VARNA FREE UNIVERSITY "CHERNORIZETS HRABAR"
FACULTY OF SOCIAL, ECONOMIC AND COMPUTER SCIENCES
DEPARTMENT OF ECONOMICS

DANIELA DIMITROVA POPNIKOLOVA

ADAPTATION OF THE BANKING SYSTEM TO FINANCING SUSTAINABLE DEVELOPMENT

ABSTRACT OF A DOCTORAL DISSERTATION

submitted for the award of the educational and scientific degree PhD,
Professional Field 3.8. Economics,
PhD Programme
"World Economy and International Economic Relations"

Academic Supervisor:
Prof. Emil Panushev, PhD

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The dissertation comprises 216 pages and consists of an introduction, three chapters, a conclusion, a bibliography, and 34 appendices. The main body of the dissertation comprises 184 pages and includes 9 figures and 7 tables. The bibliography contains 189 references, of which 11 are in Bulgarian and 178 are in English.

The dissertation was discussed and recommended for defence before the Scientific Jury by the Department Council of the Department of Economics at the Faculty of Social, Economic and Computer Sciences.

The public defence of the doctoral dissertation before the Scientific Jury will take place on 17 November 2026 at 10:00 a.m. in the conference room of Varna Free University “Chernorizets Hrabar”.The dissertation defence materials are available on the university's website, www.vfu.bg, under the “Doctoral Students” section.

I. GENERAL CHARACTERISTICS OF THE DOCTORAL DISSERTATION

1. Relevance and Significance of the Research Topic

In the context of the increasing complexity of global climate, environmental and socio-economic challenges, sustainable development has emerged as a leading conceptual and institutional framework for transforming existing models of economic development. Climate change, the depletion of natural resources, biodiversity loss and widening social inequalities have become systemic factors whose impacts extend beyond the environmental dimension and manifest themselves as economic and financial risks.

In this context, sustainable development is reshaping the understanding of the role of the financial system in the process of economic transition. The United Nations Sustainable Development Goals and the Paris Agreement on climate change have established new institutional expectations for economic actors, while the financial sector has emerged as a key mechanism for mobilising, allocating and directing capital resources towards activities aligned with the principles of sustainable development.

The banking sector occupies a particularly important position in this process due to its fundamental structural role in financing economic activity. Through lending policies, the allocation of financial resources and risk management systems, banks can influence the direction of capital flows by simultaneously promoting the financing of sustainable economic activities and limiting exposures to risks associated with adverse environmental, social and governance (ESG) factors.

The changing role of the banking sector necessitates an adaptation of the traditional model of financial intermediation that extends beyond formal compliance with regulatory requirements. This adaptation involves the systematic integration of sustainability factors into strategic management,

lending and investment processes, risk management, product policies and stakeholder engagement. As a result, sustainability is gradually evolving from a supplementary element of corporate responsibility into a structural component of the banking business model and the institutional environment in which credit institutions operate.

A significant manifestation of this transformation is the gradual establishment of sustainable banking as an approach to integrating economic, social and environmental considerations into banking activities. Within this process, the Principles for Responsible Banking (PRB) have emerged as an international framework through which sustainability is incorporated into the strategies and practices of credit institutions. Alongside the development of voluntary international initiatives, this process has been accelerated by the establishment of a European regulatory architecture for sustainable finance, encompassing the European Union Taxonomy, sustainability-related disclosure mechanisms, corporate sustainability reporting and the integration of environmental, social and governance factors into the management of financial institutions.

The scientific relevance of the present research stems from the need to examine the mechanisms through which sustainability principles are translated from conceptual and strategic propositions into specific management practices within the banking sector. Despite the growing importance of sustainable finance, empirical evidence remains insufficient regarding the extent to which the Principles for Responsible Banking are implemented in practice and their potential implications for the financial performance of credit institutions.

The significance of this research is further reinforced by the limited number of studies focusing on bank-dominated financial systems, such as that of the Republic of Bulgaria. The Bulgarian banking sector operates in an environment of increasing integration with the European financial and regulatory framework. At the same time, it exhibits specific institutional

characteristics, a distinct market structure and a particular model of financial intermediation, which necessitate an independent analysis of the processes of adaptation to sustainable banking.

In this respect, the relevance and significance of the doctoral dissertation arise from the need to examine the relationship between increasing regulatory and societal requirements for integrating sustainability into banking activities and the actual extent of its institutional implementation in the practices of credit institutions. The research has both theoretical and scientific-applied significance, as it systematises the mechanisms through which banking activities adapt to financing sustainable development and proposes an instrument for their measurement and comparative assessment.

2. Aim of the Doctoral Dissertation

The main aim of the doctoral dissertation is to examine the process of adaptation of banking activities to financing sustainable development by analysing the institutional and regulatory mechanisms for integrating the principles of sustainable and responsible banking, and by assessing their practical implementation and implications for the financial performance of credit institutions.

To achieve this aim, the research examines the interrelationship between the development of the regulatory framework for sustainable finance, the degree of institutional integration of the Principles for Responsible Banking (PRB), and changes in key financial performance indicators of selected commercial banks.

3. Research Objectives of the Doctoral Dissertation

Achieving the stated aim requires addressing a set of interrelated research objectives that follow the logic of the study—from the theoretical clarification of the concepts of sustainable development and sustainable banking, through the analysis of the institutional and regulatory environment, to the development of

an assessment framework and its empirical application. In accordance with this approach, the following research objectives have been formulated:

1. To examine and systematise the theoretical foundations of sustainable development, sustainable finance and sustainable banking, identifying the key conceptual relationships that determine the transformation of the role of banking institutions in the process of sustainable transition.

2. To analyse the evolution of the concept of responsible banking and the role of the Principles for Responsible Banking as a framework for integrating sustainability into the strategic, managerial and operational processes of credit institutions.

3. To examine the international and European institutional, regulatory and financial mechanisms for promoting sustainable finance and to assess their significance for the adaptation of banking activities to sustainable development objectives.

4. To develop a methodological approach for quantitatively assessing the degree of implementation of the Principles for Responsible Banking by transforming the qualitative characteristics of their integration into comparable indicators.

5. To test the developed methodological approach through a comparative empirical analysis of selected commercial banks in Bulgaria and to identify differences in the degree of institutional integration of the Principles for Responsible Banking.

6. To empirically assess the relationship between the adoption and implementation of the Principles for Responsible Banking and the financial performance of the banks under examination by analysing key profitability and efficiency indicators.

4. Object and Subject of the Research

The object of the research is the banking sector of the Republic of Bulgaria as a key component of the financial system and a principal mechanism for mobilising, transforming and allocating financial resources in the context of the transition towards a sustainable model of economic development. Within the framework of the research, the banking sector is examined as an institutional environment in which the process of adapting traditional financial intermediation to the requirements of sustainable development takes place.

The subject of the research comprises the processes and mechanisms of institutional adaptation of banking activities to financing sustainable development through the integration and implementation of the Principles for Responsible Banking (PRB) in the activities of commercial banks, as well as the relationship between the degree of their implementation and the financial performance of credit institutions.

The distinction between the object and subject defines the research framework of the doctoral dissertation, with the banking sector of the Republic of Bulgaria being analysed as the environment in which the adaptation process takes place, and the Principles for Responsible Banking serving as an analytical framework for assessing the degree of integration of sustainability into banking strategies, management processes and operational practices.

