INTERNATIONAL ACADEMIC INSTITUTE

IAI ACADEMIC CONFERENCE PROCEEDINGS

International Academic Conferences

11 December 2024
Thessaloniki, Greece

IAI Academic Conference Proceedings

ISSN 2671-3179

TABLE OF CONTENTS

Identification and Prevention of Fraudulent Activities in Accounting Processes

Miljan Adamović[1], Miloš Milošević[2], Bosiljka Srebro[3]

[1*]*Educons University, Faculty of Business, Economics, Serbia*
[2] *Faculty of Business Economics and Entrepreneurship, Belgrade, Serbia*
[3] *The Academy of Applied Studies Polytechnic, Belgrade, Serbia*
[*]*Corresponding Author: miljan.adamovic@educons.edu.rs*

Abstract
Identifying and preventing fraudulent activities in accounting processes represent key challenges in achieving financial transparency, essential for maintaining the trust of investors, regulatory bodies, and the general public. Fraudulent activities, such as falsifying financial statements, embezzling funds, and manipulating accounting records, pose significant threats to organisations' sustainability and undermine the financial system's stability. This paper examines the mechanisms of fraudulent accounting practices and emphasizes the role of forensic accounting in managing fraud risks.

Keywords: fraud, accounting processes, forensic accounting.

1. Introduction

What fingerprint identification meant for criminalistics, the emergence of economic crime research meant for this field, pioneered by Edwin Sutherland. Many years ago, Edwin Sutherland introduced the term white-collar crime to describe criminal acts committed by highly respected individuals in senior positions within business hierarchies, possessing reputable social status and standing high on the social ladder (Sutherland, 1949). As Benson & Simpson (2017) note, the perpetrators of these crimes often hold positions of power, committing highly complex and severe acts, which pose significant challenges globally.

Reports of financial fraud defined the first decade of the new millennium in the United States. The professional public became familiar with corporate scandals, misuse of public funds related to natural disasters, and various financial frauds ranging from Ponzi schemes to Bernard Madoff's investment schemes in financial markets. A significant number of companies and individuals felt the impact of these fraudulent acts on their finances and livelihoods. In 2007, the Federal Bureau of Investigation (FBI) published statistical data on fraud in non-life insurance, highlighting that average American families bear annual losses of $40 billion in the form of increased premiums due to fraud. Additionally, the FBI reported fraudulent claims following natural disasters such as Hurricane Katrina ($6 billion) and a 36% increase in Suspicious Activity Reports (SARs) filed by banks compared to the previous year. The Association of Certified Fraud Examiners (ACFE) regularly publishes[1] data on financial fraud and associated damage, showing more than a twofold increase in losses due to fraud between 1996 and 2008. Researchers Silvestron & Davia (2005) have observed that the frequency of accounting fraud, audit failures, and other forms of financial crime significantly impact financial markets and economies, thereby undermining stakeholder trust in the auditing profession.

Over time, fraudulent activities in finance have become increasingly complex and damaging. Each subsequent fraud surpasses its predecessor in terms of financial damage or the number of affected companies and individuals, while others are characterized by their cunning and sophistication. As Houck et al. (2006) note, fraudulent activities and forensic accounting continue to influence the accounting profession on a daily basis.

In a global survey conducted by PricewaterhouseCoopers, it was found that 45% of companies worldwide have been victims of financial fraud. Interestingly, 58% of these frauds were discovered entirely by accident, while only 15% of companies managed to recover more than half of their financial losses. The same study highlights an increase in fraud since 2003, including a 71% rise in corporate corruption, a 133% increase in money laundering reports, and a 140% rise in falsified financial reporting.

Researcher Vidaković (2017) notes that Howard Schilit identifies seven fundamental types of accounting manipulation (Howard, 2002), often referred to by researchers as the "seven deadly sins" (Lajoux & Elson, 2000):

- Premature revenue recognition – Recording revenue before services are rendered, goods are delivered, or the customer has an obligation to pay, such as "sales" to a subsidiary.
- Recording false revenue – Representing cash received from loans as revenue or booking supplier rebates for future purchases as income.
- Increasing profits with one-time gains – Boosting profits by selling undervalued assets or restructuring balance sheet positions.
- Shifting expenses to earlier or later periods – Avoiding write-offs for damaged equipment, obsolete inventory, or non-functional assets and failing to record expenses.

[1] A publication titled Report to the Nation, featuring data from 1996, 2002, 2004, 2006, and 2008.

