

ASSESSMENT OF CHALLENGES AND RISKS FOR THE BANKING SECTOR IN THE TRANSITION TO A GREEN ECONOMY THROUGH A SAMPLE SURVEY²

The study aims to register the attitudes of managers and experts from banking institutions on the specifics of the green economy by identifying and assessing challenges facing the financial sector of Bulgaria, in the context of the European Green Pact, at the main stages of its implementation. The focus of the study on the financial sector is the development of the banking sector and the capital market in the context of the green transition, and the study includes an empirical study of changes in the banking sector in the transition to a green economy.

Keywords: green economy; green finance; green banking

JEL: O38; O44; Q01; Q28; Q56; Q58

1. Introduction

The banking sector has always been and remains to this day a relatively closed structure, whose representatives do not always seek to overcome this closure, even due to the fact that it is part of the national security system of any economy. In our opinion, however, some of the reasons for this are mostly psychological. For a significant part of those working in the banking sector and the institutions controlling them, internal banking relations are extremely important and confidential compared to any contacts and relationships with the “outside world”, i.e. other economic, research and other structures and “hide” in the answers with the lack of permission from those higher in the banking hierarchy. It should be noted that the representatives of the lower echelons of the banking hierarchy, e.g. at the expert level, are sufficiently candid and provide more complete information and assessment. The survey conducted showed that different banking and control institutions are characterised by different levels of openness or information “blackout”. Before the preparation of the questionnaire with questions to the respondents, a review and study of the quantitative research concerning the transition to a green economy, incl. in the banking sector (Miteva, 2017), in order to be able to prepare and refine the issues included in the study.

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This study is a kind of assessment of activities related to the adaptation of financial institutions in the transition to a green economy, risk assessment of environmental and climate change banks, the regulation and control of these processes.

The study aims to register the attitudes of managers and experts from banking institutions on the specifics of the green economy by identifying and assessing challenges facing the financial sector of Bulgaria, in the context of the European Green Pact, at the main stages of its implementation. The focus of the study on the financial sector is the development of the banking sector and the capital market in the context of the green transition, and the study includes an empirical study of changes in the banking sector in the transition to a green economy.

In this regard, the broader objective of this research is to determine the role of greening in the modern financial system, as seen through the eyes of the Bulgarian financiers participating in the survey, with a view to solving two complex aspects of the global environmental problem:

- on the one hand, this is the financial-economic aspect, where global imbalances and negative financial effects of the cross-border movement of capital flows can be highlighted;
- on the other hand – natural resources, climate and ecological problems.

At the beginning of the century, two important events took place in the history of the modern world financial system, which determined new trends in its development and laid the foundation for all subsequent processes in international economic relations. The first such significant and intrasystemic factor was the global financial and economic crisis, which had a negative impact on the global financial system (2008-2009). The second event – the global financial reforms initiated by the G-20, which were initially an external response to the global financial and economic crisis, marking the beginning of a transformational “wave” throughout the system. Today, the challenges are even greater in connection with the outbreak of the pandemic and a new financial and economic crisis since the beginning of the current decade. Despite their very good liquidity, banks refrain from credit due to the high risk arising from the low level of capital and assets of the Bulgarian companies (Moravenov, 2021, p. 283).

2. Materials and Methods

An attempt has been made within the study to focus on the evaluation and regulation of these processes.

In accordance with the goals and objectives of the research, the survey has the following instrumental and cognitive goals:

- To identify the main problems faced by banking institutions in implementing the transition to a green economy;

- To register the attitudes and readiness of the representatives of the banking institutions for successful inclusion in the campaigns in favour of cleaner nature, incl. expanding the share of the green loan portfolio and increasing support for carbon reduction investments;
- To assess the institutional and regulatory environment regarding the changes in the banking regulations related to the criteria in the financial sector for the financing of “green” projects in the transition to a green economy;
- To establish the extent to which the positive experience in the formation and implementation of the so-called “green finance” and “green banking” in the banking sector of Bulgaria has been adapted in view of the emerging prospects for the development of the concept of the green economy.

In particular, the object of the study are the banks operating on the territory of the Republic of Bulgaria (Table 1).

Table 1

Distribution of banks (by groups as of November 30, 2021)

First group	Second group	Third group
Unicredit Bulbank	Raiffeisen bank (Bulgaria)	ING Bank-Sofia Branch
DSK bank	Central Cooperative Bank	Citi Bank Europe-Bulgaria Branch
UBB bank	Allianz Bank Bulgaria	BNP Pariba Personal Finance S.A-Bulgaria Branch
Eurobank Bulgaria	Bulgarian Development Bank	BNP Pariba S.A- Sofia Branch
First Investment Bank	Procredit Bank Bulgaria	T.C Ziraat Bankasi- Sofia Branch
	Investbank	Varengold Bank AG- Sofia Branch
	Municipality Bank	Bigbank AS-Bulgaria branch.
	Bulgarian American Credit Bank	
	International Asset Bank	
	TBI Bank	
	DBank	
	Texim Bank	
	Tokuda Bank	

Source: Own Source.

For the purposes of the study, the updated version of the list of banks and control and supervisory institutions was used (adjusted as of November 30, 2021).

On this basis, a two-stage nesting sample with a volume of 50 units (50 respondents from the banks listed in Table 1. It was constructed, ensuring representativeness for all surveyed units in the community.

The collection of information was carried out by the method of the survey. First, a preliminary desk study of the state of the institutional units and the available institutional and statistical sources was made, after which, for the purposes of field collection of primary empirical information, a questionnaire was developed, which is structured in one version:

- Consultation among the management staff, including directors of directorates and heads of departments, and experts from banking institutions, etc.

Thematically, the questionnaire is structured so as to gather empirical information on all issues of interest to the researcher, incl. and for future analysis and research. The questionnaire contains a total of 95 variables.

The collection of primary information itself was carried out in the period December – January 2021/2022, on the territory of the Republic of Bulgaria:

The collected empirical information was processed with the help of the program for statistical and mathematical analysis of data from sociological research SPSS.

The obtained one-dimensional zero distribution and the subsequent statistical-mathematical analyses are the basis for the following exposition. All research materials can be used for subsequent secondary analyses at the discretion of the author or other assignors.

3. Results

The place of work and the place where the respondents perform their main activity (the respective group, according to the BNB classification) are one of the main observed indicators. The survey data (Figure 1). Show that according to the place of their main activity, the persons are distributed as follows:

- 36% of the surveyed bank employees/managers work in the banks of the first group (the 5 largest banks according to their assets);
- 48% are employed in the banking institutions of the second group (including 13 banks);
- 16% are employed in the third group, which includes branches of foreign banks in Bulgaria.

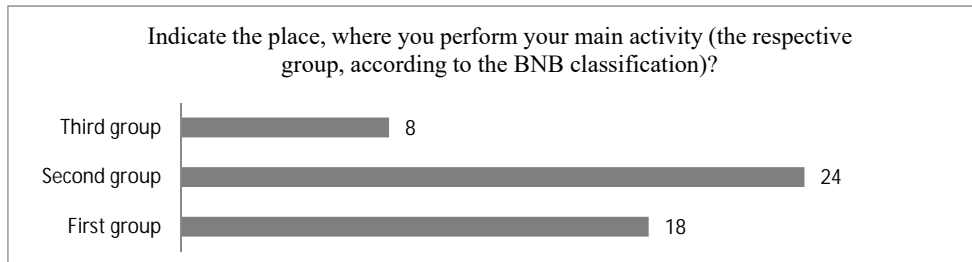
The picture of the social and labour status of the surveyed units is presented in Figure 2. The data allow us to conclude that the surveyed persons represent proportional shares of the actual hierarchical structure of the banking institutions.

- 30% are experts;
- 22% are directors of directorates;
- 28% are heads of departments;
- 20% are people from the management staff.

The structure of the statuses thus established is a good precondition for performing the analysis, as sufficient accuracy of the sample is guaranteed. This means that the results obtained in the study can be extrapolated to the whole population. Accordingly, the conclusions and findings are valid for the whole population and present the opinions, assessments and expectations of all units constituting the general population.