5. Main Research Question and Hypothesis

The main research problem arises from the discrepancy between the increasing requirements for integrating sustainability into banking activities and the limited empirical evidence regarding the extent of its actual implementation and its implications for banks' financial performance.

In accordance with the research problem thus defined, the main research question is:

How and to what extent do banking activities adapt to financing sustainable development through the integration of the Principles for Responsible Banking, and is there a statistically identifiable relationship between the degree of their implementation and the financial performance of commercial banks?

The doctoral dissertation advances the thesis that the adaptation of banking activities to financing sustainable development constitutes a process of institutional transformation in which the Principles for Responsible Banking are gradually integrated into the strategic, managerial and operational processes of banking institutions. This process extends beyond compliance with regulatory requirements and entails a broader transformation of banking business models aimed at combining financial sustainability with the creation of long-term economic, social and environmental value.

In accordance with the main research question, the following research hypothesis has been formulated:

There is a relationship between the degree of integration of the Principles for Responsible Banking into the activities of commercial banks and their financial performance, as measured by key financial indicators.

The hypothesis is subject to empirical testing through a set of specific hypotheses relating to return on assets (ROA), return on equity (ROE), net interest margin (NIM) and the cost-to-income ratio (CIR). Correlation and econometric analyses are employed to assess the existence, direction and statistical significance of the relationships under investigation.

6. Brief Overview of the Dissertation Structure and Limitations

The doctoral dissertation is structured into three chapters that follow the logic of the research process—from the theoretical examination of sustainable development and its implications for banking activities, through the analysis of the international and European institutional and regulatory frameworks, to the

empirical assessment of the banking sector's adaptation to financing sustainable development.

The first chapter establishes the theoretical foundations of the research by tracing the evolution of the concept of sustainable development, its relationship with sustainable finance, and the theoretical approaches to the transformation of financial intermediation. The development of sustainable and responsible banking is analysed, with particular attention devoted to the Principles for Responsible Banking as a framework for integrating sustainability into banking activities.

The second chapter focuses on the international and European institutional, regulatory and financial mechanisms for sustainable finance. The main elements of the European regulatory architecture are analysed, together with the role of the European Investment Bank (EIB) as a financial and institutional mechanism supporting the sustainable transition.

The third chapter is empirical in nature and examines the adaptation of the banking sector in the Republic of Bulgaria. It develops and tests the author's Responsible Banking Implementation Index (RBII), which transforms the qualitative characteristics of the integration of the Principles for Responsible Banking into a quantitative measure. Based on the methodological framework developed, a comparative analysis of the selected commercial banks is conducted, and the relationship between the degree of implementation of the Principles and their financial performance is assessed.

The scope of the research is defined by several principal limitations. Geographically, the empirical analysis focuses on the banking sector of the Republic of Bulgaria, while institutionally, it covers two commercial banks classified in the first group according to the Bulgarian National Bank's classification—UniCredit Bulbank AD and Eurobank Bulgaria AD. Their selection is based on their market significance, commitment to implementing the

Principles for Responsible Banking, and the availability of sufficient publicly accessible information for the purposes of comparative analysis.

The research covers the period 2019–2025, with the starting point corresponding to the introduction of the Principles for Responsible Banking and the endpoint determined by the availability of publicly accessible and comparable information. Data from earlier periods are used, where necessary, for comparative and benchmarking analyses of trends in financial performance indicators.

In terms of its substantive scope, the research does not seek to provide a comprehensive examination of all dimensions of environmental, social and governance (ESG) management. Instead, it focuses on the Principles for Responsible Banking as a specific framework for assessing the degree of sustainability integration into banking activities. In assessing the relationship with financial performance, the research does not examine the independent effects of regulatory requirements concerning sustainability reporting and disclosure, including those arising from the Corporate Sustainability Reporting Directive (CSRD), the European Sustainability Reporting Standards (ESRS), and related ESG disclosure requirements. These regulatory mechanisms are considered part of the institutional environment of sustainable banking but are not included as independent factors in the empirical assessment of financial performance.

The empirical assessment is also constrained by the availability, quality and comparability of the financial and non-financial information publicly disclosed by the institutions under examination. These limitations define the boundaries within which the research findings may be interpreted, without restricting the potential application of the developed methodological approach in subsequent studies covering a broader range of institutions and a longer time horizon.

II. LENGTH AND STRUCTURE OF THE DISSERTATION

The doctoral dissertation comprises 219 pages and consists of an introduction, three chapters, a conclusion, a bibliography and 34 appendices. The main body of the dissertation extends over 186 pages and includes 9 figures and 7 tables. The bibliography comprises 189 references, of which 11 are in Bulgarian and 178 are in English.

Introduction

Chapter I. Theoretical Approaches to the Introduction of Banking Regulations for Sustainable Banking in the Context of Financing the Transition to a Circular Economy

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2. Sustainable Banking as a Pillar of Responsible Financial Intermediation
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III. SUMMARY OF THE DOCTORAL DISSERTATION

The introduction presents the research aim and the objectives derived from it, as well as the structure and limitations of the study.

I. Theoretical Approaches to the Introduction of Banking Regulations for Sustainable Banking in the Context of Financing the Transition to a Circular Economy

1. Conceptual Evolution of Sustainability and Theoretical Foundations for the Transformation of Financial Intermediation

The first section of the doctoral dissertation traces the conceptual evolution of sustainability and systematises the theoretical foundations for the transformation of financial intermediation in the context of the transition towards sustainable development. The analysis reveals a gradual broadening of the concept—from its initial emphasis on the scarcity and rational use of natural resources towards an integrated paradigm encompassing the economic, social and environmental dimensions of development (Mensah, 2019). A significant milestone in this evolution was the formulation of the principle of intergenerational equity in the report Our Common Future (United Nations, 1987), followed by the establishment of sustainable development in international policy through the United Nations Conference in Rio de Janeiro, the Sustainable Development Goals and the Paris Agreement. The subsequent development of the European regulatory architecture has transformed sustainability from a

predominantly strategic guiding principle into a factor of increasing importance in economic and financial decision-making (European Commission, 2025).

In the financial sector, this evolution is reflected in a broadening of the traditional understanding of financial intermediation. Alongside the functions of mobilising and allocating financial resources, environmental, social and governance factors have become increasingly important in risk assessment, the financing of economic activities and the creation of long-term value. In this context, sustainable banking is regarded as a manifestation of the adaptation of banking institutions to changing economic, societal and regulatory conditions.

To provide a theoretical explanation of this transformation, the doctoral dissertation develops an analytical framework based on three complementary approaches—the Triple Bottom Line concept, Stakeholder Theory and Institutional Theory.

The Triple Bottom Line concept extends the criteria for assessing the value created by organisations beyond financial performance to include the social and environmental dimensions of their activities (Elkington, 1997). Applied to banking intermediation, it enables its effectiveness to be examined not only in terms of profitability and financial sustainability but also through the impact of financed activities on society and the environment (Weber, 2014). The limitations associated with the quantitative measurement of these dimensions (Norman and MacDonald, 2004) raise the question of the need for appropriate indicators and methods for assessing the degree of sustainability integration into banking activities.

Stakeholder Theory explains the extension of banking responsibility beyond shareholders' interests to encompass relationships with customers, investors, regulators and society (Freeman, 1984). The criteria of power, legitimacy and urgency (Mitchell, Agle and Wood, 1997) provide a basis for analysing how different stakeholders influence the strategic priorities, risk management, product policies and accountability of banking institutions.

