# MINISTRY OF EDUCATION UNIVERSITY "1 DECEMBRIE 1918" OF ALBA IULIA FACULTY OF ECONOMIC SCIENCES DOCTORAL SCHOOL OF ACCOUNTING

# SUMMARY OF THE DOCTORAL THESIS

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2023

# MINISTRY OF EDUCATION UNIVERSITY "1 DECEMBRIE 1918" OF ALBA IULIA FACULTY OF ECONOMIC SCIENCES DOCTORAL SCHOOL OF ACCOUNTING

## THEORETICAL-EMPIRICAL RESEARCH ON BANKING PERFORMANCE BASED ON ACCOUNTING INFORMATION

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2023

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**Keywords:** banking performance, bank efficiency, bank profitability, accounting information, financial reporting, International Financial Reporting Standards (IFRS), Financial profitability, Economic profitability, ROE, ROA, systematic literature review, bibliometric analysis, econometric modeling, linear regression, panel, static and dynamic panel econometric models.

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#### Introduction

The role of banks in the economy has aroused the interest of the academic world and of the specific industry in all periods of modern economic development, and in situations of crisis manifestation (economic, pandemic, geopolitical or of other typologies), specialized studies acutely highlight the importance of banks in supporting the economy. *Banks are the backbone of financial infrastructure* and a well-functioning financial system is a prerequisite for economic development (Gržeta et al., 2023). As key intermediaries of the economy, banks are expected to effectively manage risks and vulnerabilities to financial stability through the adequacy of financial and prudential positions, i.e. their ability to manage social, economic or environmental shocks.

The international financial crisis that started in 2007, the manifestations of the COVID-19 pandemic, starting with 2020, geopolitical developments in Eastern Europe (amid the military conflict in Ukraine), record levels of inflation and the energy crisis are the most important *challenges that have brought into question the resilience of banking systems in recent years*. The most recent events that tested financial stability after the 2007 crisis occurred *in the United States in March 2023, when two banks went bankrupt*, amid the massive withdrawal of depositors' funds (Silicon Valley Bank and Signature Bank of New York), and in *Europe*, Swiss authorities announced a state-backed merger of Credit Suisse with USB (FMI - Global Financial Stability Report, 2023). Market reactions have not been long in coming, risk aversion has increased and global concerns about the stability of financial systems are evident, amplified by the speed with which information flows today, thanks to digital technologies and the interconnectedness of financial markets.

The topic of fragility of banking systems remains topical and the desideratum of resilient and robust banking systems requires banking regulators and decision-makers to design policies and implement tools that lead to restoring confidence in the banking environment, efficient risk management and avoiding crisis situations. The architecture of banking system supervision is based on governance and risk management systems at the level of banking institutions, which are confronted on the one hand with the interests of capital holders in maximizing profits and are exposed, on the other hand, to the need to implement banking prudential provisions and strict accounting rules, leading to accepted levels of liquidity, capital adequacy and efficient risk management. In this complex gear of banking management, located between important poles of interests – regulators, bank shareholders and potential investors – the subject of banking performance is an extremely sensitive one, with strong connotations of exposure to accounting distortion, a major marker of anxiety on banking markets and at the same time, exposed to their volatility.

Banking performance is particularly affected by events and circumstances over the past two decades, amid risks and uncertainties over the past 15 years, characterized by at least two major financial crises. The banking systems in different states have faced and continue to face complicated situations, from various areas, regarding liquidity, solvency, capital requirements, major changes in the banking accounting paradigm in the context of the entry in 2018 of IFRS 9 "Financial instruments", increasing risk aversion of investors, increasing competition, structural changes in customers' saving and indebtedness behaviors, expansion of digital banking technologies, Fintech, etc. Thus, banking systems had to configure and implement tools to manage the new banking reality, in a dynamic and unpredictable banking environment.

A brief incursion into the recent evolution of banking performance at European level, in the Member States of the Economic and Monetary Union, respectively for the Euro area, reveals for 2021 and 2022 robust profitability levels (as a major indicator of banking performance), comparable to those before the onset of the COVID-19 pandemic, amid lower costs related to credit losses, reduced operating expenses and higher operating income driven by wider margins and higher loan volumes (ECB - Annual Report, 2021; ECB - Annual Report 2022). However, banks continued to be challenged in 2021 in various ways by pre-pandemic structural issues, such as low cost efficiency, limited income diversification, overcapacity and compressed margins in a low-interest environment (ECB - Annual Report, 2021). In 2022, despite the significant worsening of the economic outlook, the most important source of impairment in bank performance, represented by non-performing loans, shows that they have declined further, but there are certain trends in increasing credit risk in relation to accounting approaches to "underperforming" loans under IFRS 9 "Financial instruments" (ECB - Annual Report, 2022).

Drivers of changes in euro area ROE between 2017 and 2022 (*Figure no. R.1*) capture a major influence of impairment of financial assets, especially after 2018, when IFRS 9 "Financial instruments" is applied in accounting, with complex rules and generating in the first phase increased amounts of provisions for non-performing loans. They eroded banking performance between 2018 and 2021 and the COVID-19 pandemic, superimposed on part of that period, only catalysed the loss-making factors in the euro area banking industry.

These are just two examples of factors that generated changes in bank performance profiles, analyzed with aggregated data, at country level. They are added - depending on the research perspective, the analyzed period and the geographical area - multiple other elements that can impact banking performance and require adequate, scientifically substantiated and proven methods of analysis.





Source: Financial Stability Review, May 2023 (ECB - Financial Stability Review, 2023).

If attention shifts from the macroeconomic perspective to the micro-banking perspective, the results are at least surprising if we analyze the differences between banks. For example, *quartile analysis of banks in the euro area* shows a high degree of heterogeneity of banks, given that, between 2017 and 2022, the Return on Equity (ROE) gap between the best performing and least performing banks remains around 12%, and credit

quality and cost inefficiency seem to be the main causes of disparities between banks (ECB - Financial Stability Review, 2023).

At national level, the dynamics of the performance of active banks in Romania during 2009-2023 (March) (*Figure no. R.2*), studied from the perspective of profitability indicators (ROA Return on assets and ROE Return on equity) highlights generally nonlinear changes over the studied period, with trends to increase ROE and maintain ROA in recent years. The analysis of such dynamics is intriguing and requires a careful and not disparate investigation of the phenomenon, but the adequate identification of determinants and influencing relationships with banking performance. The difficulty of capturing those determinants that could affect banking performance lies in the complex mechanisms within which banks operate, in their interactions with different agents of the economy – shareholders, investors, supervisors, customers, lenders, etc. – which has a strong impact on banks' performance profiles. It matters enormously in studying banking performance what are the characteristics and vulnerabilities of the macroeconomic environment in which banks manifest their valences, what is the historical period analyzed, whether or not geopolitical tensions occur, what are the particularities of the financial markets involved or what type of uncertainties are manifested at regional and global level. Close links between the banking and government sectors can contribute to banking performance levels, and the dependence of banking performance on prudential regulations, including bank accounting, is obvious and difficult to assess.





Source: own processing of data on aggregated indicators of credit institutions available on the interactive database of the National Bank of Romania, <u>https://www.bnr.ro/Raport-statistic-606.aspx accesat in iunie 2023</u>.

The plethora of possible determinants of banking performance must be continued with another essential category – those attributed to bank management, *corporate governance and levels of responsibility assumed by bank management*. To what extent increasing operational efficiency is sufficient to increase banking performance is difficult to specify, because many other factors matter in the answer equation – the size of the bank, the level of complexity of financial assets, the business model (priority financing of certain customer

segments or, on the contrary, a global approach to financing all the needs of the economy) or the degree of digitalization.

Concerns about banking performance analysis are recorded in an *extensive literature*, as well as at the level of *supervisors*, central banks, the European Central Bank, etc. - which regularly publishes materials on financial stability, allocating consistent spaces for topics related to banking performance.