Figure 1

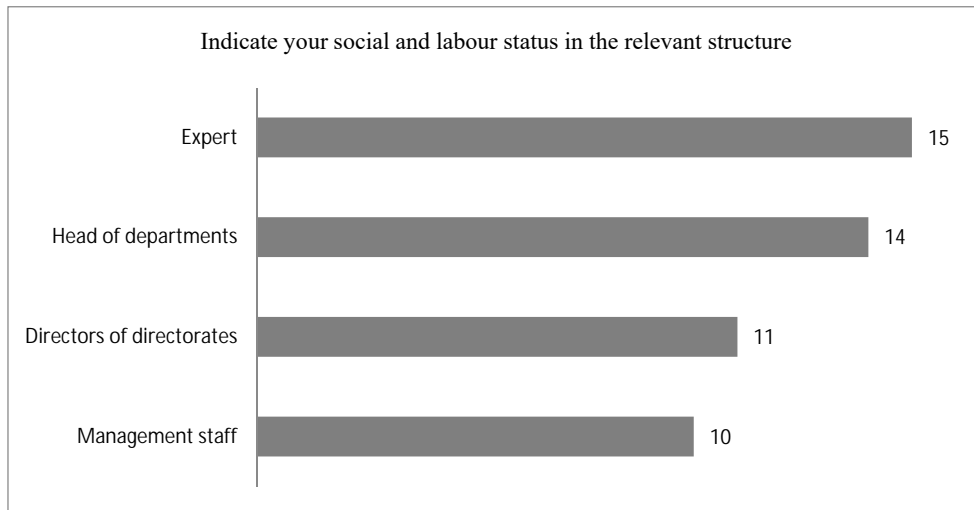
Place of performance of the main activity (the respective group, according to the BNB classification)



Source: Own Source.

Figure 2

Social and labor status in the respective administrative hierarchy of a given banking institution



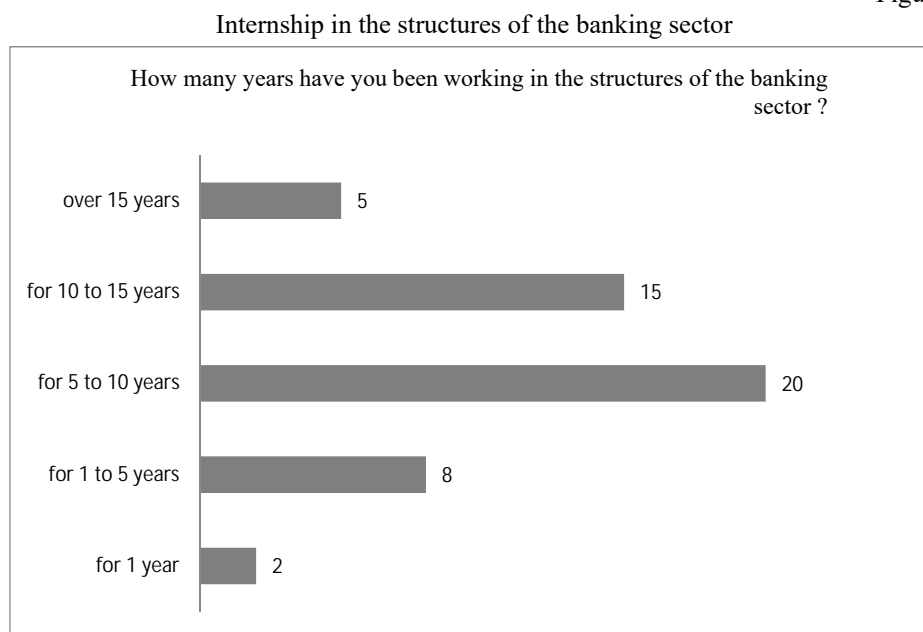
Source: Own Source.

An additional guarantee for the relevance of the collected information and the subsequent analyses and findings regarding the processes of implementation of the so-called “green finance” and “green banking” in the banking sector of Bulgaria is the fact that the study covers individuals with extensive life experience and many years of work in banking structures and supervisory and supervisory institutions. The individuals were asked to indicate how many years they have been working in the banking sector. The aim of this question was to establish the degree of objective predisposition to know the socio-economic agenda of the processes of transformation in the banking sector, including the processes of realisation of the so-called “green finance” and “green banking” in the banking sector of Bulgaria and around the world. Generally speaking, the preliminary hypothesis of the study was that respondents with more years of experience would know in more detail the socio-

economic aspects of the studied processes, respectively. the situation and the problems, and will be able to introduce the element of comparability in their assessments.

The data show that among the respondents from banking institutions, those with many years of experience and experience (over 5 years) predominate – a total of 80% of them have experience over 5 years. 16% of the respondents have between 1 and 5 years of experience, and 4% of the respondents have up to 1 year of experience.

Figure 3



Source: Own Source.

Usually, processes and phenomena with an ecological orientation are denoted by the term “green”. When these processes and phenomena are related to economic life, we talk about the so-called “green” economy, taking into account the fact that it is a sustainable economy that improves the quality of life for all people within the ecological limits of our planet (Green Economy Coalition, 2011). Green projects are implemented to protect the environment, reduce pollution and improve resource efficiency. Investing in environmentally friendly and resource-saving technologies is conventionally called “green” investments, and financing activities that provide environmental benefits to society is called “green” financing. In this way, it is possible to define the general term “green” finance.

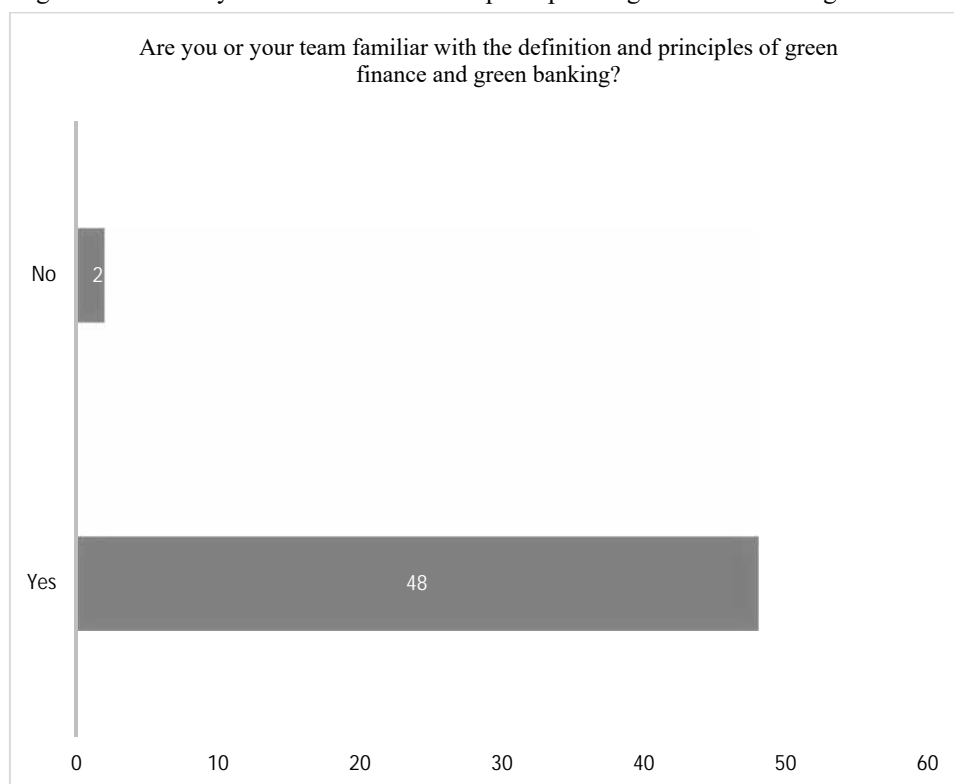
“Green” financing is a set of relations in connection with the formation of monetary funds and their use in order to ensure ecologically sustainable development.

Currently, the development concepts of most countries in the world include the formation and maintenance of a “green” financial system, the purpose of which is to combine public and private financial resources for the implementation of economic activities that are aimed

at protecting the environment, mitigating the effects of change of the climate and more efficient use of resources.

In this sense, the question of whether the respondents are familiar with the definition and principles of green finance and green banking is reasonable. The affirmative answer to this question by 96% of respondents allows for objectivity and adequacy of all other questions related to these processes.