Institutional Theory reveals the mechanisms through which sustainability is gradually integrated into banking structures and practices. The understanding of institutions as the "rules of the game" (North, 1990) allows this process to be interpreted as adaptation to a changing regulatory and societal environment. The concept of institutional isomorphism further complements the analysis by explaining the emergence of similar organisational practices under the influence of regulatory, professional and societal pressures (DiMaggio and Powell, 1983). In this context, international standards, ESG factors and the Principles for Responsible Banking are regarded as drivers of change in the strategic management, lending policies, risk management and reporting practices of banking institutions.

The three theoretical approaches form a complementary analytical framework in which the Triple Bottom Line concept defines the broader scope of value creation, Stakeholder Theory explains changes in relationships of responsibility and accountability, and Institutional Theory reveals the mechanisms through which these changes are integrated into banking structures and practices. From this perspective, the adaptation of banking activities to financing sustainable development is regarded as a functional and institutional transformation of financial intermediation, whereby sustainability is incorporated into strategic management, risk assessment and management, and the allocation of financial resources.

2. Sustainable Banking as a Pillar of Responsible Financial Intermediation

The second section of Chapter I conceptualises sustainable banking as a specific manifestation of sustainable finance and a model for transforming traditional financial intermediation. Its development is associated with the gradual integration of sustainable development principles into banking strategies, risk management and lending processes. Despite the absence of a single universally accepted definition in the academic literature, sustainable banking entails combining financial efficiency with consideration of the

environmental, social and governance dimensions of banking activities (Riegler, 2023).

For the purposes of the research, a distinction is made between climate finance, green finance and sustainable finance. Climate finance is regarded as a subset of green finance, while green finance is considered a component of the broader concept of sustainable finance, which encompasses environmental, social and governance aspects in the allocation of financial resources (Spinaci, 2021). Within this conceptual hierarchy, sustainable banking is positioned as the banking-sector manifestation of sustainable finance, whereby sustainability is integrated into the core mechanisms of financial intermediation.

Based on the systematisation undertaken, sustainable banking is regarded as a model of banking activity in which ESG factors are incorporated into strategic management, lending policies, risk management and decision-making processes with the aim of creating long-term economic, social and environmental value. Its scope is not limited to compliance with regulatory requirements or the provision of individual sustainable financial products but entails a broader adaptation of the banking business model.

The conceptual evolution of sustainable banking reveals a transition from an initial focus predominantly on environmental and reputational risks towards a more comprehensive integration of sustainability into banking strategies and management processes. Since 2015, the Sustainable Development Goals and the Paris Agreement have accelerated this process and contributed to establishing sustainability as a strategic component of banking activities (UNEP FI, 2019; Weber, 2017).

On this basis, three main functions of sustainable banking are identified. The allocative function is manifested through the direction of financial resources towards economic activities aligned with sustainable development objectives. The risk management function involves extending traditional approaches to assessing and managing banking risks by incorporating climate-related,

environmental, social and governance factors into lending and decision-making processes. The transformative function reflects the capacity of bank financing to support structural changes in the economy towards a more sustainable development model (UNEP FI, 2019; Sharma et al., 2024).

The effects of sustainable banking cannot be assessed solely on the basis of the volume of financial resources classified as sustainable. Both the impact of banking decisions on economic, social and environmental processes and the implications of ESG factors for the resilience of financial institutions themselves are significant. Their integration creates opportunities for earlier identification of vulnerabilities, improved quality of lending decisions and greater resilience of banking portfolios (EBA, 2021).

The practical implementation of this model is associated with several limitations, including insufficient harmonisation of assessment and reporting approaches, limited comparability of ESG data, the risk of greenwashing, and the need to develop information infrastructure and specialised expertise (Delmas and Burbano, 2011; Sharma et al., 2024). These challenges characterise the adaptation of banking activities to sustainable development as a dynamic process in which regulatory requirements, management practices, information systems and banking business models evolve in an interconnected manner.

The main conclusion is that sustainable banking represents an evolutionary stage in the development of financial intermediation, in which traditional mechanisms for allocating financial resources and managing risks are expanded to account for the long-term economic, social and environmental consequences of banking activities (UNEP FI, 2019; Yovkov et al., 2010). This conceptual foundation provides the basis for examining, in the following section, the Principles for Responsible Banking as a framework for the practical integration of sustainability into banking activities.

3. Principles for Responsible Banking – A Strategic Framework for Sustainability in the Banking Sector

The third section of Chapter I examines the institutionalisation of sustainable banking through the Principles for Responsible Banking (PRB), introduced in 2019 by the United Nations Environment Programme Finance Initiative (UNEP FI). The analysis demonstrates that their significance lies in their ability to translate the broad objectives of sustainable development into a specific governance framework through which sustainability is integrated into the strategies, business models and operational processes of banking institutions.

The relationship between the Principles for Responsible Banking, the United Nations Sustainable Development Goals, the Paris Agreement and ESG factors is examined. It is established that these frameworks perform complementary functions: the global goals define the strategic direction of the sustainable transition, ESG factors provide an analytical basis for identifying risks and impacts, while the Principles for Responsible Banking establish a mechanism for their practical integration into banking governance.

The analysis of the six Principles—Alignment; Impact and Target Setting; Clients and Customers; Stakeholders; Governance and Culture; and Transparency and Accountability—demonstrates that they constitute an interconnected system for institutionalising sustainability. Through these Principles, sustainability is integrated into strategic priorities, risk management processes, relationships with customers and stakeholders, organisational culture and accountability mechanisms. In this way, the Principles transform sustainability from a declarative commitment into a management practice.

The international adoption of the Principles confirms their growing significance as a sustainability framework within the banking sector (United Nations Environment Programme, 2023). At the same time, the analysis demonstrates that merely joining the initiative is not a sufficient criterion for assessing their effectiveness. Differences in strategic priorities, organisational

capacity and the institutional environments of individual banks result in varying degrees and depths of practical implementation.

The main limitations affecting the implementation of the Principles include insufficient comparability of ESG data, methodological difficulties in measuring impact, differences in sustainability reporting practices, and the need to develop technological and analytical capacity (Ndjwili-Potele et al., 2021; UNEP FI, 2025). These limitations emphasise the need for instruments capable of assessing not only formal commitments but also the actual degree of institutional integration of the Principles.

On this basis, the main conclusion is that the effectiveness of the Principles for Responsible Banking should be assessed according to the extent to which they have been translated into specific objectives, governance mechanisms and measurable outcomes. Consequently, the analytical focus shifts from the existence of a formal commitment towards assessing its actual implementation in the activities of banking institutions.

This conclusion provides the conceptual foundation for the subsequent development of a methodological approach to quantitatively measuring the degree of implementation of the Principles for Responsible Banking and for the empirical assessment of the relationship between their integration and the financial performance of banking institutions.

In summary, the Principles for Responsible Banking are defined as a strategic framework for operationalising sustainability in the banking sector, through which global sustainable development objectives are translated into specific strategic, managerial and operational mechanisms. Their significance lies not in the mere undertaking of commitments but in the ability of banking institutions to integrate sustainability into their core business processes through measurable impact, transparency and accountability (United Nations Environment Programme, 2023).