- Underreporting or omitting liabilities – Intentionally omitting liabilities, reducing obligations, or reporting false rebates.
- Postponing current revenue to later periods – Creating reserves and reporting them as revenue in subsequent periods or deferring revenue recognition ahead of acquisitions.
- Reporting future expenses in the current period – Misrepresenting expenses (e.g., research or discretionary costs), inflating expense amounts, and similar practices.

2. Creative Accounting and Manipulative Accounting Practices

The term "creative accounting" suggests something opposite to formal, official accounting - something different, specific, and unconventional. Knežević et al. (2013) mention other similar terms synonymous with this concept, such as "cosmetic accounting" or "financial engineering," which refer to the use of non-conservative accounting techniques aimed at manipulating financial reporting and ultimately falsifying financial statements. The term "creative accounting" is the mildest expression compared to others, such as "aggressive accounting" or "report doctoring." Cvetković and Bošković (2018), while exploring the theoretical foundations of creative accounting as a distinct accounting discipline, point out that its initial purpose was to provide stakeholders with an accurate view of a company's assets, capital, liabilities, and earning potential based on current values. This led to the introduction of the fair value concept and various valuation models for different balance sheet positions. However, the widespread use of creative accounting, coupled with excessive freedom and unethical behavior, eventually resulted in an aggressive application of the concept. This approach is rife with subjectivity, modifying balance sheet estimates depending on the interests of those preparing the financial statements.

The motives behind such interests vary. In some cases, preparers of financial statements may aim to increase asset values for the purpose of selling the entity, while in others, they may reduce company values to minimize taxes on certain types of assets. When discussing results, common manipulations include reducing profits to lower tax liabilities or inflating results to improve credit ratings or enhance stock values. Any form of manipulation results in fraudulent financial reporting, producing falsified financial statements that undermine the quality and reliability of financial reporting.

Nwoye et al. (2017) classify the motivations for creative accounting into the following categories:

- Internally driven obligations – when managers realize they have failed to meet planned targets and resort to adjusting the financial records.
- Meeting external expectations – stakeholders expect stability and growth, leading to doctored financial records to align with those expectations.
- Special adjustments – arising from specific needs, such as securing loans, applying for government-subsidized credits, preparing for initial public offerings, mergers, acquisitions, and similar scenarios.
- Taxation – to avoid paying taxes for any reason.

Researchers Spasić and Tanović (2016) classify the objectives of using creative financial reporting by company management into four categories:

1. Maintaining Investor Confidence - The universal goal of every company manager is to maintain investor confidence and secure the trust of potential future investors. This is achieved by improving performance indicators, ensuring transparent reporting, and demonstrating consistent leadership. The key indicators investors are interested in include revenue, profit, and the company's market value.
2. Achieving Compensation (Bonuses, Stock Options, etc.) - Managers aim to achieve success and meet targeted business performance indicators, such as revenue and profit growth, increased asset values, strengthened capital (rising stock prices), improved credit ratings, or enhanced market share. Depending on which indicators are tied to their employment contracts, managers will use creative accounting to favorably manipulate results for those specific performance metrics.
3. Preparing for Acquiring Another Company or Defending Against a Hostile Takeover - Acquiring other companies is often done to improve one's own business and financial performance. Frequently, the year before an acquisition involves the use of creative accounting practices, such as manipulated financial reporting. Conversely, creative financial reporting may also be used defensively to mitigate the threat of a hostile takeover.
4. Deferring Corporate Tax Payments - A form of interest-free, tax-free government financing involves deferring corporate tax payments. Essentially, what must be paid to the government is postponed to future reporting periods. For this reason, creative accounting is often one of the tools management employs to achieve this goal.

In their work, researchers and investigative professionals (Cvetković and Bošković, 2018) observe that "the aggressive concept of applying creative accounting techniques has resulted in fraudulent financial reporting." They recognize that the subjectivity of preparers and the motivation for executing fraudulent reporting serve the interests of certain groups or individuals, ultimately aiming to mislead stakeholders. They emphasize that "the flexible application of accounting policies and fair value practices has led creative accounting to evolve into 'manipulative accounting' in practice" (Cvetković and Bošković, 2018).

Synthesizing definitions and explanations from various researchers and theorists, Cvetković and Bošković (2018) provide a precise definition of creative accounting: "Creative accounting represents the procedures and methods applied through accounting knowledge and skills in the field of accounting standards and principles to manipulate balance sheet items and their values in financial statements to achieve various objectives."