Figure 4
Degree of familiarity with the definition and principles of green finance and green banking



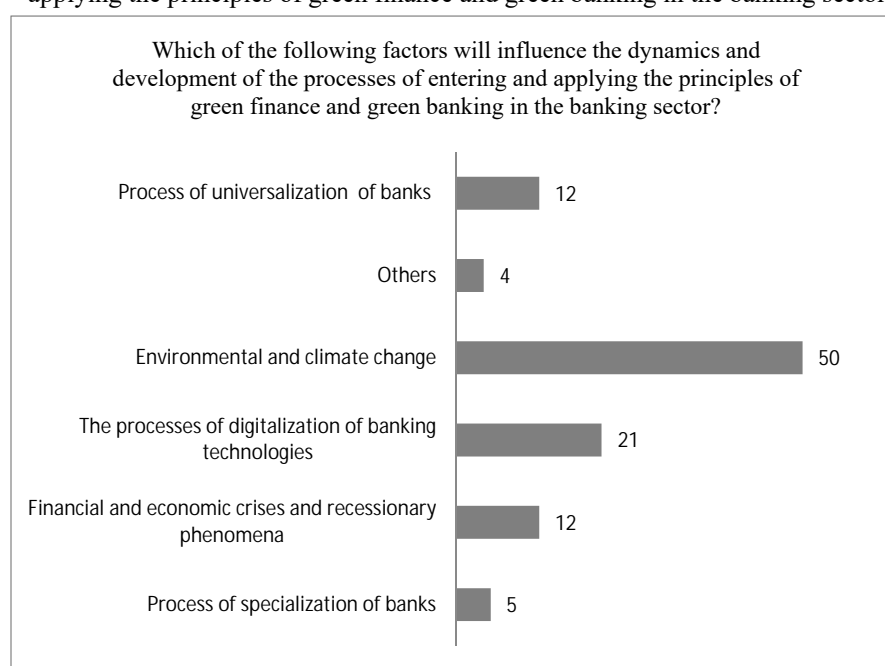
Source: Own Source.

The question of the factors influencing the dynamics and development of the processes of entering and applying the principles of green finance and green banking in the banking sector is extremely interesting (Figure 5). The vast majority of respondents share that economic changes and trends in the world economy, incl. and in the banking sector they are a factor for catalysing and reorienting banking technologies to green banking and financing. The process of universalisation of banks is mentioned by 24% of respondents as such a factor. Another 10% noted the factor “specialisation of banks”. Financial and economic crises and recessions are the basis of the orientation towards green finance and banking, in the opinion of 24% of respondents, and another 42% cite “banking digitalisation processes” as such a factor.

However, when it comes to the role of environmental and climate change, everyone is unanimous – 100% of respondents believe that this is the main factor influencing the dynamics and development of the processes of entering and applying the principles of green finance and green banking in the banking sector.

Figure 5

Factors influencing the dynamics and development of the processes of entering and applying the principles of green finance and green banking in the banking sector



Source: Own Source.

There are four respondents who indicate other factors influencing the dynamics and development of the processes of entering and applying the principles of green finance and green banking in the banking sector, which can be summarised in two main areas:

- First, some believe that many countries use a range of measures to address environmental issues, such as government subsidies and fiscal incentives, and take appropriate legislative initiatives that contribute to the transition to sustainable development models. These actions have a significant contribution to the development of the green economy and create additional opportunities in the financial sector for private and public actors;
- Secondly, these are the regulatory framework that is being created at a national and supranational level in relation to the development of sustainable and green finances. This is especially true in the EU, where a common classification system has been introduced to encourage private investment in sustainable growth and contribute to building a climate-neutral economy. A regulation defining the pan-European classification system

has been adopted taxonomy³ which will provide businesses and investors with a common terminology for identifying those economic activities that are considered environmentally sustainable (EU TEG group 2020).

However, it should be taken into account the fact that the analysis of the impact of European policies through European funds shows that absolutely all of them have an indirect effect, incl. regarding the green economy and green finance, because in one way or another, they influence employers, the workforce, labour productivity, etc. Moreover, the main goal of European funds is to complement national policies (Angelov, 2015, pp. 88-89).

In Bulgaria, “green banking” is at an early stage of its formation. In this position settings are created at a national and corporate level. The environment and its protection has been a leading topic around the world for several years. Both globally and in our country, many individual and joint efforts are made to use the use of plastic, to get out of cars and live more environmentally friendly, to use environmentally friendly chemicals, to use energy-saving household appliances, etc. The banking sector is also successfully involved in campaigns in favour of cleaner nature. In recent years, there has been an increase in the share of the green loan portfolio and increased support for investments to reduce carbon emissions. Companies that make such investments are representatives of all industries and invest in new machinery, improved building stock, invest in waste management, electric vehicles, photovoltaics and organic farming.

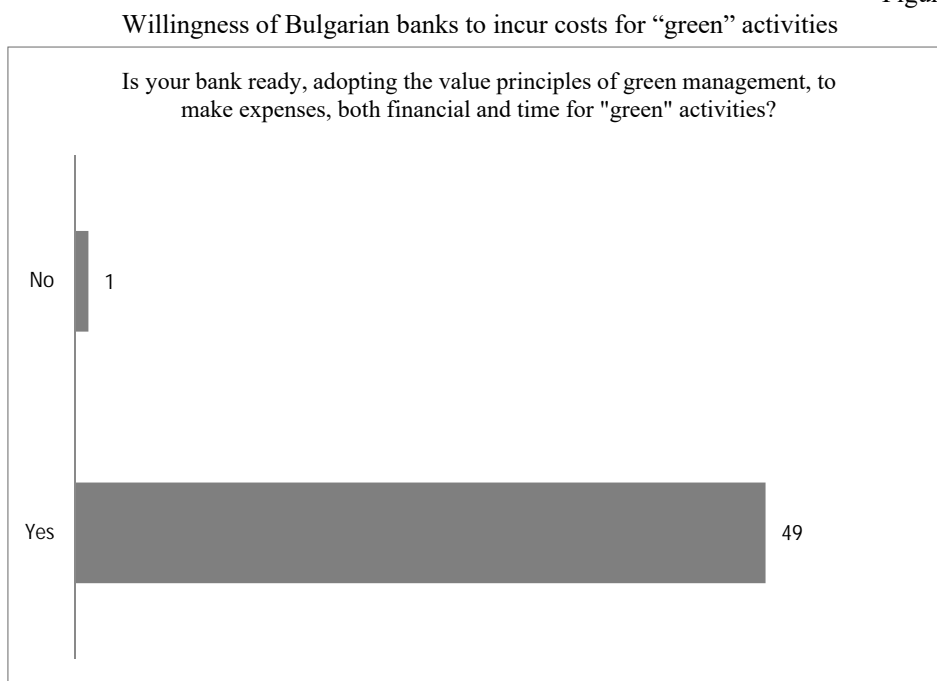
The financing of green and ecological projects has accelerated significantly in recent years. The proof of this is the disbursements for hundreds of millions of euros from the leading banks in Bulgaria. Their focus is on the global trends in this area. At the regional conference for renewable energy RE-Source Southeast, which was reported in “Sofia Tech Park”, it was stated that our profitability is several times higher than in other countries in this sphere. Therefore, the topic of green energy and energy efficiency occupies a central place in the National Plan for regeneration and sustainability. The Electric Power System Operator points out that only ESO, for example, must allow for the possibility of combining more than 4,500 megawatts of green plants at the front of the building. Details of the trends to accelerate the “green” financing and the activities of two of the main banks of the Bulgarian reserve.

In this regard, Bulgarian banks are ready to make both financial and time expenditures to finance the green transition of the economy, adopting the value principles of green management. Almost 98% of the respondents expressed this readiness, with only one representative of a banking institution answering negatively (Figure 6). This is probably due to the fact that he is at the lowest hierarchical level of the bank and is not familiar with the dynamics and development of the processes of entering and applying the principles of green

³ The taxonomy will enable investors to refocus their investments on more sustainable technologies and economic activities. It will help the EU to become climate-neutral by 2050 and achieve the goals of the Paris Agreement for 2030. These goals include a 40% reduction in greenhouse gas emissions, which the Commission believes the EU needs to meet. there is a shortage of investments of around 180 billion EUR a year. The taxonomy on climate change mitigation and adaptation is already in place. For the other four purposes, the taxonomy should be implemented by the end of 2022.

finance and green banking in the banking sector, specifically in the bank where he works, as the other two respondents from the same banking institution gave an affirmative answer.

Figure 6



Source: Own Source

The general conclusion is that after the Bulgarian companies, incl. Bulgarian small and medium enterprises (SMEs) are motivated to participate in a green and sustainable transition of the economy, the financial system is the one without which there is no way to direct resources to green projects. This is a new niche in the banking sector that banks will focus on and use to expand their portfolios.

The observed trend of globalisation of “green” finance is often associated with the so-called greening of the international financial system. This implies that appropriate “green” institutions and instruments will be built into each component of the system and that the necessary financial infrastructure will be created. In our opinion, however, it is fair to talk about the emergence of a global market for “green” financial instruments as a new component of the international financial system, associated with the stage of systemic transformation.