Chapter II. Mechanisms for the Development of Banking Regulations in Support of Sustainable Development

1. Evolution of Regulatory Frameworks in Support of Sustainable Banking

The first section of Chapter II examines the evolution of international standards and regulatory mechanisms through which sustainability factors have gradually been integrated into banking activities. The analysis outlines a transition from voluntary standards for assessing environmental and social impacts towards the incorporation of climate-related financial risks into risk management systems and prudential banking supervision. The Performance Standards of the International Finance Corporation (IFC), the Equator Principles and the development of the Basel Framework are examined as the main stages of this evolution.

The IFC Performance Standards establish a methodological foundation for the early identification, assessment and management of environmental and social impacts throughout the life cycle of investment projects (International Finance Corporation, 2012). Their significance for banking activities lies in extending traditional financial assessment to incorporate factors relating to the environment, resource efficiency, labour relations and affected communities. This creates the conditions for these factors to be considered in project assessments and financing decisions, as well as in subsequent risk management.

The Equator Principles build upon this approach by extending it to international project finance and establishing environmental and social due diligence as an integral element of the lending process (Equator Principles Association, 2020). Their significance lies in linking impact assessment to financing conditions, monitoring and engagement with affected stakeholders. In this way, environmental and social factors are directly incorporated into credit decision-making and risk management processes. However, the voluntary nature

and limited scope of application of the Principles constrain their ability to ensure the systematic integration of sustainability-related risks into banking activities.

A qualitatively new stage can be observed in the development of the Basel Framework, in which climate-related factors are recognised as potential drivers of traditional banking risks and incorporated into the prudential approach to their management. Physical and transition climate risks may materialise through credit, market, liquidity and operational risks, necessitating their integration into existing mechanisms for creditworthiness assessment, stress testing and capital planning (Basel Committee on Banking Supervision, 2022). The focus thus expands from the impacts of financed activities to the financial consequences of climate-related factors for banking institutions themselves and for the stability of the financial system.

The analysis reveals an uneven degree of integration across the different dimensions of sustainability. While climate-related financial risks are increasingly reflected in banking regulation and supervision, nature-related and broader ESG risks remain at an earlier stage of methodological and regulatory development (BIS, 2021; EBA, 2021).

In summary, a progressive shift in the approach to sustainability can be identified—from assessing the environmental and social impacts of individual projects, through integrating these considerations into project finance processes, to incorporating climate-related financial risks into prudential risk management and supervision. This evolution broadens the scope of banking adaptation and establishes the conditions for the development of a more comprehensive European regulatory architecture for sustainable finance.

2. The European Union's Green Regulatory Framework: From Policy to Implementation

The second section of Chapter II analyses the development of the European Union's regulatory framework for sustainable finance and its

significance for the adaptation of banking activities. The analysis demonstrates that the European model builds upon international voluntary initiatives through legally binding mechanisms that establish common sustainability criteria, expand reporting and disclosure requirements, and progressively integrate sustainability factors into financial risk management. In this way, the objectives of the sustainable transition are reflected in the regulatory environment of financial intermediation.

The strategic foundation of this process is the European Green Deal, which links the objective of achieving climate neutrality by 2050 to the structural transformation of the European economy and the mobilisation of the necessary financial resources (European Commission, 2019). Within this framework, the circular economy has emerged as a significant component of the sustainable transition, based on resource efficiency, extending the life cycle of resources, and moving away from the linear model of production and consumption. The financial system assumes a key role in directing public and private financial resources towards achieving this transformation.

The analysis of the development of European sustainable finance policy—from the Action Plan to its subsequent regulatory development—outlines an interconnected architecture comprising three main areas: establishing common criteria for identifying environmentally sustainable economic activities; standardising corporate sustainability information; and integrating sustainability information into financial disclosures and the prudential transparency framework of the banking sector (European Commission, 2018; European Commission, 2021a).

The first area is implemented through the European Union Taxonomy, which establishes a common system for identifying environmentally sustainable economic activities based on the criteria of substantial contribution, the Do No Significant Harm (DNSH) principle, minimum safeguards and technical screening criteria. For the banking sector, its significance lies in establishing a

unified methodological basis for assessing the environmental characteristics of financed activities and directing financial resources more consistently towards the sustainable transition (EU TEG, 2020).

The second area concerns the standardisation of corporate sustainability information through the Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS). The application of the double materiality principle broadens the information base by encompassing both the impact of sustainability factors on companies and the impact of their activities on society and the environment (EFRAG, 2023). For banks, this information is relevant to borrower analysis, exposure assessment and the management of sustainability-related risks.

The third area encompasses the incorporation of sustainability information into financial disclosures and prudential transparency. The Sustainable Finance Disclosure Regulation (SFDR) and its associated Regulatory Technical Standards (RTS) form part of the broader European framework for financial sector transparency, while the Pillar 3 ESG disclosure requirements and the relevant technical standards of the European Banking Authority are directly applicable to banking institutions. These mechanisms enhance the comparability of information on sustainability-related exposures and risks and strengthen the role of prudential transparency and market discipline (EBA, 2022).

Considered together, these mechanisms establish a coherent relationship between defining sustainability criteria, creating a standardised information base, and using this information in financial disclosures and prudential transparency. The European framework thus establishes the institutional and informational conditions for a more systematic integration of sustainability factors into banking activities.

At the same time, the analysis demonstrates that, in certain respects, the development of the regulatory framework has progressed ahead of its practical integration into banking processes. The main limitations relate to data

availability, quality and comparability, the development of quantitative methodologies, and the incorporation of sustainability factors into internal risk management systems, capital planning and stress testing (European Central Bank, 2022a).

The main conclusion is that the European regulatory architecture is changing the conditions under which banking institutions adapt to financing sustainable development—from the predominantly voluntary integration of sustainability towards a legally structured system of criteria, standardised information, disclosure requirements and prudential transparency. The principal challenge is gradually shifting from establishing the regulatory framework towards its effective implementation and the integration of the resulting requirements into banking governance, lending processes and risk management.

3. The European Investment Bank: A Climate-Oriented Financial Institution

The third section of Chapter II examines the transformation of the European Investment Bank (EIB) into a climate-oriented financial institution and its significance for the practical implementation of European sustainable finance policy. The analysis demonstrates that the EIB's role extends beyond the provision of financial resources, as its investment criteria, risk assessment and management mechanisms, and cooperation with financial intermediaries translate the strategic objectives of the European Union into specific financing conditions and practices.

An examination of the EIB's lending policy reveals a gradual transition from traditional infrastructure and regional financing towards the systematic integration of climate and environmental objectives into its activities. This process has accelerated with the expansion of financing for energy efficiency, renewable energy sources and sustainable transport, while the adoption of the Climate Bank Roadmap for 2021–2025 has institutionalised it by aligning

financial operations with the Paris Agreement and the European Green Deal (EIB, 2020; European Investment Bank, 2021).

The analysis of the Roadmap reveals a shift in the EIB's approach—from treating climate objectives as a separate area of financing towards their horizontal integration into sectoral policies, project eligibility and assessment, risk management and the monitoring of financed activities (European Investment Bank, 2021). Alongside decarbonisation, its scope has expanded to include resource efficiency, the circular economy, pollution prevention and biodiversity conservation.

