D0%BB%E2%84%9610.pdf#page=31">https://ecops.kiev.ua/files/2021(10)%D0%96%D1%83%D1%80%D0%BD%D0%B0%D0%BB%E2%84%9610.pdf#page=31</a>	Bystryakov, I, & Klynovy, D. (2021). <i>Harmonization of stakeholders' interests in the system of sustainable finance. Economics of nature use and sustainable development</i> , 10 (29), 30-38. <a href="https://ecops.kiev.ua/files/2021(10)%D0%96%D1%83%D1%80%D0%BD%D0%B0%D0%BB%E2%84%9610.pdf#page=31">https://ecops.kiev.ua/files/2021(10)%D0%96%D1%83%D1%80%D0%BD%D0%B0%D0%BB%E2%84%9610.pdf#page=31</a>
Драчов, О. В. (2023). <i>ГЕНЕЗА ПРАВОВОГО РЕГУЛЮВАННЯ БАНКІВСЬКОГО РИНКУ ЄС. Актуальні проблеми права: теорія і практика</i> , 46. <a href="https://journals.snu.edu.ua/index.php/app/article/view/723">https://journals.snu.edu.ua/index.php/app/article/view/723</a>	Drachov, O. V. (2023). <i>GENESIS OF LEGAL REGULATION OF THE EU BANKING MARKET. Actual problems of law: theory and practice</i> , 46. <a href="https://journals.snu.edu.ua/index.php/app/article/view/723">https://journals.snu.edu.ua/index.php/app/article/view/723</a>
Еколог. UA. <i>Таксономія ЄС</i> (2022). <a href="https://ecolog-ua.com/news/taksonomiya-yes-chomu-vynyklo-oburennnya-shchodo-novyh-pravyl-ekologichnyh-investytsiy">https://ecolog-ua.com/news/taksonomiya-yes-chomu-vynyklo-oburennnya-shchodo-novyh-pravyl-ekologichnyh-investytsiy</a>	Ecolog UA. <i>Taxonomy of the EU</i> (2022). <a href="https://ecolog-ua.com/news/taksonomiya-yes-chomu-vynyklo-oburennnya-shchodo-novyh-pravyl-ekologichnyh-investytsiy">https://ecolog-ua.com/news/taksonomiya-yes-chomu-vynyklo-oburennnya-shchodo-novyh-pravyl-ekologichnyh-investytsiy</a>
Єрмоленко, С. Я., Бибик, С. П., & Тодор, О. Г. (2001). <i>Українська мова. Короткий тлумачний словник лінгвістичних термінів</i> . С. Я. Єрмоленко (ред). Київ: Либідь.	Yermolenko, S. Ya., Bybyk, S. P., & Todor, O. G. (2001). <i>Ukrainian language. Short explanatory dictionary of linguistic terms</i> . S. Ya. Yermolenko (Ed.). Kyiv: Lybid.