The international banking environment has been characterized over the past five decades by prudential regulatory concerns for banking systems, and the Basel Committee on Banking Supervision has a key role to play in this regulatory endeavour. *The analysis of the evolution of the Basel Agreements (I-IV)* shows the strong connection of regulations with the stage of development of banking systems and economies in general. Important legal regulations at European level, in accordance with Basel provisions, have been configured in *the CRRIII / CRDVI* Directive (Capital Requirements Regulation / Capital Requirements Directive) (Directiva CRRIII / CRD VI, 2022) and transposed into Member States' national laws.

#### Motivation and importance of the research

The doctoral thesis is part of the research flow of the entities' performance, respectively of the peculiarities of performance in the banking environment. Even if the literature pays consistent attention to the subject and multiple studies or research perspectives can be identified, there are still levels of banking performance that require further scientific investigation and clarify the interferences between accounting information and banking performance, delimit the role of bank accounting information in configuring banks' performance profiles and analyze the implications of regulatory frameworks accounting (such as the one based on International Financial Reporting Standards – IFRS) on banking performance metrics.

The practical rationale for choosing the research topic is based, first of all, on the importance of banking performance issues for the financial industry, affected by an accentuated dynamics of specific regulatory aspects and interdependencies with the economy as a whole. The banking environment, directly interested in maximizing the value of return on capital and satisfying the interests of bank capital holders, considers profitability a major item of the logbook of managers and shareholders alike. The accounting aspects of banking performance are key technical elements in the processes of determining, evaluating and monitoring bank performance, which makes them susceptible to misrepresentation, creative accounting judgements or even fraud.

*The topicality of the theme is given by the constantly changing economic environment, as well as by the* challenges faced by banking systems in recent years and which impact performance – such as the economic crisis of 2007, followed by the recent COVID-19 pandemic crisis (starting in March 2020), the energy crisis triggered by geopolitical tensions in Eastern Europe (starting with 2022) and the recent bank failures in the United States of America (March 2023).

*The desideratum of resilience and robustness of banking systems* remains permanently in the attention of banking regulators and supervisors, and banking performance is an "unknown" permanently targeted in complicated banking supervision equations. Banking management is concerned with banking performance in contexts of obvious information asymmetry, between the interests of capital holders in maximizing profits and various other categories of users of performance information, various banking stakeholders - potential

investors, creditors, debtors, etc. – whose interests are not generally converging with those of bank shareholders.

The scientific arguments regarding the need for research in the chosen field were outlined following the literature review, which confirms the initial expectations regarding the importance of research and brings valuable structured details on the types of studies available, the research directions already studied, the methodologies used and the results obtained. Economic literature pays great attention to the performance of banks, expressed in terms with various connotations - profitability and productivity, competition, concentration and efficiency. The incipient approaches of unstructured research on the subject of banking profitability in international databases containing scientific articles or the simple search of terms on the Internet lead to the identification of a significant number of studies, points of view, communiqués, normative acts, etc. from the researched area, with numerous subtopics, such as banking performance and corporate social responsibility policies, banking performance analysis models and empirical studies, as well as banking performance in relation to banking risk elements, etc. The assumption of the abundance of studies in the area of banking performance was also confirmed in a scientifically structured research of the specialized literature, but it is not accompanied by a flow of easily identifiable publications in the specific field of banking performance from an accounting perspective, which led to the second reason for choosing the subject, namely the scarcity of scientific information resources on banking performance from an accounting perspective and the need to configure studies that capture the essence of banking indicators specific to banking performance and associated accounting aspects.

In such a plethora of research on existing banking performance, the information niche to which the doctoral thesis is addressed is explored to a lesser extent and a smaller number of studies have been identified highlighting the connection of banks' accounting with performance dynamics. From many studies analyzed, it emerged that it seems to be a self-evident subject - a tautological manner in which accounting is considered the producer of basic information in an entity (including for determining performance), without realizing that countless processes and events in the life of the entity depend on how accounting information is developed. And performance is a distinct category of information, with multiple perspectives of interaction with internal or external banking factors, banking managerial decision marker or major element for the decisions of various stakeholders.

The accounting research covered by this paper *has an applicative importance*, given that it presents *accounting information from the perspective of the primary source of data for banking performance analysis*. In general, in the analysis of bank performance, emphasis is placed on specific measurement indicators, without paying attention to accounting techniques that capture the essence of banking phenomena, apply accounting reasoning and provide essential information for profitability analysis. If erroneous information is intentionally introduced into the accounting flow for producing the profitability indicator base or errors involuntarily occur, the profitability analysis will be vitiated and, implicitly, the managerial, business or disclosure processes will be affected.

This doctoral thesis addresses the structural mechanisms of accounting development of bank profitability information based on International Financial Reporting Standards (IFRS), the deep springs that characterize them downstream or upstream of the accounting flow, as well as the impact of legislative changes on banking performance, such as the comparative analysis of IAS 39 and IFRS 9, as well as their impact on banking performance indicators.

#### **Research objectives**

The main objective of the research is to delimit and analyze the role of accounting determinants in establishing and evolving banks' performance profiles.

As such, this work has a *dual purpose*. On the one hand, the study aims to conduct a critical and comprehensive analysis of the literature dedicated to identifying and analyzing the main indicators, methodological projects and determinants of banking performance. On the other hand, the study aims to investigate the role of several factors specific to banking, macroeconomics and legislative changes on the evolution of banking performance at national and European level, with a special emphasis on the role of information provided by accounting on the profitability indicators studied.

Clarifying the motivation and purpose of this scientific endeavor leads to the establishment of the main *research questions*:

- *Q.1. How have performance measurement systems evolved and what are the accounting indicators associated with banking performance?*
- *Q.2.* What are the major milestones of recent banking performance dynamics at national, European and international level?
- *Q.3.* What banking accounting mechanisms underlie the determination and transparency of bank performance profiles?
- *Q.4. How does the application of International Financial Reporting Standards (IFRS) affect banking performance?*
- *Q.5.* To what extent does the previous literature investigate banking performance?
- Q.6. Does the degree of banking transparency influence banking performance?
- *Q.7.* What is the impact of macroeconomic determinants and internal banking accounting factors on banking performance?

The series of *specific objectives* likely to facilitate the research process is configured on the basis of research questions and refers to the following:

*Objective nr.1.* Conceptual delimitation of performance from double perspectives (epistemological and chronological), customization of the performance approach in the banking environment and configuration of a set of indicators to quantify bank performance.

*Objective nr.2.* Establishing the essential coordinates of the recent historical dynamics and of the regulatory framework of banking performance at national, European and international level.

- *Objective nr.3.* Determining the general framework in which bank accounting operates and how it can impact the processes of determining performance indicators and their public disclosure.
- *Objective nr.4.* Theoretical-empirical examination of the impact of applying International Financial Reporting Standards (IFRS) on banking performance metrics, focusing on the implementation of IFRS 9 starting with 2018.
- *Objective nr.5.* Systematic review and bibliometric analysis of the literature in the field of banking performance, in order to identify the main existing research directions.

- *Objective nr.6.* Empirical investigation of the association between the degree of transparency and the performance of banks active in Romania, presenting the mediating role of accounting factors on this relationship.
- *Objective nr.7.* Econometric modelling of the influence on banking performance of a set of macroeconomic determinants and internal banking accounting factors in the European Union (empirical studies at European country and banking group level).
- *Objective nr.8.* Configuring the final set of conclusions of theoretical and practical research, by reporting to research results, setting limits and future research directions.

In order to achieve the general objective and the specific ones set, distinct sections of the thesis are developed, which are based on distinctly specified assumptions, research questions and hypotheses, as appropriate.

#### **Research methodology**

Among *the approaches of methodological currents* in economic sciences – systematic, constructivist, evolutionary, historical, behavioral or situational (Romanenko & Rakhuba, 2019) – the present research is in line with a systematic, evolutionary approach and a *positive constructivist epistemological positioning*, which is based on the study of the economic phenomenon and on the role of quantitative modeling in explaining its evolution (Bakir & Bahtiyar, 2021; Rogojanu & Serban-Oprescu, 2013). From the point of view of how to identify information, this research uses simultaneous mixed methods, combines qualitative research based on narrative exploration with quantitative research and emphasizes experimental research (determining the influences of certain factors) (Andrei et al., 2020).