Characteristic of this global financial market are its bilaterally binding parameters:

- 1) Ensuring mutual penetration between all components of the international financial system (as the global market for green financial instruments combines different types of financial instruments);

- 2) Close interaction between the financial and real sectors of the world economy through the implementation of “green” projects and programs.

The costs of transforming the transition to the global use of green finance are considered low, as it is not a matter of creating fundamentally new financial instruments and institutions in technical terms, but of adding a “green” component to the structure of issued financial products, through which their new quality is produced.

Therefore, the readiness of Bulgarian banks to use the instruments of green financing in their activities is of interest (Figure 6). In terms of time, green finance and banking instruments do not have a long history.

One of the most common green finance instruments is climate or environmental/green bonds. In issuing these securities, in addition to the basic characteristics such as coupon income, price, and maturity, the environmental assessment of the project is taken into account.

“Green” bonds are an innovative financial instrument aimed at providing financial support for the implementation of environmental programs and projects.

The structure, risks and repayment of green bonds are almost the same as traditional bonds, but the proceeds are spent exclusively on the implementation of green projects. Issuers of “green” bonds can be not only corporations and financial institutions, but also the state, which carries out a strategic issue of bonds to ensure liquidity in the market and attract investors. For these purposes, “green” sovereign, municipal bonds, as well as bonds of development institutions, can be issued.

The first issue of green bonds was carried out by the World Bank in 2007. As this segment of the financial market has developed, the Green Bonds Principles have been developed, which are accepted benchmarks that are followed in most countries. Compliance with these principles guarantees investors that the issuer meets certain standards and allocates funds from the issue of bonds specifically for environmental protection projects. In addition, there are national rules that legislate the criteria for classifying bonds as green.

The Climate Bond Initiative was established in 2009 to unify and standardise the issuance of climate bonds (Climate Bond Initiative n.d). If initially the issue of climate bonds was aimed at financing projects related to climate change, later, this list was expanded to include various environmental projects. In September 2016, the Luxembourg Stock Exchange (LuxSE) created the world’s first trading platform for companies investing in environmental and environmental projects – the Luxembourg Green Exchange (LGX) (bonds worth 63 billion euros traded on LGX Euro in 12 months). (Green Bonds: Country Experiences, Barriers and Options, 2016; Global Progress Report February 2018, International Finance Corporation, 2018).

Areas of financing through the issuance of green bonds include transport, agriculture and forestry, construction and industry, waste management and recycling, energy, water resources and other border industries. Among the most popular investment areas are projects aimed at the development of alternative energy sources, low-carbon transport and energy efficiency (Frolova, 2020, pp. 43-48).

Interestingly, despite the underdeveloped green bond market in Bulgaria, 44% of respondents said that Bulgarian banks would use this instrument of green finance – “climate or environmental/green bonds” (Figure 6).

One of the most important components of the developing global financial market is the emerging “green” banking system, which is gradually emerging as a multi-level “network” of financial intermediaries, including, on the one hand, created from scratch (but not on production and organizationally, and functionally) global, regional and national green and development banks, and on the other hand, separate eco-financing units set up within existing commercial and green development banks (Establishing China’s Green Financial System, 2015, pp. 13-15).

The development of the green bond market led to the emergence of another special financial instrument – the green loan. This is a loan of any type provided exclusively for the financing of “green” projects that meet the established requirements. The Credit Market Association has issued the Green Lending Principles, the purpose of which is to create a unified system of standards to maintain the integrity of the green loan market. Green lending is not only lending to corporations for green investments. It also includes mortgages for personal housing, auto loans, the issuance and maintenance of “green” credit cards, as well as “green” leasing.

According to international estimates, the total volume of syndicated loans maturing (closing date) in 2014 – early 2015, serving “green” projects, amounts to 82% of the total number of such loans and only 15% (or 164.7 billion dollars in absolute terms) of the total amount of allocated funds. (Green Finance: A Bottom-up Approach to Track Existing Flows, 2016).

In Bulgaria, according to 28% of respondents, Bulgarian banks would use this instrument of green financing – “green lending”, including green mortgages (Figure 6).

But it should be borne in mind that According to the G20 Green Finance Process Working Group, only 5-10% of bank loans in a small number of countries can be classified as green (G20 Green Finance Synthesis Report, 2016, p. 6).

The third important tool for green finance is green investment accounts and green investment portfolios.

If we look at the corporate sector, there is more than one investment platform in the financial world specialising in sustainable projects. For example, the American platform EarthFolio offers investors to form portfolios that have a social, managerial or environmental focus (The Good Trade [online], n.d). Open Invest Investment Corporation also works in the field of responsible investing. To work on the electronic platform OpenInvest, the investor only needs to open a brokerage account, transfer funds there and indicate the areas of investment (environmental protection, social equality, etc.). The formation of the investment portfolio and its management is carried out by financial advisers through the technical capabilities offered by the platform (OpenInvest, [online]).

At most, 72% of the respondents from the banking sector indicated that Bulgarian banks would use this instrument of green financing – green investment accounts and green

investment portfolios, the lowest score as ready for use by all green financial instruments (Figure 6).

Special applications and tools to help investors work on sustainable/green financing are part of green financing. In this regard, when evaluating green/sustainable projects, investment banks and financial companies usually seek the help of experts in the field of sustainable financing. For example, Sustainalytics provides ratings, research and analysis in the field of environmental, social and governmental (ESG) factors. Sustainalytics offers bond issuers/borrowers the opportunity to purchase a license for their ESG rating, which facilitates the attraction of financial resources, including in the form of sustainable loans (Sustainalytics, n.d).

Recently, there has been a penetration of ESG initiatives in the fintech sector. Some banks and financial institutions offer special applications and tools to help investors navigate the market for sustainable financing. For example, the IMP + ACT Alliance has launched a special application, IMP + ACT Classification System (ICS), which allows asset managers to independently generate reports on the classification and management of ESG factors, implement strategies to reduce financial risks and contribute to achieving of the UN Sustainable Development Goals (Finextra, 2020 [online]).

Special applications and tools to help investors work on sustainable/green finance as part of green finance are also in the sights of Bulgarian bankers. 36% of the surveyed bank employees at all levels expressed interest in using them in the activities of their banking institution (Figure 7).

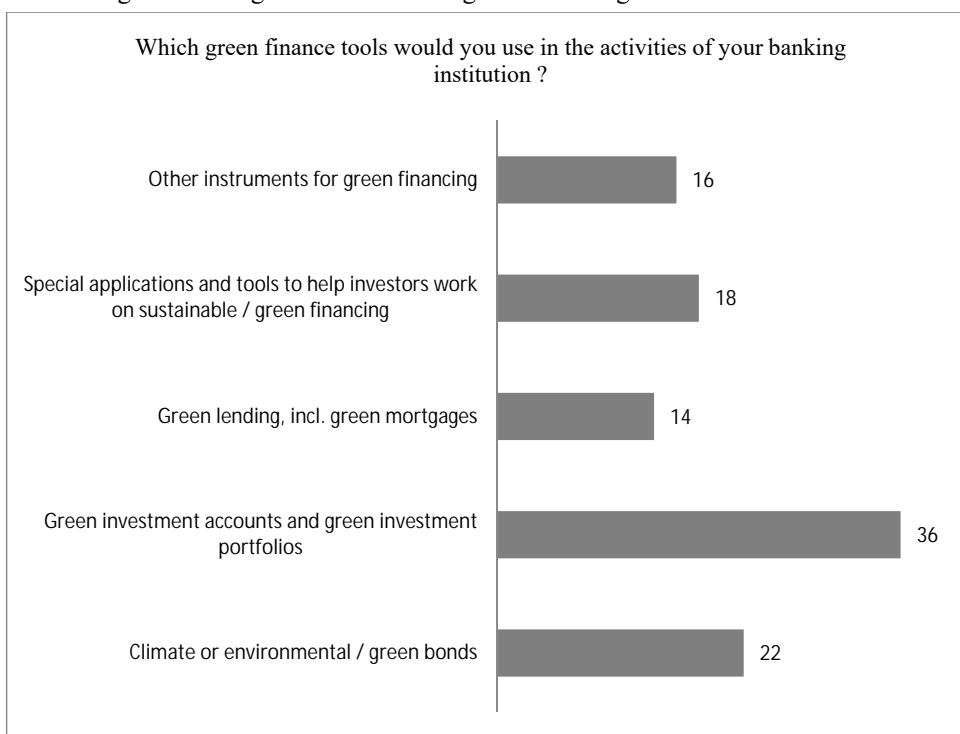
32% of respondents also indicated other green finance instruments that can be integrated into the following few instruments known in the financial markets:

- The main green stock indices of the global market for green financial instruments, which include Global Clean Energy Index Standard & Poor's (it brings together the 30 best clean energy companies in the world), NASDAQ Clean Edge Green Energy Index and FTSE Japan Green Chip 35 (Establishing China's Green Financial System: Report of The Green Finance Task Force, 2015, p. 9).
- A special role in the global market for green financial instruments is assigned to the segment of derivative financial innovations (derivatives), used mainly for hedging purposes. They mainly serve large environmental projects in the field of infrastructure, development of a low-carbon economy and energy saving. These include green asset-backed securities (green ABS, green asset-backed securities), weather derivatives, carbon futures, options and forward contracts (Establishing China's Green Financial System, 2015, pp. 9-11). The size of the analysed segment of the global market for green financial instruments, taking into account securitised financial products, is also quite modest and does not exceed 1% of the global derivatives market (Porfiryev, 2016, p. 10).
- Special bank cards also belong to green financial instruments. For example, some banks offer the issuance of a bank card (Green World) to a savings account, and when paying with this card for a certain amount spent, for example, 1,000 euros. The bank finances the planting of a tree in one of the national parks of a country. At the same time, the client receives an electronic certificate indicating the location of the planted trees.