The quantitative analysis of the lending portfolio confirms this transformation. Financing for climate action and environmental sustainability increased from EUR 19 billion in 2019 to EUR 44.8 billion in 2024, while its relative share rose from 31% to 60%. Consequently, the target of allocating more than 50% of annual financing to climate action and environmental sustainability was achieved ahead of schedule, demonstrating the measurable impact of the EIB's climate orientation on the composition of its financing activities.

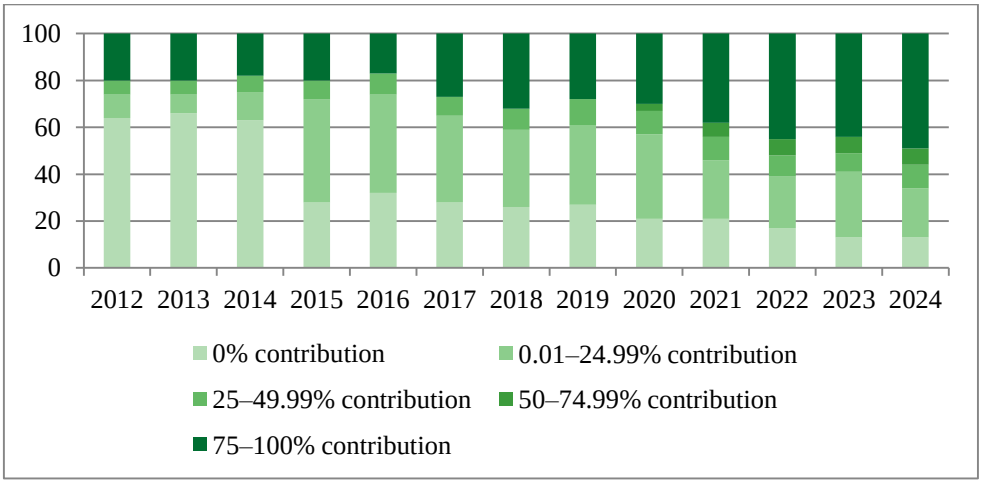


Figure 1. EIB Financing and the Share of Green Financing

The sectoral analysis reveals that financing is predominantly concentrated in areas with high decarbonisation potential, including transport, energy and industry, while climate change adaptation, the circular economy and

biodiversity-related activities are developing at a more moderate pace. This indicates varying degrees of institutional and methodological maturity in integrating individual environmental objectives into the EIB's financing activities.

Of particular significance to the doctoral research is intermediated financing, through which the EIB's criteria and methodologies are transferred to national financial institutions. Intermediary banks apply requirements concerning investment eligibility, the targeted use of funds and the monitoring of financed activities. This establishes a transmission mechanism through which European sustainable finance objectives and standards are reflected in the lending policies, assessment of financed projects and risk management practices of commercial banks.

The practical manifestation of this mechanism in Bulgaria is examined through the Metro Line 3 – Stage III project, as an example of combining long-term financing, European financial resources and climate and environmental sustainability requirements. The analysis demonstrates that financial viability and credit risk are assessed in conjunction with the project's climate-related, environmental and social characteristics, while sustainability is incorporated into eligibility assessment, financing structuring and subsequent monitoring. The project thus illustrates the practical application of sustainable finance principles in the implementation of a large-scale infrastructure investment.

The main conclusion is that the EIB performs a dual function in the adaptation of the financial system to sustainable development—as a provider and mobiliser of long-term financing and as an institutional mechanism for implementing and disseminating European sustainable finance criteria and practices. Through its own financial operations and intermediated financing, the EIB establishes a link between European sustainability objectives and their practical implementation within national financial and banking systems.

Chapter III. Implementation of the Principles for Responsible Banking in Bulgaria: Comparative Analysis and Assessment of Their Impact on Financial Performance

1. Characteristics and Specific Features of the Banking Sector in Bulgaria from the Perspective of Sustainable Banking

The first section of Chapter III analyses the institutional, financial and structural environment in which the Bulgarian banking sector is adapting to sustainable banking. The analysis is situated within the context of deepening European regulatory integration and Bulgaria's participation in the Single Supervisory Mechanism (SSM), which establish the framework for implementing European requirements concerning banking supervision, risk management and sustainable finance.

The analysis establishes that the adaptation process is taking place under conditions of high financial stability and significant concentration within the banking sector. As of mid-2025, the five largest banks accounted for 76.9% of the system's total assets, highlighting the considerable importance of the strategic and managerial decisions of leading credit institutions. The sector is characterised by high profitability and liquidity, with return on assets (ROA) reaching 2.1%, return on equity (ROE) standing at 17.2%, and the liquidity coverage ratio (LCR) reaching 254% (Bulgarian National Bank, 2025). These indicators demonstrate a stable financial foundation within which new regulatory requirements and sustainability-related risk factors are being integrated.

At the same time, sustainability factors are gradually being incorporated into the lending policies, risk management, strategic planning and public disclosures of banking institutions. This process is driven by the European regulatory framework and supported by the financial mechanisms of the European Investment Bank and the European Bank for Reconstruction and

Development, which provide funding for energy efficiency, renewable energy sources and sustainable infrastructure.

A significant methodological limitation of the analysis is the absence of sufficiently long and comparable ESG data series. The phased introduction of corporate sustainability reporting and ESG disclosure requirements does not yet allow for the establishment of a consistent information base covering the entire research period, while official banking statistics do not permit sectoral credit exposures to be directly identified as compliant with the EU Taxonomy.

For this reason, the doctoral dissertation employs a sectoral proxy approach based on official statistical data published by the Bulgarian National Bank. This approach is used to trace structural changes in the allocation of banking resources towards sectors potentially relevant to the sustainable transition, without treating sectoral classification as evidence of Taxonomy alignment or of the sustainable nature of specific financing activities. In this way, the methodologically unjustified equation of sectoral lending with green or sustainable finance is avoided.

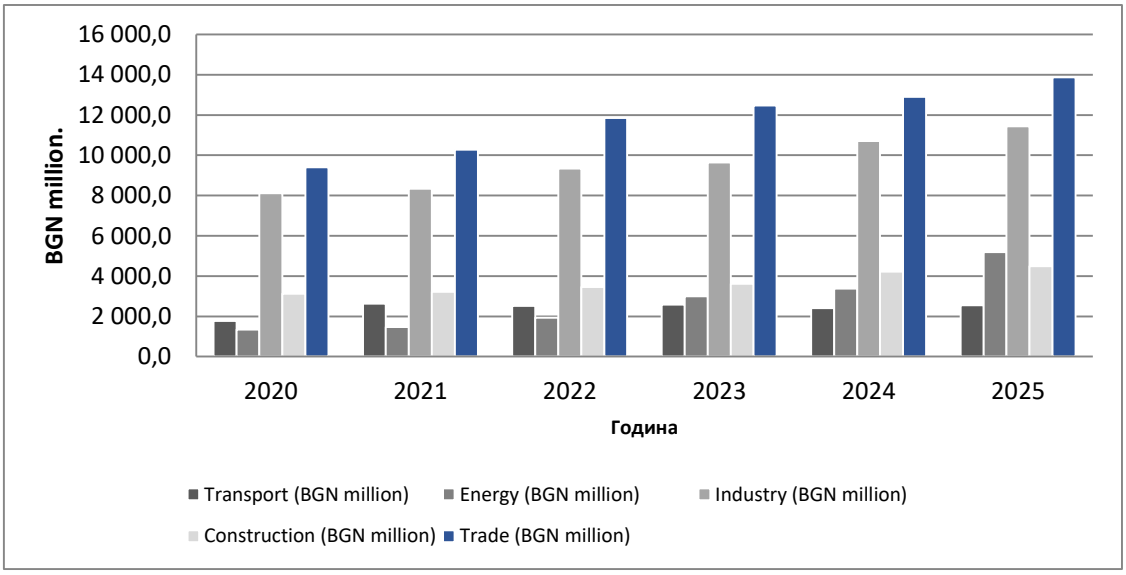


Figure 2. Loans to Non-Financial Corporations by Major Sector, 2020–2025

Source: Author's calculations based on data from the Bulgarian National Bank.