The complexity of the studied phenomenon requires an adequate methodological approach and a range of associated methodological tools, combining fundamental research with quantitative research and modern methods with classical methods. The danger of excess mathematization seems to encompass many of the recent approaches in the field of economic sciences and is realized and finding that direction that leads to efficient research with adequate mathematical-statistical-econometric tools is a desideratum of the present study. From a technical point of view, the present research is supported by *the Mendeley bibliographic referencing program, econometric processing in STATA and bibliometric analysis by VOSviewer*.

The processes of establishing methodological benchmarks of theoretical-empirical study of banking performance based on accounting information involve taking into account *two essential peculiarities* of economic science: the first, aimed at <u>high degrees of instability of economic variables and the nonlinearity of relations between them, and</u> the second, which draws attention to the <u>subjectivity of the researcher in formulating conclusions and recommendations</u> specific to economic science (Răboacă & Ciucur, 2004). Overcoming these characteristics of research specific to economics is a desideratum aimed at throughout doctoral studies and which leads to the configuration of those methodological tools that contribute to solid, realistic and impactful results.

The doctoral thesis is subordinated to an epistemological positioning, which is defined as the conduct that the researcher proposes in order to "access the real" and bring novelty elements, in the context of the general theory of scientific knowledge (Niculescu & Vasile, 2011). Thus, research practice, the choice of research methods and directions, as well as the selection of criteria for validating scientific contributions are influenced

by this epistemological position. As such, for a better structuring of this paper, the scientific approach and methodology used are schematically represented in figure no. R.3.

#### Figure no. R.1 The methodology used in the research approach.



Source: elaborated by the author.

### Synthesis of the paper

The doctoral thesis comprises 7 chapters, 40 paragraphs and prior to the presentation of the chapters, contains distinct sections of keywords, introduction, motivation and importance of research, objectives, research methodology and structure of the work. The final section presents conclusions, own contributions, limits and perspectives of the research, as well as steps for disseminating the results. The thesis contains 43 figures and 43 tables, as well as a number of 377 bibliographic sources.

From a compositional perspective, the paper aims at a gradual exposure of the scientific approach, through the initial presentation of the conceptual framework of performance, the transition to bank performance and the main quantification indicators. The second section presents the performance dynamics of approximately the last thirty years in Romania, Europe and a brief comparison with the United States of America, in order to know the realities of banking performance in various geographical areas. The following aspects studied refer directly to the research field of accounting in the banking environment and address the essential role of accounting information in assessing banking performance, as well as the legislative framework materialized by International Financial Reporting Standards (IFRS) applicable to the banking industry. Against the background of the vast volume of literature on banking performance, the analysis of existing studies is carried out with the help of systematic review and bibliometric analysis, which led to the identification of the main clusters of literature – essential items in configuring the applied sections of research. Econometric modelling of bank performance indicators and presentation of the main influences, both at national and European level, form the final sections of the research.

The first chapter conceptually delimits the generally studied phenomenon - performance, makes the transition to the banking significance of performance, presenting theoretical approaches to banking performance and its measurement, in order to establish an adequate conceptual framework and to grasp the essential aspects of banking performance and its indicators. The objective of this chapter refers to the creation of a conceptual framework specific to banking performance, as a basis for further analysis of banking performance, both from a theoretical and practical perspective.

The paper begins with a synoptic description of performance measurement processes, focusing on the period from the beginning of the twentieth century to the present. It continues with the theoretical delimitation of performance and associated terms, systematizes specific performance aspects for the banking field and studies the main indicators for measuring banking performance identified in the specialized literature.

Banking performance can be defined as a reflection of how the banking institution uses its resources to achieve its objectives (Ebrahimi et al., 2021) and refers to the ability to generate sustainable profitability (Ferrouhi, 2018; Monea, 2016). There is a wide range of methods and indicators for measuring bank performance, and choosing and using them appropriately in assessing bank performance is challenging, given their variety and the many facets they can capture. At the same time, the literature mainly records certain bank profitability indicators (such as Return on Assets (ROA), Return on Equity (ROE) and Cost-Income Ratio (CIR)), present in most banking performance analysis studies and which can be considered representative for performance appraisal processes. The tendency for bank profitability to be measured by return on assets (Moufty et al., 2021) is considered the easiest method of measuring financial performance applied within the banking sector (Simpson & Kohers, 2002). The literature records a number of derivatives of return on assets (Helfert, 2001), such as: Return on Average Assets (ROAA), Gross return on assets (GROA), Net return on assets (NROA).

The second chapter aims to describe, both quantitatively and in terms of comparative qualitative analysis, the dynamics of the main indicators of banking performance, nationally and internationally. The first section presents how the Basel Committee has contributed, since the 70s, to the development of banking regulations internationally, focusing on banking performance aspects. The next two paragraphs study from a dynamic perspective the evolution of banking performance for the national, European and international area, starting with the 90s until now (July 2023). Thus, this chapter contributes to creating a primary basis of indicators used

by central banks and supervisory bodies and, at the same time, allows the identification of factors that influenced the evolution of banking performance for the area and time period studied.

The analysis of the succession of the Basel Agreements – from Basel I to Basel IV (alternatively, 3.1) showed that the issue of banking performance, although not explicitly mentioned in the first line of the description of the agreements, is nevertheless a subject closely connected with the main themes extensively described in the mentioned regulations, in particular capital adequacy and risk-weighted assets. The CRRIII / CRDVI Directive show the importance given to profitability in the regulatory frameworks of the European Union, given that, as of January 1, 2015, each credit institution reports to the supervisory authorities the profit or loss before tax and corporate income tax (for each Member State and each third country that has established a branch). In terms of public disclosure of banking performance information, the CRRIII / CRD VI Directive expressly provides for the publication of return on assets (Article 90) - the asset return indicator is considered a key indicator in annual reports and must be published. The European regulation also lays down the modalities for calculating the amount of capital, consisting of Common and Additional Tier 1 capital and Tier 2 capital. Bank capital is considered a key determinant of banks' performance, and previous literature has mixed on the link between capital adequacy and bank performance (Le et al., 2023; Oyetade et al., 2023; Awdeh et al., 2011), however, most studies converge to evidence of the positive relationship between the implementation of the provisions of the Basel capital agreements (bank capital) and banking performance.

Once the interest of banking regulators for banking performance and literature for the relations between banking regulations – capital – risk-weighted assets – performance has been established, the next two sections of the chapter (national, respectively European and international banking performance statement) generate synthetic, chronological and comparative information of banking performance levels and profiles for the period '90-2023. Dynamics of performance in the Romanian, European and international banking system (compared to the United States of America) was established by appealing to the public reports of the banking supervisory authorities. The uneven evolution of banking performance is, on the one hand, explained by the influence of cyclical factors (such as the international financial crisis that started in 2007, the manifestations of the COVID-19 pandemic in 2020-2022) or structural factors, the different economic environment from state to state, national regulations and banking supervision (Basel agreements).

The **third chapter** presents theoretical aspects regarding the role, significance and quality of accounting information in measuring banking performance. In the first part, essential aspects of accounting specific to the banking field are captured, between universality and contingency, by appealing to the conceptual framework of financial reporting and the qualitative characteristics of accounting information. For the banking industry, an essential feature refers to information transparency, a topic developed in the next sequence of this chapter. Increased transparency increases banks' stability and contributes positively to increasing banking performance, according to the studies analysed (these aspects contribute to establishing assumptions for the case study in Chapter 6). The third phase of bank accounting research addresses the link of accounting information to banking performance.

Within the broader framework of corporate governance theory and information asymmetry, stakeholder theory, which assumes that an entity's management should be able to reconcile the interests of various categories of stakeholders (Freeman, 1984, 2010; Macini et al., 2022), seems to be appropriate to the banking environment, given that the role of stakeholders in the banking industry is essential and banking management

is interested in their information needs (An et al., 2022; Batae, Feleagă, et al., 2020; Frecea, 2016; Ionescu et al., 2020).