Кембриджський словник (2024). <a href="https://dictionary.cambridge.org/dictionary/sustainable">https://dictionary.cambridge.org/dictionary/sustainable</a>	Cambridge Dictionary (2024). <a href="https://dictionary.cambridge.org/dictionary/sustainable">https://dictionary.cambridge.org/dictionary/sustainable</a>
Кинів, Б.Ю. (2015). БАНКІВСЬКИЙ СОЮЗ ЄВРОПЕЙСЬКОГО СОЮЗУ: ПРАВОВІ АСПЕКТИ ОРГАНІЗАЦІЇ. <i>Науковий вісник Ужгородського національного університету</i> , 33. Т. 2. <a href="https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/4875/1.pdf">https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/4875/1.pdf</a>	Kyniv, B.Yu. (2015). BANKING UNION OF THE EUROPEAN UNION: LEGAL ASPECTS OF THE ORGANIZATION. <i>Scientific Bulletin of the Uzhhorod National University</i> , 33. Vol. 2. <a href="https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/4875/1.pdf">https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/4875/1.pdf</a>
Любич, О., & Бортніков, Г. (2022). Запровадження навчальної дисципліни з вивчення сталих фінансів у системі вищої освіти. <a href="https://er.knutd.edu.ua/bitstream/123456789/20228/1/PIONBUG_2022_P083-084.pdf">https://er.knutd.edu.ua/bitstream/123456789/20228/1/PIONBUG_2022_P083-084.pdf</a>	Lyubich, O., & Bortnikov, G. (2022). Introduction of the study discipline of sustainable finance in the system of higher education. <a href="https://er.knutd.edu.ua/bitstream/123456789/20228/1/PIONBUG_2022_P083-084.pdf">https://er.knutd.edu.ua/bitstream/123456789/20228/1/PIONBUG_2022_P083-084.pdf</a>
Mind.ua (2021). Хто винний: як впливають кліматичні зміни на фінансовий результат. <a href="https://mind.ua/publications/20229448-hto-vinnij-yak-vplivayut-klimatichni-zmini-na-finansovij-rezultat">https://mind.ua/publications/20229448-hto-vinnij-yak-vplivayut-klimatichni-zmini-na-finansovij-rezultat</a>	Mind.ua (2021). Who's to blame: how climate change affects the bottom line. <a href="https://mind.ua/publications/20229448-hto-vinnij-yak-vplivayut-klimatichni-zmini-na-finansovij-rezultat">https://mind.ua/publications/20229448-hto-vinnij-yak-vplivayut-klimatichni-zmini-na-finansovij-rezultat</a>
НБУ (2023). Політика винагороди в банках відповідатиме принципам ЄС щодо сталого розвитку. <a href="https://bank.gov.ua/ua/news/all/politika-vinagorodi-v-bankah-vidpovidatime-printsipam-yes-schodo-stalogo-rozvitku">https://bank.gov.ua/ua/news/all/politika-vinagorodi-v-bankah-vidpovidatime-printsipam-yes-schodo-stalogo-rozvitku</a>	NBU (2023). Remuneration policy in banks will comply with EU principles on sustainable development. <a href="https://bank.gov.ua/ua/news/all/politika-vinagorodi-v-bankah-vidpovidatime-printsipam-yes-schodo-stalogo-rozvitku">https://bank.gov.ua/ua/news/all/politika-vinagorodi-v-bankah-vidpovidatime-printsipam-yes-schodo-stalogo-rozvitku</a>
ТСН (2023). Початок кінця: яке важливе рішення ухвалили на кліматичному саміті ООН і як це вплине на планету. <a href="https://tsn.ua/svit/pochatok-kincyа-yake-vazhlive-rishennya-uhvalili-na-klimatichnomu-samiti-oon-i-yak-ce-vpline-na-planetu-2471026.html">https://tsn.ua/svit/pochatok-kincyа-yake-vazhlive-rishennya-uhvalili-na-klimatichnomu-samiti-oon-i-yak-ce-vpline-na-planetu-2471026.html</a>	TSN (2023). The beginning of the end: what major decision was made at the UN climate summit and how it will affect the planet. <a href="https://tsn.ua/svit/pochatok-kincyа-yake-vazhlive-rishennya-uhvalili-na-klimatichnomu-samiti-oon-i-yak-ce-vpline-na-planetu-2471026.html">https://tsn.ua/svit/pochatok-kincyа-yake-vazhlive-rishennya-uhvalili-na-klimatichnomu-samiti-oon-i-yak-ce-vpline-na-planetu-2471026.html</a>

**Conflict of interest.** The authors certify that don't they have no financial or non-financial interest in the subject matter or materials discussed in this manuscript; the authors have no association with state bodies, any organizations or commercial entities having a financial interest in or financial conflict with the subject matter or research presented in the manuscript. Given that the authors are affiliated with the institution that publishes this journal, which may cause potential conflict or suspicion of bias and therefore the final decision to publish this article (including the reviewers and editors) is made by the members of the Editorial Board who are not the employees of this institution.

The authors received no direct funding for this study.

The contribution of the authors is equal.

SHULGA N., SAVLUK S. "Environmental" vector of banking regulation: the eu model. *Scientia fructuosa*. 2024. № 1. S. 110-126. [https://doi.org/10.31617/1.2024\(153\)07](https://doi.org/10.31617/1.2024(153)07)

*Received by the editorial office 03.01.2024.*

*Received after revision 12.01.2024.*

*Accepted for printing 17.01.2024.*

*Published online 16.02.2024.*