The results indicate an increase in corporate lending from BGN 35.2 billion in 2020 to BGN 51.8 billion in 2025, with changes in its sectoral composition being of greater significance to the research. The most substantial growth is observed in the energy sector, where credit exposure increased from BGN 1.34 billion to BGN 5.19 billion, representing a rise of 286.5%, while its share of the corporate loan portfolio increased from 3.8% to 10.0%. More moderate growth is observed in industry, transport and construction. These changes indicate potential for financing the energy and technological transition but do not constitute a direct measurement of green or sustainable lending.

The sectoral analysis therefore makes it possible to identify structural changes in the allocation of banking resources, but not to measure the actual degree of sustainability integration into banking activities. This methodological limitation justifies shifting the analysis from the sectoral to the institutional level.

In this context, the adoption of the Principles for Responsible Banking in Bulgaria is examined. Two main mechanisms of adoption are identified—direct accession by individual banks and the implementation of policies arising from commitments undertaken by the international banking groups to which they belong. Eurobank Bulgaria AD joined the initiative directly in 2020, followed by DSK Bank AD in 2025, while at UniCredit Bulbank AD and United Bulgarian Bank AD, the integration of sustainable practices also takes place through the policies and mechanisms of their respective international banking groups. This demonstrates that the adaptation of the Bulgarian banking sector is shaped simultaneously by the European regulatory environment and the intra-group transfer of strategies and management practices.

UniCredit Bulbank AD and Eurobank Bulgaria AD were selected for the subsequent comparative analysis based on their comparability in terms of size and market presence, their classification within the first group according to the Bulgarian National Bank, the similar timeframes of their implementation of the

Principles, and the availability of a sufficient publicly accessible information base. Of particular importance to the research design is the difference in the mechanism through which the Principles were adopted—through a commitment undertaken by the international banking group in the case of UniCredit Bulbank AD and through direct accession in the case of Eurobank Bulgaria AD.

The main conclusion is that the Bulgarian banking sector possesses a stable financial and institutional foundation for adapting to sustainable banking. However, neither sectoral lending dynamics nor formal commitments to the Principles are sufficient to measure the actual degree of this adaptation. It is necessary to assess the extent to which the Principles are genuinely integrated into the strategies, governance, lending activities, risk management and public disclosures of individual banks. This need provides the rationale for developing and applying the author's Responsible Banking Implementation Index (RBII), which transforms qualitative differences in the implementation of the six Principles into a comparable quantitative assessment.

2. Empirical Assessment of the Implementation of the Principles for Responsible Banking in Selected Commercial Banks in Bulgaria

The second section of Chapter III presents an empirical assessment of the degree of practical implementation of the Principles for Responsible Banking at UniCredit Bulbank AD and Eurobank Bulgaria AD. The research is based on the understanding that formal accession to or commitment to the Principles does not constitute sufficient evidence of their effective implementation. Instead, the degree of integration should be assessed through their reflection in banking strategies, governance mechanisms, target setting, lending activities, stakeholder engagement and public reporting (UNEP FI, 2019; Schoenmaker and Schramade, 2019).

The methodological framework combines Institutional Theory and Stakeholder Theory with a comparative case study approach, enabling

differences between the two banks to be analysed within a common national and European regulatory environment. To overcome the limitations of the binary distinction between "implementation" and "non-implementation", the author has developed the Responsible Banking Implementation Index (RBII), which transforms qualitative information obtained from official banking sources into a comparable quantitative assessment of the degree of institutional integration of the six Principles.

Table 1.

Relative Weights of the Indicators in the Responsible Banking Implementation Index (RBII)

Principle	Weight
Alignment	20%
Impact and Target Setting	20%
Clients and Customers	15%
Stakeholders	10%
Governance and Culture	20%
Transparency and Accountability	15%
Total	100%

Source: Author's own elaboration.

Higher relative weights are assigned to strategic alignment, impact and target setting, and governance and culture, as these dimensions most closely reflect the depth of institutional transformation. Assessment is conducted using an ordinal scale from 0 to 4, ranging from the absence of evidence to full integration. The overall index value is calculated as follows:

$RBII = \Sigma / S_i \, W_i /$

where S_i represents the score assigned to the respective principle and W_i denotes its relative weight. The final value ranges from 0 to 4, allowing four levels to be distinguished: symbolic adoption, initial integration, moderate implementation and advanced integration.

The empirical assessment is based on publicly available annual financial statements, sustainability reports, regulatory disclosures and corporate disclosures. To minimise subjectivity, predefined assessment criteria and source triangulation have been applied by comparing information from different official documents (Krippendorff, 2018; Yin, 2014). Accordingly, the assessment is based on documented evidence of practical implementation rather than solely on declared intentions.

The application of the developed index to Eurobank Bulgaria AD produces a value of RBII = 2.95, placing the bank in the moderate implementation category, immediately below the threshold for advanced integration. The highest score is recorded for the principle of Transparency and Accountability (4), while Alignment, Clients and Customers, Stakeholders, and Governance and Culture each receive a score of 3. The lowest score (2) is assigned to Impact and Target Setting.

The results demonstrate that Eurobank Bulgaria AD has progressed beyond the declarative adoption of sustainability. The use of portfolio impact analysis tools, the integration of ESG criteria into the lending process, the development of sustainable financial products, the establishment of governance structures and the external assurance of non-financial information provide evidence of genuine institutional integration. However, the lower score for Impact and Target Setting indicates that quantitative target setting and impact monitoring remain less developed than the other dimensions.

For UniCredit Bulbank AD, the index reaches RBII = 3.55, placing the bank in the advanced integration category. The maximum score of 4 is recorded for the principles of Alignment, Clients and Customers, and Governance and Culture, while Impact and Target Setting, Stakeholders, and Transparency and Accountability each receive a score of 3.

The higher index value reflects the deeper integration of sustainability into the bank's strategic, governance and operational structures. The analysis

identifies specialised organisational structures, internal sustainable finance policies, sector-specific targets, the integration of ESG factors into lending policies and risk management, and a product portfolio focused on green and social finance. This is particularly evident in the principle of Clients and Customers, where sustainability is directly reflected in lending policies and product offerings. In 2024, green financing reached approximately BGN 455 million and social financing amounted to BGN 186 million, alongside the development of solutions in renewable energy, energy efficiency, the circular economy, energy-efficient housing and sustainable mobility.

Table 2. Comparative Assessment of the Implementation of the Principles for Responsible Banking

Principle	Eurobank Bulgaria AD	UniCredit Bulbank AD
Alignment	3	4
Impact and Target Setting	2	3
Clients and Customers	3	4
Stakeholders	3	3
Governance and Culture	3	4
Transparency and Accountability	4	3
RBII	2.95	3.55
Level of Integration	Moderate	Advanced

Source: Author's own elaboration.