A significant percentage of banking information useful to management and different categories of users is generated by accounting, which provides information to distinct categories of users, whose objectives, choices and needs can often be contradictory. Accounting information is the basic source in assessing bank performance, and its quality is defining for the quality and representativeness of bank performance indicators. Under the term 'quality of accounting information ', approaches can be identified that appear to have meanings close to fair representation, fair value or validity of information, and more broadly, accounting information is a qualitative one if it represents the fundamental principles that it is supposed to mirror (Stenheim & Madsen, 2017). Beyond conceptual nuances, different metrics are associated with high-quality accounting information, such as revenue smoothing techniques, results management, loss recognition methods, or revenue-cost information torque – all of which are specific to the performance area (Barth et al., 2023; Klish et al., 2021; Lang et al., 2003; Abu Alrub et al., 2018).

Banks are considered more opaque than other industries and face information asymmetry (Ha, 2021; Flannery et al., 2004), amid the inherent complexity of the business (Levine, 2004) and the complex information needs of stakeholders. Transparency is often found in specialized studies under the meaning of transparency of financial performance (Nasreen et al., 2023), and increased transparency contributes to an increase in banking performance (Nasreen et al., 2023; Oino, 2019), reduces the risk of banking crises and increases banks' stability (Akhigbe et al., 2013; Barakat & Hussainey, 2013; Baumann & Nier, 2004; Nasreen et al., 2023). Banks' financial statements can provide a distorted view of their financial health, especially in challenging times, due to non-adherence to the spirit of accounting rules and tolerance for regulations (Huizinga & Laeven, 2012). The sharp dynamics of information technologies in recent years affects the production of accounting information and user perception (Tiron-Tudor et al., 2022; Manta et al., 2023).

It is not possible to identify among banks a single and unanimously accepted accounting approach, but rather variations in the ways of configuring and implementing accounting. There are banking companies in which accounting conservatism dominates, recognized in the literature as that tendency of banks to recognize losses and adverse events on time, without recognizing favorable gains and events (Jin et al., 2020). Banks started using opportunistic accounting practices especially during the 2007 financial crisis, with managers choosing to make discretionary accounting choices that favour their own interests, rather than contributing to financial transparency and fair presentation of the bank's financial position (Huizinga & Laeven, 2012; Vyas, 2011; Zhang & Mcintyre, 2021). Bank managers may be motivated to under-report costs, expenses and provisions or to over-report income, in order to achieve profitability targets, return on investment targets, increase bonuses or the value of shares held by managers (Zhang & Mcintyre, 2021). The scope of accounting handling of bank information is wide, but distortion of income and result information is prevalent, as results accounting provides valuable information to investors and plays an important role in assessing the bank's performance (Warfield et al., 1995; Xu, 2019).

The quality of financial reporting is important for all industries, but for banking it is critical because banks take risks that are difficult to verify (Beatty & Liao, 2014; Dal Maso et al., 2020). Integrated reporting is associated with higher bank value and an increased Tobin's Q rate (Dey, 2020), contributes to higher value of banks (Ibrahem, 2023), social aspects lead to increased performance, while environmental aspects erode it (Dragomir et al., 2022). Positive associations are demonstrated between emission reduction and return on

assets, as well as with the market value of shares, while negative relationships are demonstrated between several other dimensions of ESG scores (production responsibility, quality of corporate governance, change in management and supervisory score) and return on banks' assets (Batae et al., 2021). In Romania (23 commercial banks, 2013-2015), an increased number of supervisory committee members contributes to increased performance, while increased executive management leads to lower performance (Manta et al., 2018).

**The purpose of Chapter Four** is to present an overview of International Financial Reporting Standards (IFRS) applicable to the banking environment and to study their impact on ways to quantify banking performance. The first part focuses on presenting empirical evidence on the implications of IFRS application on the quality of accounting in the banking system and, respectively, on bank performance indicators. The second section compares the requirements of the new Standard 9 "Financial Instruments" with IAS 39 "Financial Instruments - Recognition and Measurement". The final section develops an empirical study on the impact of the transition from IAS 39 to IFRS 9 on the performance indicators of banks in Romania. Based on the data collected from the financial statements of banks in Romania, for 2018, Financial Return (ROE) and Return on Assets (ROA) are calculated, in accordance with the old IAS 39 norms and in accordance with the new IFRS 9 standard, respectively. Based on the information collected, with the help of statistical analysis, this case study confirms, for the case of the Romanian banking system, the findings of the previous recent literature, which show that the application of IFRS 9 negatively impacts banking performance indicators.

With the initial adoption of IFRS in the European Union (since 2005, for the consolidated annual financial statements of listed companies) an increase in the level of transparency of many companies was expected (Jermakowicz, 2004), but this effect was significantly mitigated by the different levels of implementation/implementation of accounting rules. There are 80 IFRS amendments in the European Union (between 2008 and 2022), the evolution of which indicates the high degree of European accounting regulation in the field and the increased dynamics, which influence the practical application mechanisms. Companies need to set up internal systems and procedures, as well as qualified accounting staff, to implement complex and dynamic regulatory sets. For the banking sector in the European Union, characterised prior to 2005 by a diversity of accounting standards in use, the application of IFRS represented a great opportunity to harmonise the accounting standards applied, to increase comparability of financial statements and to improve market discipline to the benefit of banks, although there was some scepticism about the advantages of IFRS, due to the possibility of increasing the volatility of the figures provided (Pagratis & Stringa, 2009). As far as the Romanian banking sector is concerned, given that Romania joined the European Union only in 2007, the adoption of International Financial Reporting Standards (IFRS) took place in a few years (since 2012), amid requirements from the International Monetary Fund and the European Union, as part of the financing agreements concluded with the Romanian authorities (Grecu, 2011).

IFRS are widely considered a set of high accounting quality standards that require sophisticated capital markets, a high level of accounting knowledge and a high degree of investor protection, as well as suitable for developed countries with common law legal systems (Chebaane & Othman, 2014). The literature records a considerable number of studies addressing the issue of IFRS implementation in the banking environment, both from a general perspective and punctually, for certain IFRSs applicable to the field. After 2008, the first studies providing empirical evidence on the implications of IFRS application on the quality of accounting in the banking industry appeared (Gebhardt & Novotny-Farkas, 2011).

Bank profitability is directly proportional to the quality of accounting information, and IFRS adoption impacts both the quality of accounting information and bank performance (Ma et al., 2022). Positive effects of IFRS adoption in the banking environment are documented (Al-Shaikh et al., 2023): increasing comparability of accounting information (Barth, 2013; Brochet et al., 2013; Callao et al., 2007); reducing the cost of bank capital (H. Tan et al., 2011); increased market liquidity (Agostino et al., 2011); improving bank forecasting/forecasting capacity (Byard et al., 2011); increasing the relevance of banks' value (Chebaane & Othman, 2014; Omokhudu & Ibadin, 2015); reducing internal information asymmetry (Daske et al., 2008); increased influx of foreign investment (Li, 2010); capital market efficiency (Ahmed et al., 2013; Grossman et al., 2013).