- Green banking instruments also include digitalisation products such as the Internet and online banking. E-banking reduces paperwork, which shrinks paper consumption during transactions. Customers also visit bank branches less frequently, which affects the frequency of personal and public transport use and therefore reduces carbon emissions.

Figure 7

Willingness of Bulgarian banks to use green financing instruments in their activities



Source: Own Source

When asked which green finance instruments listed in Figure 7 you use in your bank's business, respondents indicated mainly those that gravitate around "green investment accounts and green investment portfolios" and "green loans". In summary, these answers can be classified into the following areas:

- For example, some banks offer their business customers new credit products related to transport and green energy. They are designed for micro, small and medium-sized enterprises and corporate clients in order to implement the policy of reducing the carbon footprint and investing in a sustainable future. In practice, these are:
 - Loans for the purchase of new electric vehicles with lower interest rates and a management fee, as well as the lack of a commission for early repayment with the borrower's own funds.

- Loans related to investments in the construction of photovoltaic installations for the production of electricity for sale on the free market, which have a longer term – up to 15 years and a grace period until the commissioning of the photovoltaic installation. Collateral requirements are relaxed, and in most cases, this is only the newly built photovoltaic park. Interest rates and commissions are lower than market loans for this type of loan. Another important feature is the seasonal repayment plan, consistent with the production of electricity.
- Loans also related to investments for the construction of photovoltaic installations, but for the purpose of producing electricity for own consumption and sale. The financing is up to 100% of the construction costs accepted by the bank. The repayment plan is flexible and seasonal. The maximum term of the loan is 10 years, but estimates show that at the expected market prices of electricity, with the saved electricity costs, the loan will be repaid over a period of 3 to 5 years.

In general, the answers show that some banking institutions have long focused on supporting small and medium-sized companies, including in their projects to improve energy efficiency, and in addition, offer very good conditions to any company that needs financing for a business engaged in environmental issues. At the same time, a number of banks also enable individuals to benefit from and invest in energy-efficient solutions for their homes so as to sustainably reduce their electricity costs. Even some of the respondents declare an individual approach of their bank to the clients – individuals, related to specific activities and sectors.

Some respondents said they did not support investing in environmentally friendly solutions and encouraged their customers to take further steps towards environmental friendliness by using the bank's services entirely online, which reduces its carbon footprint. In this regard, some banks also support sustainable family solutions aimed at reducing carbon emissions and increasing energy efficiency, such as buying a home in a building with a certificate of energy efficiency or installing a photovoltaic system for own consumption.

Some respondents point out that they are offering another innovative step forward in favour of nature by launching a so-called green current account for their environmentally oriented customers. The funds in this type of account are used entirely for green investments, and customers can be sure that their money is flowing into the economy in the form of financing projects with a clear and meaningful purpose. One respondent points out that along with the current green account, customers are provided with a biodegradable debit card of biological origin – made of corn, which allows the card to degrade in 6 months instead of 400 years, as this process takes ordinary plastic cards. After the validity of the card expires after 4 years, it can be composted and its decomposition will not harm nature. Moreover, the envelope in which the card reaches the customer is made of recycled paper, and with each card, the customer is provided with a cardboard package with seeds of honey plants. They can be sown in the garden or on the balcony and provide nutritious food for the bees. The account gives its customers the freedom to withdraw money from ATMs of all banks in the country free of charge, to make free payments at POS terminals in Bulgaria and abroad, as well as an unlimited number of free transfers in BGN via internet banking and many other preferential conditions for different types of loans – from overdraft to mortgage. In addition, the opening of a current green account is mainly done online, i.e. need a computer or mobile device, the

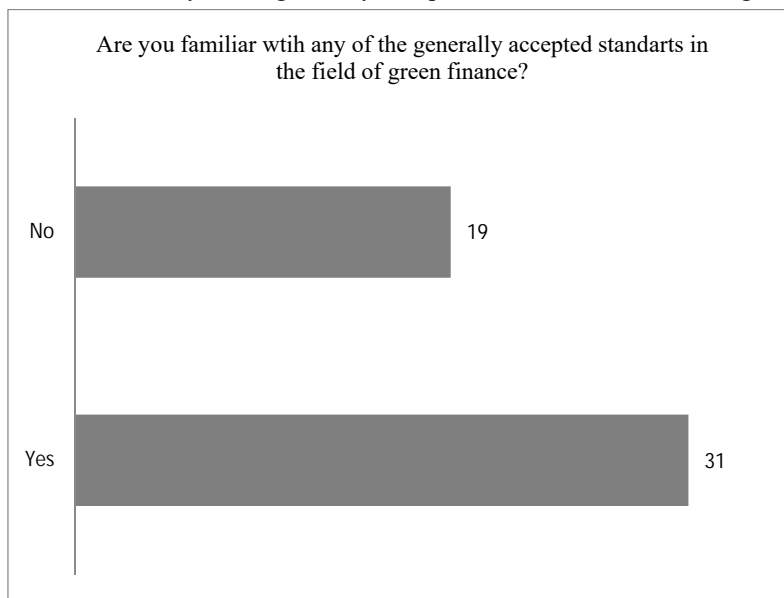
Internet, which in addition to being fast and easy, most importantly – environmentally friendly.

Respondents from almost all banking institutions declare their participation and involvement in charitable “green initiatives and projects” as part of their active, socially responsible policy related to the creation of sustainable models and solutions that change the natural environment. The purpose of such initiatives is to invest in causes that build green self-awareness, which is part of the corporate culture of banks. This provokes, once again, responsible behaviour towards natural resources, motivating as many people as possible to take conscious actions to protect the environment. According to Mastercard data from a study in 14 European countries, the pandemic in the last year has led to more consumer-oriented consumer behaviour, as well as greater interest in causes and businesses involved in sustainable development, the fight against climate change and biodiversity conservation. More than 83% of respondents confirmed that they would personally participate in actions and activities with care for nature, and 52% said that after the Covid-19 crisis, they paid attention to how their daily choices affect the health of the entire planet (Postbank, 2021).

One of the most important components of the emerging global market is the emerging “green” banking system, which is gradually emerging as a multi-level “network” of financial intermediaries, including both global, regional and national “green” banks and development banks, individual eco-finance departments set up within existing commercial banks and green development banks, as well as generally accepted standards in the field of green finance. The majority of respondents are familiar with these standards, or some of them – 62% of respondents answered in the affirmative.

Figure 8

Are you familiar with any of the generally accepted standards in the field of green finance



Source: Own Source

Not all those who answered in the affirmative whether they were familiar with the main generally accepted standards in the field of green finance indicated specific standards. The listed standards can be grouped in the following several areas:

One of the main generally accepted standards in the field of green finance is the so-called “Equator Principles” (EP), which was indicated by 12% of respondents who answered yes to the previous question. The Equator (EP) Principles are a set of recommendations for managing environmental and social risks in project financing and lending. EPs can be used for project financing, project financing consulting services, project-targeted corporate loans, bridge loans and project-targeted refinancing. These principles are based on the standards developed by the International Finance Corporation (IFC) in the field of environmental and social sustainability. In practice, this is a risk management framework adopted by financial institutions for identifying, assessing and managing environmental and social risk in project financing. Its main purpose is to ensure a minimum standard of due diligence in support of responsible risk decision-making. As of February 2019, 94 financial institutions in 37 countries have officially adopted the Equator Principles, covering most of the international debt on project financing in emerging and developed markets. The principles themselves were first published and signed by ten major banks in 2003 (the Equator Principles, officially published in Washington on June 4, 2003) and build on the existing environmental and social policy frameworks established by the International financial corporation. Subsequently, the standards are periodically updated in the International Finance Corporation’s so-called performance standards for social and environmental sustainability and in the World Bank’s Environment, Health and Safety Guidelines. The last, fourth update was made in November 2019 and became mandatory for all organisations following these principles from October 1 2020. Currently, 116 financial institutions from 37 countries have officially adapted the EP in their work. The Equator Principles apply worldwide to all sectors of industry and (within EPIII) cover four financial products:

- 1) Consultancy services for project financing;
- 2) Project financing;
- 3) Corporate loans related to projects;
- 4) Bridge loans.