The comparative assessment identifies a difference of 0.60 points between the two banks. This difference does not reflect the presence or absence of sustainable practices, but rather varying degrees of institutional maturity and depth of integration. UniCredit Bulbank AD demonstrates higher scores in strategic alignment, impact and target setting, clients and customers, and governance and culture, while Eurobank Bulgaria AD performs most strongly in the dimension of transparency and accountability.

The main finding of the analysis is that the RBII overcomes the limitations of the binary distinction between formal adoption and practical implementation of the Principles by enabling quantitative measurement and comparison of the degree of their institutional integration. The results demonstrate that commitment to the same international framework may be reflected in varying degrees of integration across individual banking institutions. In this way, the index establishes a methodological foundation for the subsequent assessment of the relationship between the implementation of the Principles and the financial performance of the banks under examination.

3. Financial Performance and Profitability of the Banks under Examination in the Context of Responsible Banking

The third section of Chapter III examines the relationship between the implementation of the Principles for Responsible Banking and the financial performance of UniCredit Bulbank AD and Eurobank Bulgaria AD. The analysis covers the main research period of 2019–2025, with data from preceding years used where necessary for comparative and benchmarking analyses of financial indicator trends. Financial performance is assessed using return on assets (ROA), return on equity (ROE), net interest margin (NIM) and the cost-to-income ratio (CIR), employing descriptive, correlation and econometric approaches.

To distinguish between the periods before and after the adoption of the Principles, the binary variable PRBit is used, taking a value of 0 before accession and 1 thereafter. For UniCredit Bulbank AD, the variable takes a value of 0 for 2017–2019 and 1 for 2020–2025, while for Eurobank Bulgaria AD, it takes a value of 0 for 2017–2020 and 1 for 2021–2025, respectively. This specification makes it possible to trace changes in financial indicators following the formal adoption of the Principles, while recognising that their actual integration is a gradual process.

The descriptive analysis reveals differing trends between the two banks. At UniCredit Bulbank AD, the decline in 2020 was followed by a marked recovery in profitability and an improvement in operational efficiency, with ROA reaching 2.71% in 2024, ROE reaching 22.82%, and CIR declining from 35.02% in 2017 to 28.18% in 2025. At Eurobank Bulgaria AD, ROA and ROE exhibit more moderate changes, while NIM remains higher throughout the entire period. However, these developments cannot be directly attributed to the implementation of the Principles, as they are also influenced by the macroeconomic and sectoral environment.

The correlation analysis confirms a strong relationship between profitability and operational efficiency, while the relationship between PRBit and the financial indicators remains weak and inconclusive. This provides the rationale for applying a regression model incorporating a sectoral control variable:

$$FPit=\alpha+\beta 1PRBit+\beta 2FPsector,t+\varepsilon it$$

where β_1 measures the average change in the financial indicator following the adoption of the Principles, while β_2 captures the influence of sectoral dynamics. ROA, ROE, NIM and CIR are used successively as dependent variables. This approach distinguishes between changes associated with the period following the adoption of the Principles and general trends in the banking sector.

Table 3. Results of the Regression Analysis of the Relationship between PRBit and the Financial Performance of the Banks under Examination

Table 3. Results of the Regression Analysis of the Relationship between PRBit and the Financial Performance of the Banks under Examination

Indicator	Variabel	Pooled Sample	UniCredit Bulbank	Eurobank Bulgaria AD
ROA	β_1/PRB/	-0.0016	0.0000	-0.0038
	p-стойност	0.3705	0.9759	0.0223

	β_2/Сектор/	1.0195	1.4755	0.4706
	R^2	0.6800	0.9622	0.7611
ROE	β_1/PRB/	-0.0049	-0.0023	-0.0152
	p-стойност	0.7439	0.8061	0.1487
	β_2/Сектор/	1.0625	1.4813	0.5566
	R^2	0.6900	0.9705	0.7653
NIM	β_1/PRB/	-0.0045	-0.0004	-0.0022
	p-стойност	0.4140	0.9079	0.3998
	β_2/Сектор/	0.5663	0.5604	0.7627
	R^2	0.2862	0.5167	0.7106
CIR	β_1/PRB/	-0.0135	-0.0058	0.0110
	p-стойност	0.6339	0.7012	0.6915
	β_2/Сектор/	0.9755	1.3591	0.2254
	R^2	0.3464	0.9176	0.0935

Note: β_1 reflects the effect of PRB, while β_2 represents the sectoral factor; $p < 0.05$ indicates statistical significance.

Source: Author's calculations based on data from the Bulgarian National Bank.

The results for the pooled sample do not establish a statistically significant relationship between PRBit and any of the four financial performance indicators. At the same time, the sectoral factor plays a substantial explanatory role, particularly in relation to ROA and ROE, indicating that the financial performance dynamics of the banks under examination are largely influenced by general trends in the banking sector.

For UniCredit Bulbank AD, no statistically significant independent effect of PRBit is identified for any of the indicators analysed. The high coefficients of determination for ROA, ROE and CIR indicate a strong relationship with sectoral dynamics. Consequently, the observed improvement in financial performance cannot be isolated as a direct effect of adopting the Principles.

For Eurobank Bulgaria AD, the only statistically significant relationship is observed for ROA ($\beta_1 = -0.0038$; $p = 0.0223$). The negative sign of this coefficient should not be interpreted as evidence of an adverse causal effect, as the result may reflect concurrent processes of adaptation, restructuring and other bank-specific factors. No statistically significant relationships are identified for ROE, NIM or CIR.

The comparison between the two banks reveals differing financial performance dynamics but does not provide robust statistical evidence of a short-term effect arising from the implementation of the Principles. UniCredit Bulbank AD, which demonstrates a higher degree of institutional integration according to the RBII, exhibits more favourable trends in some financial indicators, particularly operational efficiency. However, the econometric analysis does not allow these developments to be distinguished from the influence of the sectoral environment.

Within the empirical research, four null hypotheses were tested concerning the absence of a statistically significant relationship between PRBit and ROA, ROE, NIM and CIR. The results do not provide sufficient statistical grounds for rejecting H0a–H0d. Therefore, within the specification employed, an independent and sustained short-term effect of implementing the Principles on traditional financial performance indicators is not confirmed.

The main conclusion is that a higher degree of institutional integration of the Principles does not automatically or immediately translate into improved financial indicators. The results demonstrate the predominant influence of sectoral dynamics and reveal a time lag between the institutional integration of sustainability and its reflection in traditional financial performance indicators. This supports the understanding that the effects of sustainable transformation may emerge over time through changes in business models, risk management, lending policies and operational efficiency.

Conclusion

The present doctoral dissertation examines the adaptation of banking activities to financing sustainable development through the integration of sustainable and responsible banking principles into the strategic, governance and operational processes of credit institutions. The theoretical and empirical research conducted allows this process to be interpreted as part of a broader institutional and functional transformation of financial intermediation, rather than merely as a response to individual regulatory or environmental requirements.

The theoretical analysis establishes that sustainable banking is shaped by interconnected economic, social, environmental and institutional factors. The Triple Bottom Line concept, Stakeholder Theory and Institutional Theory provide complementary foundations for explaining this transformation, revealing, respectively, changes in the understanding of value creation, the expansion of the responsibilities of banking institutions, and the mechanisms through which they adapt to the changing institutional environment. In this context, the Principles for Responsible Banking have become established as a framework for the practical integration of sustainability into banking strategies, governance and business processes.