The literature on IFRS application in the Romanian banking industry is diverse and includes at least two categories of studies: theoretical-applicative analyses, without econometric modelling of the impact of IFRS adoption and econometric studies on various implications of IFRS adoption in the banking environment. The impact of the transition from national accounting standards (RAS - Romanian Accounting Standards) to IFRS in the banking environment on banking performance was analyzed for 2011 (prior to the transition to IFRS) for the first 5 banks in the system (Dandara, 2015). The influence of the transition to IFRS on performance aspects (revenues, return on assets) was studied based on the consolidated financial statements of Romanian banks listed on the Bucharest Stock Exchange for the period 2011-2012 (Istrate, 2014). The application of IFRS in the Romanian banking environment impacted the audit of annual financial statements, especially in the first year of application of IFRS and transition from previously applicable national accounting regulations (Socol, 2012). The transition process from national standards to IFRS involved logistical efforts, change of attitude and improvement of personnel involved in IFRS-based accounting (Gîrbină et al., 2012). The transition to IFRS of banks in Romania was hampered by the manifestations of the international financial crisis, which deteriorated in particular the value of bank assets, whose accounting recognition is challenging, if securitization operations are taken into account (Deliu et al., 2018). In econometric approaches, Romania was analyzed, for example, for the period 1997-2008, in a group with 15 other Central and Eastern European states, for a sample of 434 commercial banks (data collected from BankScope of Bureau van Dijk), regarding the influence of the accounting system on the assumption of banking risks (Fang et al., 2018). The authors developed, in an innovative manner, two bank accounting indices – the IFRS index (which captures national accounting standards compared to IFRS) and the index of accounting regulations (national legislation) – for which they demonstrated a causal influence on the assumption of banking risks. More specifically, bridging the gap between national accounting standards and IFRS reduces banking risk (and EU membership enhances the effect of IFRS on banking risk), while internal accounting regulations contribute to greater risk-taking.

IFRS 9 "Financial Instruments" – which came into force in 2018 – has important implications for banks in particular, as they largely hold financial assets. From a banking performance perspective, recent research (Fatouh et al., 2023) shows that IFRS 9 increases credit loss costs (due to impairment) and reduces after-tax bank profits compared to previous IAS 39 Financial Instruments — Recognition and Measurement approaches. Unlike IAS 39, IFRS 9 applies a single classification approach to all types of financial assets. According to IFSR 9, financial assets must be classified and measured using a two-criteria method that should be applied by entities. Companies shall first consider their business model in relation to that financial instrument and then the nature of the cash flow generated by that financial instrument. The complexity of accounting for financial assets is recognized and IFRS 9 is considered the most difficult to implement in banking systems (Popescu

(Haralambie) & Ionescu, 2019). Complex topics, such as Loss Given Default, show that banks need to design flexible methodologies to determine expected losses and that the stochastic nature of IFRS 9 in terms of estimates of Expected Credit Losses, Probability of Default and Loss Given Default, raises concerns about the potential managerial discretion and flexibility of banks' management in configuring financial statements, but also about moral hazard (Achim et al., 2021).

In order to observe the post-IFRS 9 banking reality in Romania, an empirical study is developed on the impact of IFRS 9 implementation on bank performance indicators (assessed by Return on Assets - ROA and Return on Equity - ROE), in the first reporting year according to the new IFRS 9 standard - 2018. For data extraction, the content analysis technique was used and the annual financial statements published on the websites of the 10 banking institutions in the sample studied for 2018 were studied (considered representative - the analyzed banks together hold 89% of the total assets of the system). For the case of the Romanian banking system, the findings of the previous recent literature showing that the application of IFRS 9 is likely to erode banking performance are empirically confirmed (Fatouh et al., 2023; Norouzpour et al., 2023).

The fifth chapter presents the current state of knowledge in the field of banking performance. Initially, reviews of existing literature on banking performance are analyzed, a step that involved choosing a literature review method appropriate to the complexity and scope of the chosen topic. Existing banking performance review papers from the literature (Web of Science platform) between 2000 and 2021 (an initial number of 25 existing review studies) are analyzed.

Subsequently, with the help of bibliometric analysis, for the period 2000-2022, 1.138 publications in the fields of Economics, Business, Econometrics, Management and Accounting were selected from the SCOPUS and Web of Science Core Collection databases, which were researched with the help of VOSviewer software, Both methods of bibliometric analysis – performance analysis and scientific mapping – are addressed in this chapter.

The main lines of banking performance research existing in the previous literature are identified:

- The influence of banking risk elements on banking performance (including during the financial crisis);
- The impact of corporate governance on banking performance (corporate social responsibility policies CSR, ownership structure, management composition, management efficiency);
- The links between the efficiency and performance of commercial banks (especially with the help of DEA Data Envelopment Analysis);
- Determinants and indicators of bank performance;
- Empirical studies on banking performance.

The literature niche to which the thesis is addressed, through the link between accounting information and banking performance, is confirmed by the visualization map of research directions in VOSviewer, which does not contain terms associated with this targeted link.

**Chapter six** presents an empirical study on the impact of the evolution of the *degree of transparency of banking performance on bank profitability indicators (return on assets and return on capital) and the moderating role of bank accounting factors (bank assets, cost/income ratio and solvency) on these relationships, for banks active in Romania, during 2013-2022.* The analysis of the level of public presentation on their websites of information on bank profitability by banks in Romania is performed by the method of content analysis of financial statements and / or annual reports. A composite indicator is developed, called Degree of transparency of performance indicators, based on specialized literature and theoretical reasoning

applied (depending on the number of indicators ROA, ROE, Income cost ratio, Immediate liquidity and Solvency indicator identified in numerical expression in the information published by banks).

Table no. R.1 Hypothesis testing results – effects of transparency on banking performance (ROA and ROE models), Romania, 2013-2022.

	Assumptions	Expected	Res	ults
		meaning	ROA	ROE
$\mathbf{H}_1$	The evolution of the degree of	+	Validated	Validated
	transparency of bank performance			
	indicators contributes to increasing the			
	profitability of banks in Romania.			
$H_2$	The size of banking institutions in Romania	+	Validated	Validated
	positively influences their profitability.			
<b>H</b> <sub>3</sub>	The operational efficiency of banks in	-	Validated	Validated
	Romania (quantified by cost/income ratio)			
	negatively influences their profitability.			
$H_4$	Prudential bank accounting factors	+	Validated	Untested
	(represented by the solvency ratio)			
	positively affect the profitability of banks			
	in Romania.			

Source: own processing.

Bank transparency, bank size and solvency positively influence Return on Assets (ROA), while cost/income ratio erodes ROA. Return on equity (ROE) is positively impacted by transparency and bank size, while the cost/income ratio exerts a negative influence. Results (Table no. R.1) are obtained by econometric modeling with the robust regression method with Huber iterations (Robust Regression RR) and the method of least squares feasible (Feasible Generalized Least Squares FGLS).

If in the previous chapter banking performance at national level is studied, for Romania's case, the **seventh chapter** presents a double perspective of banking performance at European level – through econometric modeling of two data panels, with the help of STATA software:

- the first econometric study, for the panel of the 27 Member States of the European Union, analyzed between 2001 and 2020;

- the second econometric study, for a European banking group (Este Bank), analysed between 2016 and 2022.

The first section of the chapter studies the impact of *internal banking accounting factors* (expressed in terms of capital/total assets ratio and cost/income ratio), in parallel with the influences of the *macroeconomic environment* in which banks operate (expressed by GDP growth and inflation) <u>on banking performance</u> in the Member States of the European Union during the period 2001-2020. The econometric study of the panel is done by gradually applying several methods: the classical regression model with the simple or grouped OLS estimator (Ordinary Least Squares), Robust Regression, the Fixed Effects model and the Random Effects model, such as and Generalized Method of Moments (System GMM), Granger causal relationships, and Structural Equation Modeling. Results of empirical studies (table no. R.2) shows that inflation rate and GDP growth positively impact both variables describing banking performance (ROA and ROE), while operational efficiency (cost/income ratio) is inversely proportional to bank performance (expressed as ROA and ROE). The capital /total assets ratio has a positive impact on the return on assets and is inversely proportional to the

return on capital. The negative influence of capital/total assets on ROE is less robust than for ROA and is demonstrated with statistical significance only in Robust Regression modelling, random effects (RE) modeling and structural equations (SEM).

	Assumptions	Expected	Results	
		meaning	ROA	ROE
$H_1$	The asset capital ratio has a positive influence on	+	Validated	Not validated
	banking performance.			
$H_2$	The cost-income ratio contributes to lower bank	-	Validated	Validated
	performance.			
<b>H</b> <sub>3</sub>	The annual inflation rate has a positive impact on	+	Validated	Validated
	banking performance.			
$H_4$	Gross Domestic Product growth exerts a positive	+	Validated	Validated
	influence on banking performance.			