The relevant thresholds and application criteria are described in detail in the Equator Principles section (UNEP, 2016).

- The second group of basic generally accepted standards in the field of green finance is related to the regulators of the European Union, which in recent years have taken a number of steps to strengthen the sustainable development of financial institutions:
 - First of all, this is indicated by 6% of respondents who answered in the affirmative to the question of familiarity with the main generally accepted standards in the field of green finance, Action Plan (EBA – Action Plan on Sustainable Finance). Adopted in December 2019 by the European Banking Authority (EBA) for sustainable financing. The main objectives of this document are:

- improving the regulatory framework to encourage financial institutions to develop in accordance with the principles of sustainability;
 - inclusion of sustainability provisions in the development and risk management strategies of financial institutions; providing regulators with the necessary set of tools to monitor and assess the social, managerial and environmental risks that financial institutions may face (EBA Action Plan on Sustainable Finance, 2019). The Action Plan contains not only the main directions of work in the field of sustainable finance, and its powers within the current legislative framework, but also a plan for the adoption of regulatory documents for sustainable finance, covering the period from the fourth quarter of 2019 to the first half of 2025. Based on this document, the EBA published a Discussion Paper on the Management and Supervision of Social, Environmental and Management Risks for Credit Institutions and Investment Firms, which describes how risks and factors for ESG can be taken into account in the regulatory framework (EBA 2020).
- Secondly, 8% of respondents answered in the affirmative to the question of familiarity with the main core standards in the field of green finance, in order to indicate the Guidance on Climate and Environmental Risks developed by the European Central Bank (ECB) environmental risks: supervisory expectations related to risk management and disclosure, the first latest version was published in November 2020. This document is of a recommendatory nature and describes the current risk management current practices, provides a classification and also reveals their impact on traditional banking risks. In particular, climate and environmental risks are divided into physical risks and transition risks. Physical risk manifests itself as a negative financial result of gradual climate change, deterioration of air quality, water quality and other environmental problems. At the same time, transitional risks may materialise in the form of financial losses for the bank as a result of taking into account the principles of economic sustainability. This may take the form of reputational risks if the bank continues to finance polluting industries, or results in an increase in the share of insolvent borrowers who are unable to pay their debts due to the rising costs of implementing new environmental standards. The ECB's management describes in detail the regulator's expectations regarding environmental and climate risk management. In particular, banks are encouraged to take into account their impact on the business environment when developing strategic and business decisions. The ECB also considers it desirable to identify those responsible for managing climate and environmental risks in the bank's internal structure, and recommends that banks collect data and generate special reports assessing the exposure to such risks and other issues. The ECB notes that banks are still not disclosing enough information on climate and environmental risks (ECB, Guide on climate-related and environmental risks (Supervisory expectations relating to risk management and disclosure), November, 2020). It should be borne in mind that, in addition to the Guidelines, the ECB also publishes the "ECB report on institutions' climate-related and environmental risk disclosures". With this report, the European Central Bank (ECB) seeks to provide a snapshot of the level of disclosure of climate and environmental change risks in the SSM (Single Supervisory Mechanism) countries. The assessment was made in light of the supervisory expectations set out in the ECB's Guide to

Climate and Environmental Risks. To this end, the comprehensiveness of climate and environmental risk disclosures were assessed for 107 significant institutions (SIs) and 18 less significant institutions (LSIs) in the reference year 2019 (ECB report on institutions' climate-related and environmental risk disclosures, 2020). Following the final publication of the Guide by the ECB on November 27 2020 (following the comments in the public consultation), the following steps have been identified:

- Banks had to conduct a self-assessment of the ECB's expectations in early 2021, which resulted in the report on "The state of climate and environmental risk management in the banking sector – Report on the supervisory review of banks' approaches to climate and environmental risk management (ECB,2021);
 - The ECB will completely review the practices of banks in 2022;
 - The next supervisory stress test in 2022 will also focus on climate risks. (ECB 2020)
- Thirdly, 12% of respondents answered in the affirmative to the question of familiarity with the main generally accepted standards in the field of green finance, said the report developed by the expert group of the European Commission (EC) "Taxonomy: Final report of the Technical Expert Group on Sustainable Finance", 2020. Significant private investment is needed for the EU to achieve climate neutrality by 2050. The EU taxonomy is designed to direct private investment to the activities needed to achieve climate neutrality. The taxonomic classification does not determine whether or not a technology will be part of the Member States' energy sources. The aim is to strengthen the transition by finding all possible solutions so that we can meet our climate goals. Based on scientific advice and current technical progress, the Commission considers that private investment should play a role in natural gas and nuclear energy activities during the transition. The selected activities in this area are in line with the EU's climate and environmental objectives and will enable us to accelerate the transition from more polluting activities, such as coal energy production, to a more climate-neutral future based mainly on renewable energy sources. In early February 2022, the EC presented an Additional Delegated Act on Climate Change under the Taxonomy Regulation, related to climate change mitigation and adaptation and covering certain activities related to natural gas and nuclear energy. In this way, additional energy economic activities are introduced into the EU taxonomy (European Commission 2022).

When asked whether they are familiar with the instruments and mechanisms of state support for green investments, whether they know those that could be used and indicate them, most of the respondents (88% of respondents) did not answer or stated that they did not become familiar with the topic.

The inevitability of state regulation of the green economy and the development of green finance is obvious. The financing of the green economy must be carried out as a matter of priority by the business itself. The task of the state is to create and implement incentive tools for the development of "green" industries, incl. green finance and banking, to discourage projects that do not fall under green priorities. In this regard, first of all, the philosophy of

taxation must be changed, since taxes perform not only fiscal functions, but through them regulate consumption and investment activity, which is related to the dynamics of economic development and the well-being of society (Iliev, 2003, p. 97). If we have to summarise the responses of the respondents who indicated certain measures (these are measures rather than instruments and mechanisms) by the state/governments in support of green investments, we can say that they largely correspond to The best world practices that exist in the field of implementation of the developed mechanisms for state support for “green” investments are as follows:

- Use of environmental taxes and fees with differentiated rates – with increased coefficients for these types of activities, which are classified as “carbon-intensive” and with preferential lower rates for the representatives of the “green” business. Environmental taxes are not only used to compensate for the damage caused to the environment by pollutant emissions, but are also an element of corrective pricing (for example, the size of a carbon tax should correspond to the social costs caused by such emissions). The Paris Agreement of the UN Framework Convention on Climate Change recommends the adoption of a tax on carbon dioxide emissions, in connection with which all countries that have signed the agreement are considering introducing it. If the tax is adopted, industries such as metallurgy, the chemical industry, transport and energy will bear a significant additional tax burden. Carbon tax revenues should be directed to the development of renewable energy and energy efficiency;
- Existence of direct state financing of investments in “green” projects;
- State guarantees are given to creditors of persons investing in “green” technologies and consist in the fact that if the investor fails to fulfil its obligation to the creditor, the state will pay the amount of the debt at the expense of the budget;
- “Green” public procurement is an informal term applied to the procurement of goods, works and services for public needs, in which, along with price, quality and availability, the environmental characteristics of the purchased product, work or service are taken into account. Thus, priority is given to producers of more environmentally friendly products or manufacturers using environmental technologies;
- Existence of direct state lending to “green” businesses;
- State subsidies for green business structures of a certain share of the costs of these loans, which provide for the implementation of “green” projects;
- Reimbursement of part of the project costs implies that the state bears some of the investor’s costs when implementing a “green” project (for example, the cost of an independent assessment of projects to obtain the status of “green”, the cost of acquiring new eco-equipment);
- Subsidisation by the state to lending institutions of part of the borrowed resource allocated for green projects;
- Risk reduction means that the state seeks to reduce the risks inherent in any investment project for “green” projects, which are classified as high-risk. Risk mitigation is being

done in a variety of ways, including scaling up green projects and securitising loans at the design stage;

- The initiation of public-private partnership projects is the formation by the state of a proposal to potential investors for the joint implementation of an investment project in the area that is a priority (for example, the introduction of environmentally friendly technologies in the industry).