The analysis of the international and European environment reveals a gradual transition from voluntary standards and initiatives towards the regulatory and institutional integration of sustainability into the financial sector. The European regulatory architecture establishes an interconnected system of sustainability criteria, standardised information, disclosure requirements and prudential transparency, through which sustainability factors are progressively incorporated into lending decisions, risk management and the allocation of financial resources. The European Investment Bank complements this

architecture by mobilising long-term financing and disseminating sustainable finance criteria and practices across national financial systems.

The empirical analysis establishes that the adaptation of the banking sector in the Republic of Bulgaria is taking place within an environment characterised by a high degree of European regulatory integration, significant market concentration and a substantial presence of international banking groups. This gives rise to interaction between European regulatory requirements and the strategies and governance mechanisms developed within international banking groups. At the same time, limitations concerning the availability and comparability of ESG information demonstrate that sectoral changes in lending cannot, in themselves, be used as a direct measure of sustainable banking finance.

A significant outcome of the research is the development of the Responsible Banking Implementation Index (RBII), which transforms the qualitative characteristics of the implementation of the six Principles for Responsible Banking into a comparable quantitative assessment. Its application produces an RBII value of 3.55 for UniCredit Bulbank AD, corresponding to advanced integration, and an RBII value of 2.95 for Eurobank Bulgaria AD, corresponding to moderate implementation. The results demonstrate that commitment to the same international framework does not necessarily imply an equivalent degree of institutional and operational integration.

On the basis of the research conducted, the central thesis of the dissertation is confirmed. The adaptation of banking activities to financing sustainable development is achieved through the gradual integration of sustainable and responsible banking principles into strategic management, risk management, lending policies, stakeholder engagement and reporting. This process is shaped by the combined influence of the regulatory environment, institutional pressures and the strategic decisions of banking institutions and the groups to which they belong.

However, the econometric analysis does not provide sufficient statistical evidence to confirm the hypothesis of an immediate relationship between the implementation of the Principles for Responsible Banking and banks' financial performance during the period under examination. Using the binary variable PRBit, no consistent, statistically significant independent effect is identified on return on assets (ROA), return on equity (ROE), net interest margin (NIM) or the cost-to-income ratio (CIR). The only statistically significant relationship is identified for ROA at Eurobank Bulgaria AD; however, its negative sign and the isolated nature of the result do not permit a causal conclusion to be drawn. At the same time, the results demonstrate the substantial importance of sectoral dynamics for the financial performance of the banks under examination.

The absence of an immediately identifiable statistically significant financial effect does not imply that sustainable banking lacks economic significance. The higher degree of institutional integration at UniCredit Bulbank AD coincides with more favourable trends in certain financial indicators, particularly operational efficiency. However, the econometric specification employed does not allow these developments to be isolated as an independent effect of implementing the Principles. This provides grounds for examining the impact of sustainable transformation over a longer time horizon and in relation to changes in business models, risk management, lending policies and organisational capacity.

On this basis, a significant finding is the existence of a temporal and functional gap between the institutional integration of the Principles for Responsible Banking and the effects of their implementation on traditional financial performance indicators. Between these two processes lies a period of institutional adaptation during which banks develop their governance, information and analytical capacities and restructure their lending and risk management mechanisms. Consequently, the assessment of sustainable banking

should not be limited solely to immediate changes in profitability and efficiency indicators.

In summary, the findings of the doctoral research provide grounds for considering sustainable banking as a stage in the evolution of modern financial intermediation, in which sustainability gradually shifts from being predominantly a voluntary commitment and an external regulatory requirement towards becoming a structural component of the banking business model. The international and European institutional environment creates the conditions for this transformation, the Principles for Responsible Banking provide a framework for its practical implementation, and the extent of their actual integration depends on the institutional capacity, governance mechanisms and strategic maturity of individual banking institutions.

IV. SUMMARY OF SCIENTIFIC CONTRIBUTIONS

As a result of the theoretical and empirical research conducted, the following scientific and applied scientific contributions can be identified:

1. An integrated theoretical framework has been developed for examining the adaptation of banking activities to financing sustainable development, based on the interrelationship between Triple Bottom Line Theory, Institutional Theory and Stakeholder Theory. Their combined application provides a theoretical foundation for the transformation of traditional financial intermediation towards a model that incorporates financial, social and environmental dimensions of value creation.

2. The evolution of the international and European regulatory architecture for sustainable finance has been systematised, and the underlying mechanisms through which it influences banking activities have been identified. The transition from voluntary international standards towards the regulatory institutionalisation of sustainability within the European Union has been established, and the interrelationship between sustainability criteria, corporate reporting, financial disclosures and their integration into bank governance, risk assessment and capital allocation has been substantiated.

3. The role of the European Investment Bank as an institutional and financial mechanism for the practical implementation of European sustainable finance policy has been assessed. The significance of its transformation into the European Union's climate bank has been established in terms of directing capital towards sustainable investments and transferring sustainable finance criteria and practices to commercial banks through financial intermediation mechanisms.

4. The author's Responsible Banking Implementation Index (RBII) has been developed and empirically tested, enabling qualitative information on the implementation of the six Principles for Responsible Banking to be transformed into a comparable quantitative measure. The index employs a system of relative

weights and allows the degree of institutional integration of responsible banking within individual credit institutions to be assessed and compared.

5. A comparative empirical assessment has been conducted of the degree of institutional integration of the Principles for Responsible Banking in selected commercial banks in Bulgaria. Through the application of the RBII, different levels of institutional maturity have been identified—advanced integration at UniCredit Bulbank AD and moderate implementation at Eurobank Bulgaria AD—and the dimensions accounting for the principal differences have been established. This demonstrates that the formal adoption of the same international framework does not necessarily imply an equivalent depth of practical implementation.

6. Through the combined application of index-based, comparative, correlation and econometric analyses, a discrepancy has been identified between the institutional integration of the Principles for Responsible Banking and their immediate effects on traditional financial performance indicators. No consistent, statistically significant independent short-term effect of PRBit on ROA, ROE, NIM or CIR has been established, while sectoral dynamics have been found to play a substantial role. On this basis, the need has been identified to assess the effects of adaptation to sustainable banking over a longer time horizon and through indicators extending beyond immediate profitability and operational efficiency.

V. PUBLICATIONS RELATED TO THE DISSERTATION

1. Popnikolova, D. D. (2026). Sustainable Banking as a Process of Institutional Adaptation: Regulatory Framework and Implementation in the European Union and Bulgaria. Economic Thought, Vol. 71, No. 3, pp. 447–467. DOI: https://doi.org/10.56497/etj2671305.

2. Popnikolova, D. D. (2026). Beyond Formal Commitment: An Index for Assessing the Degree of Implementation of the Principles for Responsible Banking. In: Economic Transformations in a Global World. Proceedings of the International Scientific Conference, 12–13 June 2026. Varna: Varna Free University "Chernorizets Hrabar", pp. 341–352. ISBN 978-954-715-819-1.

3. Popnikolova, D. D. (2025). The Role of the European Investment Bank in the Development of Sustainable Banking in the EU. In: Economic Transformations in a Global World. Proceedings of the International Scientific Conference, 20–21 June 2025. Varna: Varna Free University "Chernorizets Hrabar", pp. 303–312. ISBN 978-954-715-785-9.