Table no. R.2 Results of hypothesis testing – influence of accounting factors and macroeconomic determinants on banking performance (ROA and ROE models), European Union, 2001-2020.

Source: own processing.

The second model developed studies banks' performance from a micro-banking perspective, for a *European banking group (Erste Group* operating in seven countries - Austria, Croatia, Czech Republic, Hungary, Romania, Slovakia and Serbia) *for the period 2016-2022.* Regression models analyse the *influence on return on allocated capital of the following variables: cost-income ratio, NPL coverage ratio and GDP growth.* Econometric study of the sample shall be carried out using the following techniques: Pooled OLS Ordinary Least Squares method, Robust Regression (RR) iteration, Fixed Effects FE and Random Effects RE model. Subsequently, the robustness of the results is tested using two static panel methods - the Panel Corrected Standard Errors PCSE method and the Feasible Generalized Least Squares FGLS method. Results (Table No R.3) shows that the cost/income ratio and the degree of provision coverage of non-performing loans lead to the erosion of the performance of the studied group, while GDP growth positively impacts the evolution of banking performance.

Table no. R.3 Hypothesis testing results – influence of operational efficiency, non-performing loans and GDP growth on return on allocated capital, Erste Group, 2016-2022.

Assumptions		Expected meaning	Results Return on allocated
			capital
$H_1$	The cost-income ratio negatively influences the banking	-	Validated
	performance at the level of the analyzed banking group.		
$H_2$	The degree of provision coverage of non-performing loans erodes	-	Validated
	the performance of the studied banking group.		
H <sub>3</sub>	The quarterly GDP growth contributes to increasing the banking	+	Validated
	performance of the banking group presented in the case study		
	(Erste Group).		

Source: own processing.

*The choice of the European Union as a reference area* of the mentioned studies is based on the applicable single banking regulatory framework, potentially generating similar behaviors, but also on the existence of a conglomerate of states with different histories of economic evolution (accession to the European Union in different periods, 11 of the 27 states experienced communist regimes until the end of the '90s, etc.) and heterogeneous levels of development, which makes them challenging in terms of economic research.

*The final stages of the research* involve systematizing the ideas and discoveries made, respectively configuring the conclusions, presenting one's own contributions, identifying the limits of research and future research directions.

#### Conclusions

Although at the end of 2021, national economies seemed to be taking the path of post-pandemic recovery, they experienced *new challenges* with the beginning of 2022, given by high levels of inflation, energy crisis and geopolitical tensions in Eastern Europe amid the war in Ukraine. In March 2023, the failure of two banks in the United States and a state-backed bank merger in Switzerland generated concern and reactions from financial markets. Financial stability is in question, large increases in commodity and energy prices are evident, periods of high inflation do not seem to end soon, and the aforementioned geopolitical conflict is protracted and has an impact on economic developments, even stronger than analysts initially expected (European Central Bank, 2022b). Uncertainties and a high degree of risk characterize the current economic situation, both nationally and internationally.

Banking performance cannot be missing from the gears of stability, resilience and robustness of banking systems, and banks are acutely aware that banking performance markers influence the decisions of various categories of stakeholders (potential investors, customers, lenders, etc.), are of high interest to capital owners and are closely monitored by banking supervisory authorities. In such an "impossible trinity", *performance requires appropriate tools for bank management to identify, quantify, monitor and mitigate*. The importance of accounting information in banking performance management derives from the technical processes of determining, evaluating and monitoring bank performance, which makes them susceptible to misrepresentation, creative accounting reasoning or even fraud. The link between accounting and banking performance does not yet appear to benefit from an extensive flow of publications, and scientific attention to the topic requires rigorous studies to clarify potential interconditionalities, causal relationships and interferences.

The doctoral thesis emphasizes the importance of the studied phenomenon, from the very beginning of the research approach and gradually builds a scientific and transparent approach, rigorously follows the methodology and established stages of research, in order to achieve the proposed goal. This paper is composed of *two main parts*: a *first* part highlights the theoretical aspects related to banking performance and accounting information underlying performance evaluation, presenting a critical and comprehensive analysis of previous literature, and the *second part* develops empirical studies investigating the role of several internal banking factors and macroeconomic determinants on the evolution of banking performance, at European and national level, with particular emphasis on the role of information provided by accounting on the performance indicators studied.

The methodological approach is based on a set of methodological tools, combining fundamental research with quantitative research and modern methods with classical methods. The complex nature of the topic requires the configuration of the appropriate methodology – setting objectives, directions, hypotheses and methods – essential in developing quality research. As in all social sciences, including economics, knowledge derives from real phenomena, from observation of reality, the doctoral thesis is based on a positive constructivist epistemological positioning and recognizes the role of quantitative modeling in obtaining research results. Techniques of systematic and evolutionary research of the field of banking performance are combined and theoretical and empirical methods are applied to answer the fixed research questions. The excess of mathematization specific to recent research in the field of economic sciences is realized and the work is developed by appealing to appropriate mathematical-statistical-econometric instruments, tested and adapted

to the present research. Technically, the facilities of the Mendeley bibliographic referencing program, econometric processing in STATA and bibliometric analysis via VOSviewer are used. Two of the dangers hovering over economic research have received attention during the research and have imposed adequate countermeasures – careful analysis and acceptance of pluralism of ideas: the wide variation of economic indicators, respectively the nonlinearity of relations between and the subjective perspective of the researcher, especially in drawing conclusions.

The series of specific objectives set, subsumed to the main one of the research and the research questions guided the process of elaboration of the thesis and led to obtaining the results synthetically presented in table no. R.4.

Research questions Results achieved		Objectives
<b>Q1.</b> How have	Morphological terminological analysis of the	O1. Conceptual
performance measurement	language specific to the studied topic (performance,	delimitation of performance
systems evolved and what	effectiveness, efficiency, effectiveness, profitability,	from double perspectives
are the accounting	etc.).	(epistemological and
indicators associated with	Study of different historical periods within which	chronological), customization
banking performance?	research on the performance of entities (including	of the performance approach
	banking) and currents of opinion that attribute	in the banking environment
	performance evaluation and monitoring to different	and configuration of a set of
	branches of economic sciences have been positioned,	indicators to quantify bank
	with emphasis on accounting information production	performance.
	underlying performance management systems.	
	Brief presentation of a comprehensive set of bank	
	performance indicators, in the production of which	
	bank accounting plays a key role.	
$\mathbf{Q2.}$ What are the major	Record the decisive involvement, over some five	<b>O2.</b> Establishing the
milestones of recent	decades, of the Basel Committee in shaping a set of	essential coordinates of the
banking performance	banking regulations to guide national banking	recent historical dynamics
dynamics at national,	systems.	and of the regulatory
European and international	Positive evidence of the relationship between the	framework of banking
level?	implementation of the provisions of the Basel capital	performance at national,
	agreements (implicitly capital adequacy and risk-	European and international
	weighted assets) and banking performance.	level.
	Obligation of banks in the European Union to	
	publish performance information (CRRIII / CRDVI	
	Directive).	
	Presentation of synthetic, chronological and	
	comparative information of banking performance	
	levels and profiles for the period '90-2023, at national,	
	European and international level.	
	Ascertaining the interconnection between banking	
	performance and the geographical area to which it	
	refers, the influence of cyclical or structural factors	
	specific to economies and determinants of various	
	bills - macroeconomics, financial crises, legislative	
	changes, regulatory and supervisory framework, etc.	
<b>Q3.</b> What banking	Clarifying the role of accounting in generating	<b>03.</b> Determining the
accounting mechanisms	primary information on bank performance and making	general framework in which
underlie the determination	banks' performance profiles transparent.	bank accounting operates and
		how it can impact the

Table no. R.4 Synthesis of research results.