54% of the respondents (Figure 9) believe that the development and strengthening of the green financial infrastructure are necessary (development of the low-carbon economy, the rating system, the “green” stock indices, the global network of institutional investors, etc.). The subject of these measures is the development of a low-carbon economy, the rating system, green stock indices, non-trading databases and cost analysis systems, and the global network of institutional investors. Examples are:

- US Carbon Efficient Index (S&P), iPath Global Carbon ETN (Barclays);
- EU Emissions Trading System (EU-ETS) – up to 3/4 of world emissions trading;
- Chicago Climate Struggle;
- Methodological approaches to UN rankings (UNEP) and Barclays;
- Investor Network of Climate Risk: established in 2003, with over 100 investors with managed assets of more than \$ 11 trillion;
- The Institutional Investor Group of Climate Change, which has been operating since 2001, has 772 investors managing assets worth over \$ 87 trillion. (Establishing China’s Green Financial System, 2015, pp. 8-13; Mapping Channels to Mobilise Institutional Investment in Sustainable Energy, 2015, pp. 45-47; Green Finance for Developing Countries: Needs, Concerns and Innovations, 2016, pp. 27-34).

40% of respondents (Figure 9) say that the development and support of specialised institutional investors (“green” development banks, funds, etc.) is a necessary measure that would stimulate the expansion of the perimeter of green finance and green banking. Examples of this are the Green Investment Bank in the UK, the practice of so-called YieldCos companies, Real estate investment trusts, and Master Limited Partnerships (MLPs).⁴ In the United States, the market niche of these institutions exceeds \$ 1 trillion. (Establishing China’s Green Financial System, 2015, pp. 8-13; Mapping Channels to Mobilise Institutional Investment in Sustainable Energy, 2015, pp. 45-47; Green Finance for Developing Countries: Needs, Concerns and Innovations, 2016, pp. 27-34).

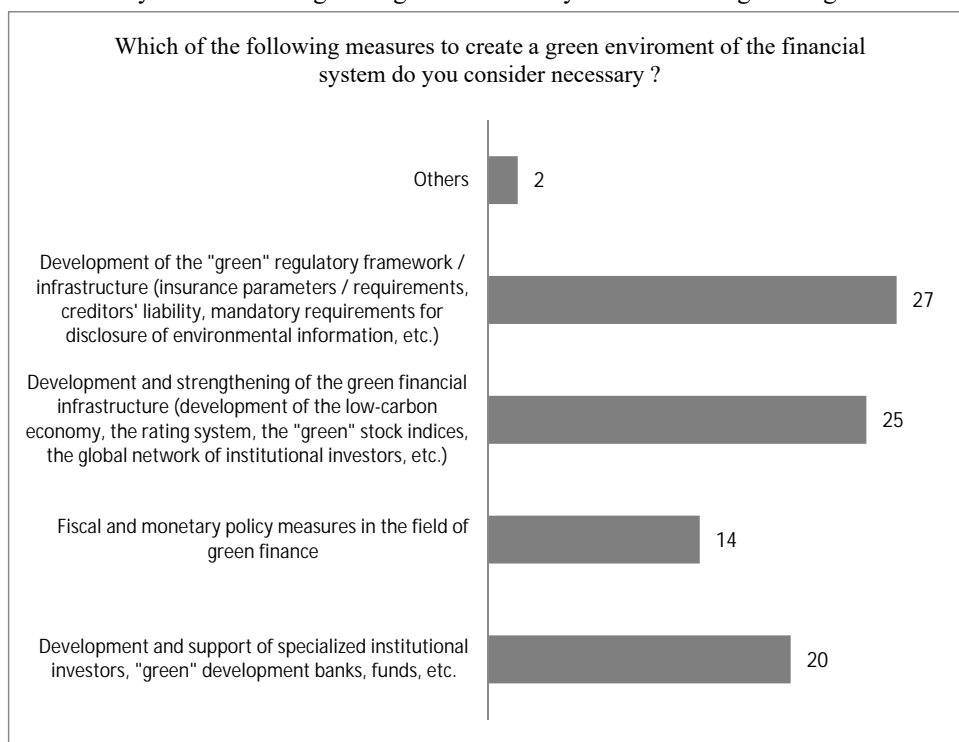
The development of the “green” regulatory framework/infrastructure (insurance parameters/requirements, creditors’ liability, mandatory requirements for disclosure of environmental information, etc.) are necessary measures for “greening” the financial system, which is preferred by 40% of surveyed bank employees (Figure 9). The object of intervention of these

⁴ MLPs are a business venture, which exists in the form of a publicly traded limited partnership. They combine the tax breaks of a private partnership (profits are taxed only when investors receive distributions) with the liquidity of a publicly traded company.

measures for insurance, the responsibility of creditors, the mandatory requirement for disclosure of environmental information, etc. There are many similar examples of practice in developed countries and emerging and emerging markets, such as the International Principles of the Equator mentioned earlier (since 2003); EU Environmental Responsibility Directive 2004 (UN Directive 2004/35/EC; UN Principles for Responsible Investment [UN Responsible Investment Principles) (PRI) is an international organisation working to promote the inclusion of environmental factors, Social and Corporate Governance (ESG) in the investment decision-making process, launched in April 2006 with the support of the United Nations (UN), PRI has over 2,300 participating financial institutions as of January 2020. These institutions are participating by signing the six basic principles of the PRI and then submitting regular reports on their progress] in green activities, etc. (European Commission 2013).

Figure 9

Necessary measures for “greening the financial system” according to Bulgarian banks



Source: Own Source

One respondent also mentioned “other” measures, but they are not described in the questionnaire.

Only six respondents answered the question about proposing recommendations for the formation of green finance and green banking, as well as for the development of

environmental/green management in the banking sector. The recommendations made by them are grouped in the following areas:

- Establishment of guarantee mechanisms at a national level for lending to high-risk green projects;
- Development at the national level of ideology and concept for the establishment of regulatory bodies related to the development of green finance and green banking;
- Establishment of a methodological centre for management of activities, measures and enforcement of principles in the field of “green” finance;
- Formation and approval of principles, standards and taxonomy;
- Development of a system for verification, control and verification of “green” financial instruments;
- Formation and development of the infrastructure of the “green” financial market;
- Establishment and promotion of a system of measures for state support of “green” instruments, as well as of green banking.

In principle, these administrative tools to support green projects are based on the mechanisms of action of state power, which include:

- Legislative consolidation of requirements for compliance with environmental parameters means that regulatory legal acts of authorities at all levels can establish special environmental requirements that allow, protect or enforce certain requirements (for example, the obligation to assess the impact of industrial processes on the environment is established);
- Legislative regulation of the green finance market, in addition to general regulatory goals, such as maintaining systemic stability, security and sustainability of financial institutions, has special tasks – ensuring the high quality of services provided by financial organisations in terms of achieving “green” goals and creating a favourable investment climate that allows investors to be more courageous make green investment decisions;
- The creation of development institutions is carried out to stimulate innovation processes, ensure sustainable economic growth and diversify the economy. Development institutions act as a catalyst for private investment in priority sectors and sectors of the economy by being able to act as co-investors in projects, issue guarantees for the investor’s debt obligations, support the project with long-term loans and otherwise facilitate the implementation of projects that cannot be fully financed by private business, but are significant to society;
- The formation of a portfolio of “green” projects should be carried out by the authorities in order to overcome the barriers that hinder investment in them. The novelty of such projects, lack of understanding by investors of the level of their risk and profitability, and blurring of the criteria for classifying investment initiatives as “green” lead to low credit ratings of “green” projects and insufficient interest of potential investors in them. The state, compiling a register of “green” projects, guarantees the accuracy of information

about them and declares the support measures provided for them, which has a stimulating effect on investors;

- Information and advisory assistance to “green” investors on the application of legislation, the choice of financial instruments, etc., as well as the development of human resources for participants in environmental initiatives through the organisation of employee training and assistance in the selection of qualified personnel, are also an important area of state support for potential investors in the conditions formation of the market of “green” projects.

I must say that the system of support for “green” investment includes not only the above measures, but also differs by country.