Research questions Results achieved Objectives	
and transparency of bank Identifying forms of manifestation of accounting processes of determine	ng
performance profiles? conservatism and opacity in banking transparency performance indicators	and
processes. their public disclosur	e.
The boundaries towards discretionary accounting	
practices and suboptimal accounting behaviors are	
very fine.	
The existence of a significant number of banking	
accounting issues still unresolved for many years and	
banking accounting practices that vary in a	
countercyclical manner.	
<b>Q4.</b> <i>How does the</i> An adequate, regulated and mature bank accounting <b>O4.</b> Theoretical-empt	rical
application of International system is a key element of institutional banking examination of the impa	ct of
<i>Financial Reporting</i> development. applying Internation	ıl
Standards (IFRS) affect The application of IFRS leads to changes in banks' Financial Reporting	
<i>banking performance?</i> performance profiles. Standards (IFRS) on bar	king
Comparison of IAS 39 with IFRS 9. performance metrics	,
Case study on the impact on the Romanian banking focusing on the	C 0
system of the implementation in 2018 of IFRS 9 - implementation of IFR	39
Financial instruments - on banking performance starting with 2018.	
<b>OF</b> To what output door Systematic review and hibliometric analysis <b>OF</b> Systematic review	. and
the provided literature (performance englysis and scientific manning) of hibliometric englysis of	/ and
<i>invastigate hanking</i> (performance analysis and scientific inapping) of bibliometric analysis of	of
<i>netature bunking</i> banking performance interature (vosviewer interature in the netature in the	in
Presentation in a modern and rigorous approach of order to identify the m	ain
the state of scientific knowledge in the field existing research direct	ons
(benchmarks for future research aspects)	0115.
<b>O6.</b> Does the degree of Empirical case study - Romanian banking system. <b>O6.</b> Empirical	
<i>banking transparency</i> 2013-2022 - analysis of the impact of the evolution of investigation of the	
<i>influence banking</i> the degree of transparency of banking performance on association between t	he
<i>performance?</i> bank profitability indicators (return on assets and degree of transparency	and
return on capital) and the moderating role of some the performance of bar	nks
bank accounting factors (bank assets, cost/income active in Romania, prese	nting
ratio and solvency) on these relationships. the mediating role of	f
Presentation of the degree of transparency of accounting factors on	his
banking performance in the annual reports of banks in relationship.	
Romania (content analysis).	
Q7. What is the impact Econometric modelling of macro-banking type, by O7. Econometric	
of macroeconomic analyzing aggregated data at country level, for the 27 modelling of the influen	ce on
determinants and internal states of the European Union, analyzed for the period banking performance of	a set
<i>banking accounting factors</i> 2001-2020 - the impact of two internal bank of macroeconomic	
on banking performance?   accounting factors (capital/total assets ratio and   determinants and inter	nal .
cost/income ratio) and the moderating roles of some banking accounting factor	ors in
macroeconomic determinants (GDP growth and the European Unior	
Inflation). (empirical studies a	.1
Econometric study of a European banking group European country and	a
(Este Dank), operating in seven European countries, Danking group level	•
relationships between the return on allocated capital	
and the cost-income ratio the coverage ratio of non-	
performing loans and GDP growth	

Source: own processing.

#### **Own contributions**

If the primary research approaches, of an unstructured type, suggested a growing interest in the topic of banking performance and the existence of a significant number of studies, points of view, communiqués, normative acts, etc. from the researched area, with numerous subthemes, through systematic literature research (systematic review and bibliometric analysis) a gap niche of the field is identified – the one represented by *the scarcity of scientific information resources on banking performance from an accounting perspective and the need to configure studies that capture the essence of banking indicators specific to banking performance and associated accounting aspects.* 

In an extensive literature on banking performance, this research *is positioned within both theoretical and applied research, which provides clues on the link between banks' accounting and performance dynamics*. The importance of banking performance for the financial industry, affected by a sharp dynamics of specific regulatory aspects and interdependencies with the economy as a whole, has increased in recent years, amid worsening macroeconomic conditions. The COVID-19 pandemic of 2020 found banking systems barely recovered for several years after the international financial crisis, which broke out in 2007 and eroded them from multiple perspectives, but, fortunately, on the other hand, also generated major changes in the supervisory architecture, regulations and management practices of banking around the world, which ensured premises for the subsequent stability of banking systems. Geopolitical tensions in Eastern Europe amid the military conflict in Ukraine since 2022 and bank failures in the United States in March 2023 are two other situations generating volatility in financial markets, increased levels of anxiety and risk aversion. All this affects the stability, resilience and robustness of banking systems.

Bank performance is crucial in banks' survival and in preserving financial stability. The banking environment, directly interested in maximizing the value of return on capital and satisfying the interests of bank capital holders, considers profitability a major item of the logbook of managers and shareholders alike. *The desideratum of resilience and robustness of banking systems* remains permanently in the attention of banking regulators and supervisors, and banking performance is an "unknown" permanently targeted in complicated banking supervision equations. Banking management is concerned with banking performance in contexts of obvious information asymmetry, between the interests of capital holders in maximizing profits and various other categories of users of performance information, various banking stakeholders - potential investors, creditors, debtors, etc. – whose interests are not generally converging with those of bank shareholders. *The accounting aspects of banking performance* are key technical elements in the processes of determining, evaluating and monitoring bank performance, which makes them susceptible to misrepresentation, creative accounting judgements or even fraud.

Synthetically, the contributions of this doctoral thesis to the flow of banking performance research are as follows:

It clarifies terminological performance, through a morphological analysis of the language specific to the studied theme (performance, effectiveness, efficiency, effectiveness, profitability, etc.) and establishes relationships between the concepts concerned.

- It presents in an evolutionary manner the major historical periods (with an initial reference point of the thirteenth century) in which research of the performance of entities is assigned to different branches of economic sciences, with emphasis on the accounting information production underlying performance management systems.
- Systematizes the metric of bank performance, by briefly presenting a comprehensive set of banking performance indicators, in whose production bank accounting plays an essential role.
- It formulates partial conclusions regarding the impossibility of identifying a unanimously valid opinion for delimiting performance and notes profitability indicators as the most often used as performance benchmarks.
- It analyzes the Basel Agreements from Basel I Agreement to Basel IV Agreement and CRRIII / CRDVI Directive (approved by the European Parliament in October 2021) from the perspective of banking performance and highlights the role of the prudential regulatory framework in performance transparency processes.
- It brings together from previous literature positive evidence of the relationship between the implementation of the provisions of the Basel capital agreements (implicitly capital adequacy and riskweighted assets) and banking performance.
- It groups the recent historical dynamics of banking performance at national, European and international level (the case of the United States of America), for the period '90-2023, by appealing to the public reports of banking supervisory authorities.
- It draws partial conclusions on the uneven evolution of banking performance over the last 30 years or so, explained by the influence of cyclical factors (such as the international financial crisis that started in 2007, the manifestations of the COVID-19 pandemic in 2020-2022) or structural factors, the different economic environment from state to state, national regulations and banking supervision (Basel agreements).
- Clarifies the role of accounting in generating primary banking performance information and the importance of quality accounting information for banks' performance profiles.
- The evolution of banking accounting and regulations affecting the banking sector in recent decades shows an environment that permanently oscillates between lax rules and excessive regulation, with varying intensities, depending on the analyzed historical period (usually with countercyclical behavior).
- Identifies in the previous literature forms of manifestation of accounting conservatism and opacity that can affect banking transparency processes (including performance).
- It outlines partial conclusions on the importance of accounting information and the impact of its characteristics on measuring banking performance, given that the leads to discretionary accounting practices and suboptimal accounting behaviors are very fine, and a significant number of banking accounting issues are still unresolved for many years.
- Notes the sharp dynamics of International Financial Reporting Standards (IFRS) in the banking environment and their global expansion towards increasingly larger areas.

- It notes the heterogeneous application of the European regulatory framework across nation states (based on permitted national options) and considers challenging for banks to implement a large number of IFRS changes in the European Union (there are 80 IFRS amendments between 2008 and 2022).
- **4** Select previous studies proving that IFRS application leads to changes in banks' performance profiles.
- Compares IAS 39, replaced by the new IFRS 9 (effective in 2018), in the area of financial instruments, given its particular importance for the banking industry, particularly in the valuation of non-performing loans (and thus impacting performance).
- Develops an empirical case study to calculate and analyze the impact of the implementation of IFRS 9 in 2018 on the financial rate of return and return on assets for the TOP 10 largest banks in Romania.
- Configures partial conclusions on the erosion of banking performance through the application of IFRS
   9.
- Performs a systematic review of literature review papers on banking performance, published between 2000 and 2021.
- It develops a bibliometric analysis, supported by VOSviewer software, of previous banking performance literature from 2000-2022 and cartographs the main directions of banking performance research, based on papers published on Web of Science and Scopus platforms.
- It notes that addressing the link between accounting information and banking performance does not appear in the visualization map of existing research directions, indicating a literature gap.
- Draws partial conclusions on the characteristics of the existing publication flow in the field of banking performance.
- Analyzes, for the Romanian banking system, during 2013-2022, the impact of the evolution of the degree of transparency of banking performance on bank profitability indicators (return on assets and return on capital) and the moderating role of some bank accounting factors (bank assets, cost/income ratio and solvency) on these relationships. The econometric methods used, with the help of STATA software, are: robust regression with Huber iterations and the Feasible Generalized Least Squares FGLS method.
- Build an index The degree of transparency of bank performance indicators (depending on the number of ROA, ROE, Income cost ratio, Immediate liquidity and Solvency indicator identified in numerical expression in the information published by banks in annual financial statements and/or annual reports).
- Presents the degree of transparency of banking performance in the annual reports of banks in Romania (content analysis).
- It formulates partial conclusions on the trend of improving the quality of information disclosed by banks, an evolution of disclosure of financial information on banking institutions' websites, stimulated by Corporate Social Responsibility - CSR policies, the expansion of digital technologies, the normalization of the banking environment, as well as integrated reporting trends increasingly evident in the banking environment.
- It models echometrically, at the level of the Member States of the European Union, for the period 2001-2020, the influence of macroeconomic determinants (inflation and GDP growth) and accounting factors

of internal banking nature (capital-asset ratio and cost-income ratio) on banking performance (quantified by Return on assets - ROA and Return on equity - ROE). The econometric methods used, with the help of STATA software, are: static panel models – classical regression model with simple or grouped OLS estimator (Ordinary Least Squares), Robust Regression, Fixed Effects model and Random Effects model, such as and Generalized Method of Moments (System GMM), Granger causal relationships, and Structural Equation Modeling.

- It models econometrically, at the level of a European banking group (Erste Group), for the period 2016-2022, the relationships between the return on allocated capital and the coverage ratio of non-performing loans, the cost-income ratio and the growth of the Gross Domestic Product. The econometric methods used, with the help of STATA software, are: the method of small clustered squares, specific to panel data (Pooled OLS Ordinary Least Squares), robust regression with Huber iterations, the model with fixed effects (Fixed Effects FE), the model with random effects (Random Effects RE), the method of correction of standard errors (Panel Corrected Standard Errors PCSE) and the method of least squares feasible (Feasible Generalized Least Squares FGLS).
- Summarises partial conclusions on demonstrated influences of bank accounting factors and macroeconomic determinants on bank performance for the samples studied.

The usefulness of this research is found at the academic level, banking management and supervisory authorities. The results and directions of future studies have *theoretical and practical implications, at microbanking level, but also from a macroeconomic perspective*:

- Stresses the importance of configuring prudential regulations for bank capital adequacy and management of associated risks, with an impact on banking performance profiles.
- Establishes the importance of applying the current bank accounting framework, represented by IFRS 9
   "Financial Instruments" in general, but with priority attention to applying the provisions on how to
   determine loan loss buffers and NPL risk exposure, measured by various permitted methods (e.g.
   amortised cost or fair value through other comprehensive income, etc.).
- Banking management should be more interested in the processes of transparency of performance banking information, intensively circulated by information users and important decision markers for them.
- Supervisors should put in place policies to help make banking information more transparent.
- Improving the availability of bank performance data could help increase confidence in the banking environment and financial markets in which banks operate, as well as reduce anxiety and risk aversion.
- Recognizes the aspects of non-performing lending as essential in the current banking environment, which imposes on banking regulators the need to configure / update / modify (as appropriate) the European and national norms in the field, in order to create premises for their unitary application by banks, the decrease of discretionary accounting practices and different interpretations of the provisions in the field;
- Emphasizes the need to optimize banking costs and increase operational efficiency, manage expenses efficiently and improve the cost/income ratio;

- It discusses the relevance of the macroeconomic framework in which banks operate;
- Economic growth leads to increased lending opportunities and is positively associated with increased demand for loans, reduced volume of non-performing loans, improved efficiency, increased debt repayment capacity to banks, decreased risk aversion, increased confidence in banking financial markets, etc. – issues impacting on banking performance, through various channels, direct and indirect.
- Inflation (the second macroeconomic factor studied in econometric models, besides GDP growth) is likely to contribute to increasing banking performance, especially if bank management configures instruments to increase interest rates, increase the volume of operating income, etc.
- The analysis of the macroeconomic factors that were taken into account GDP growth and inflation shows that public policies should develop the regulatory framework to stimulate economic growth and efficiently manage inflation, which would lead to increased performance in the banking environment.

### Limits and perspectives of research

Presenting banking performance only at the level of a segment of the financial industry – represented by the banking environment – represents an important limit of research. The limited scope affects the generalization of the results obtained and the conclusions drawn.

Conceptually, the approached information field, of the interaction between accounting information and banking performance, reduces the ability to capture other potentially essential facets of the phenomenon, which could prove relevant, such as those related to banking risks affecting performance, management's perspectives on performance, etc. This paper focuses on accounting aspects of banking performance and this limitation is assumed, as studying banking performance from all possible perspectives can be a haphazard one, no matter how structured it is, due to the vastness of the field and the limited possibility of analysis and interpretation of the researcher.

Methodologically, the thesis investigates theoretical aspects in a structured manner – systematic literature review and bibliometric analysis – but also unstructured, by identifying previous literature, without very well defined algorithms, for certain separately studied topics (such as the influence of the quality of accounting information on performance, the link between banking transparency and performance, the impact of IFRS application in the banking environment on performance, etc.). The first approach to literature (structured, through systematic literature review and bibliometric analysis) is based on final processing through VOSviewer software. Using other similar programs (such as NVivo) could lead to important results. The second (unstructured) approach runs the risk of capturing disparate aspects of reality in the flow of publications and leading to insufficiently substantiated conclusions.

From a practical perspective, empirical studies are also presented in the thesis (such as the application of IFRS 9, from Chapter 4 or the study of the link between transparency and banking performance in Romania, 2013-2022, from Chapter 6), which, in the absence of public databases with micro-banking information, involved manual collection of data from annual financial statements and/or annual reports of banks, on their

websites. This technique of qualitative analysis and the development of models with data retrieved in this way could generate errors in the processing or interpretation of information.

Econometric methods of banking performance analysis used in the last two chapters of the thesis and processing using STATA software can be extended by including in the analysis other types of variables, either internal banking or various economic, social, political factors, etc., which could influence banking performance. The paper presentation is geographically limited to the Romanian banking system, the banking systems of the European Union countries and a European group. Extending the research scope and period analysed could help to achieve more robust results.

The subjectivity of the author in the methodological development and elaboration of the thesis impregnates the research possible risks of error or false results. Subjectivity is manifested, for example, in situations where a composite indicator of banks' bank performance information has been created (Chapter 6). Even if it is developed based on previous studies, in the absence of methodologies to test such an index, the study remains empirical and difficult to generalize.

The mentioned limits outline perspectives for new research directions, which could expand and improve research results. Econometric models can estimate and influence other accounting factors on banks' performance besides those studied, including other country-specific macroeconomic, social, institutional determinants (such as governance level), policy or crisis situations (such as the current energy crisis, etc.). New analysis periods and different samples of individual states or banks can also be explored (for the latter, however, public databases do not contain structured information). Models for forecasting bank performance indicators can also be researched, with the help of data processing software.

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