The question of whether there are actual and potential threats and challenges related to the globalisation of green finance and green banking was answered negatively by 94% of respondents (Figure 10). Only three of the respondents gave a positive answer, indicating the following potential threats and challenges, grouped in the following areas:

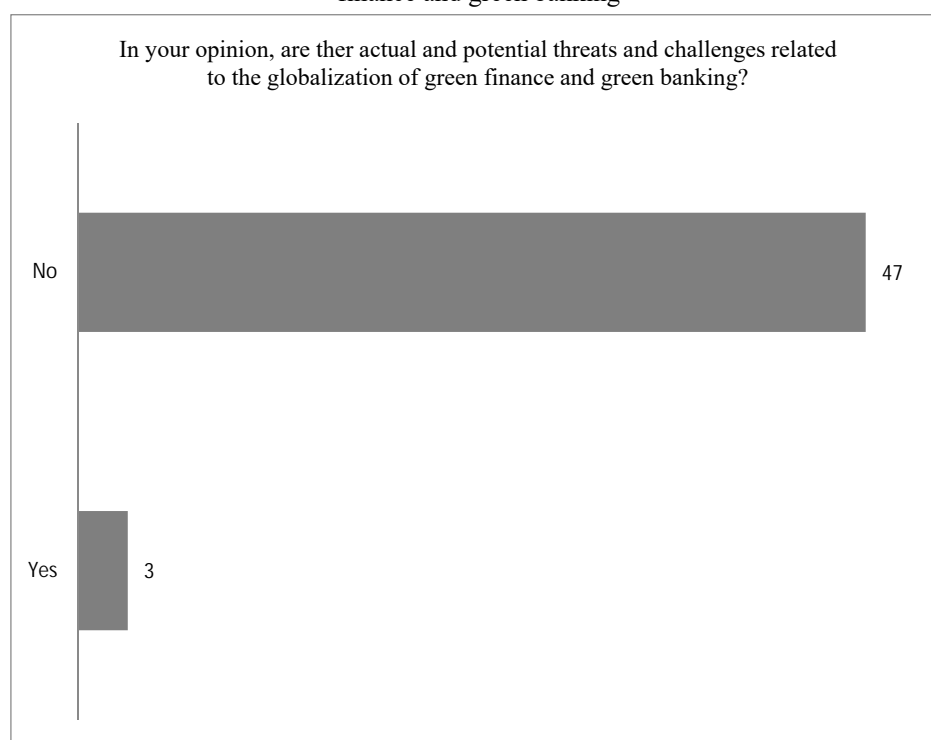
- Financial threats and challenges – They are related to the fact that the process of greening the international financial system must be balanced, i.e. this means that the various measures supporting the implementation of green finance and green banking should be developed and implemented in parallel and, as far as possible, managed by developing and implementing universal definitions, principles, accounting and reporting standards, etc. If these conditions are not met, not only will global financial, economic and green problems not be solved, but a new source of global financial instability will emerge in the form of a global market for green financial instruments, which is also not immune from the emergence of financial bubbles. The global market for financial instruments must combine not only green financial instruments, but also take into account the relationship with the assets of real sectors of the economy, such as the real estate market. There are already concrete examples of overheating in this market and “inflating the bubble”, which initiates a specific financial threat. Currently, despite the fact that the global market for “green” financial tools has just started to appear, it is already noticeable that some of its segments have started to grow rapidly and have reached the stage of “self-combustion” (UNEP, 2016) and is extremely important to coordinate the development of the different segments of this market. In addition, there are many difficulties with the methodology for defining green bonds and other green finance instruments. According to the International Finance Corporation, bonds of this type could be written as much as you want, as a volume, in the absence of a universal approach to their identification and global databases detailing environmental projects (IFC, WBG, 2016).
- Technical threats and challenges – Definitions and identification mechanisms are needed not only from a financial but also from a technical and technological point of view. For example, there are difficulties in assessing the green component in projects in different areas and sectors of the economy;
- Institutional threats and challenges – New institutions in the form of profit-oriented trading companies, such as Real estate investment trusts, Master Limited Partnerships (MLPs, etc.), are considered to have a number of significant shortcomings, such as high

management cost separation of liquidity from the underlying asset and tendencies to work with a high level of leverage (OECD, 2015) All the above characteristics of the analysed structures increase the risks to their operation. Therefore, there is a growing need for control, regulation and regulatory support for the activities of these institutional investors;

- Psychological threats and challenges – Due to the fact that green projects require large investments, and green financing is a relatively new activity and practice for the international financial system, the various subjects of financial and economic activity are quite cautious when working with relevant financial instruments. Therefore, it is necessary to increase the level of knowledge and awareness in this area and to stimulate the activity of economic agents in this direction.

Figure 10

Existence of actual and potential threats and challenges related to the globalisation of green finance and green banking



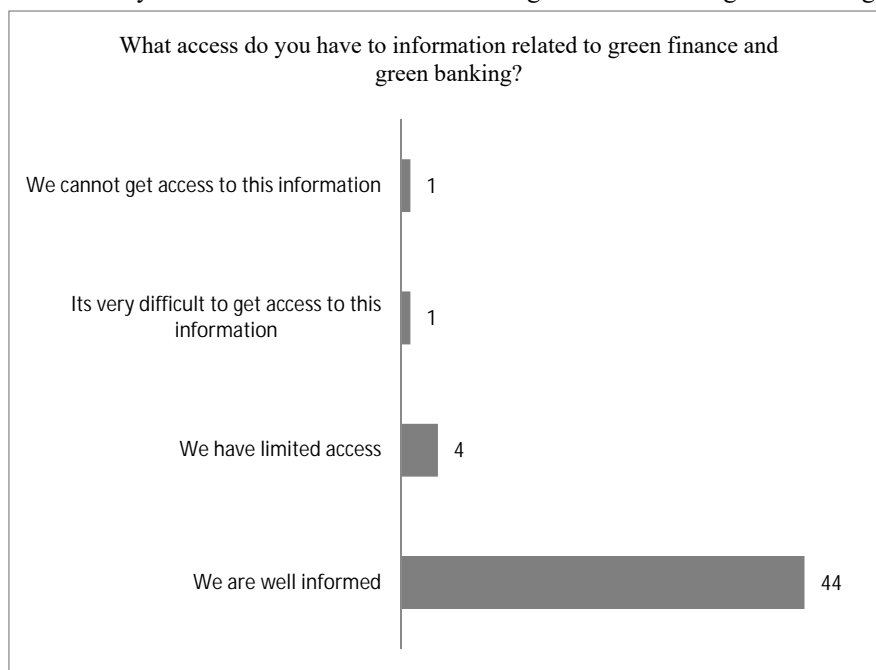
Source: Own Source

The reaction of the respondents to the answers to the various questions from the survey shows good information, which is evident from Figure 11. 88% of respondents said they were well informed on issues and topics related to green finance and green banking. 8% say they have limited access to information on these issues and topics, and only one respondent states that it is very difficult to access this information or cannot access it at all. The last 12% of

respondents who have difficulty with awareness of these issues are experts at the expert level and it is normal to be less informed or have difficulty finding it.

Figure 11

Availability of access to information related to green finance and green banking



Source: Own Source

4. Conclusion

Green finance has become widespread around the world and now provides investment resources for projects that contribute to the greening and decarbonisation of the economy. The main tasks to be solved by the governments of countries for the development of "green" finance are the standardisation of approaches to assessing the effectiveness of environmental projects, the improvement of "green" financial products, the attraction of funds from a wide range of investors, including the public, in financing regional and municipal "green" projects, as well as the formulation of criteria for defining the very concept of "green" finance.

The main conclusions that can be made based on the results of the survey are the following:

The survey shows that employees in banking institutions are very well informed about green finance and green banking;

- It is obvious the inevitability of state regulation of the green economy and the development of green finance, as the financing of the green economy must be carried out by the business itself. The task of the state is to create and implement stimulating tools

for the development of “green” industries, to discourage projects that do not fall into the green priorities;

- Respondents are familiar with the best world practices that exist in the field of implementation of the developed mechanisms for state support for “green” investments (“green” banking – for banks lending to “green” projects is part of a socially responsible investment; “green” bonds, “green” certificates, etc.);
- The respondents, for the most part, are familiar with the main generally accepted standards in the field of green finance, indicating specific standards.

According to experts, investments in green energy create three times more jobs than with the same funds invested in the development of energy based on fossil fuels. In general, the survey gives grounds to conclude that in Bulgaria, it is necessary to create a single methodological centre that combines both economic competencies and the consideration of ESG factors in order to achieve two common goals for the development of society – stable economic growth, preventing the growing deterioration of the planet’s natural degradation environment.

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