The essence of financial reporting is to provide accurate, valid, reliable, and as realistic as possible financial data, enabling stakeholders to derive information relevant to their interests. It is especially important for business entities and participants in financial markets to have access to accurate information. Regular and high-quality reporting reduces information risk, which is a prerequisite for the stability of financial markets. Accurate and timely information allows for informed actions in financial markets, including making profitable decisions. Modifying or manipulating even a single part of a financial report compromises the reliability of the entire report and undermines the informational capacity of the financial statements. High-quality financial information is typically obtained only by observing and studying financial statements comprehensively and holistically. Financial statements prepared in compliance with regulations can provide a realistic and objective picture of a company's condition and earning capacity. Further, Cvetković and Bošković (2018) note that, in addition to reducing information risk, quality financial reporting lowers the risk of financial crises, strengthens trust in capital markets, fosters their development, and overall enhances the national financial system and economy.

For decades, the profession has sought to pinpoint the precise boundary between creative, legally permissible, and professional accounting and, on the other hand, negative creative, manipulative, or fraudulent accounting. Since the profession has yet to define a clear and unequivocal boundary between these two concepts, individuals interpret and establish it differently. What could benefit the profession is an expert report delineating permissible and impermissible creative accounting practices, which national professional associations could adopt, outlining procedures that constitute manipulative accounting.

According to the Association of Certified Fraud Examiners (ACFE, 2008), three categories of fraud jeopardize organizations and institutions: misstatement of assets, corruption, and fraudulent reporting. Fraud risk assessment capabilities remain a focal point of attention, as every entity - private company, public institution, government agency, or administrative body - faces various risks from internal or external environments.

Although the profession recognizes that creative accounting manifests in two forms - cosmetic creative accounting (without regulatory violations) and real creative accounting (with regulatory violations) - the term "creative accounting" is commonly used when professional and legal regulations are breached. Therefore, this discussion will focus solely on real creative accounting, as it is relevant to the subject of this dissertation. Real creative accounting is conducted through the following means (Spasić & Tanović, 2016):

1. Selection of Accounting Policies – In certain areas, the use of different methods is allowed (IAS 8 – Accounting Policies, Changes in Accounting Estimates, and Errors). Where the profession's standards (IAS) permit the selection or change of accounting policies, accountants choose policies that result in better-reported outcomes.
2. Application of Accounting Estimates – Estimates are updated based on current information from active markets. As long as reasonable estimates are applied, the accuracy of financial statements is maintained.
3. Adjusting Real Transactions – This is applied as needed by the enterprise, at the most favorable time, by selecting when a transaction is executed. A typical example cited by Spasić and Tanović (2016) is when a company values an asset carried at historical cost using fair value, where the asset's value has increased. The company's management selects the timing of the asset sale to increase revenue, which would not have been realized if the asset continued to be valued at historical cost.
4. Creating Fictitious Transactions – Executing fictitious transactions is one of the most common practices used by fraudsters in corporate positions. This includes: payments to suppliers for goods or materials not received, double payments to suppliers (once via proforma invoice and again via final invoice), payments for fictitious employee work hours, payments under fictitious contracts, granting unrealistic discounts, selling fixed assets while simultaneously leasing them back, and similar practices. Spasić and Tanović (2016) cite examples of fictitious transactions in Serbia, where companies such as AMS Insurance a.d.o., Tigar a.d., Universal Bank a.d. – Valjevo, and KBC Dragiša Mišović were victims.

Vidaković (2017) highlights that in company valuation or equity assessment, according to Layoux & Elson, special attention should be paid to:

- Complicated and poorly understood arrangements with minimal practical value to the company;
- Last-minute transactions involving significant amounts with a substantial impact on financial statements;
- Unusual and unexpected changes in auditors;
- Overly optimistic management forecasts regarding the company’s prospects;
- Financial results presented as significantly better and less credible compared to competitors;
- Dispersed business units with decentralized management and weak internal reporting;
- insistence by the CFO and CEO on attending Audit Committee meetings with internal control or external auditors;
- Complete alignment between planned and realized financial results;
- Restrictions on direct communication between internal control and the Audit Committee;
- Accounting methods prioritizing form over the substance of business transactions;
- Insider trading of company shares.

3. Identifying Types of Fraudulent Accounting Practices and Their Causes

According to Golden et al. (2006), the sources of risk for accounting fraud lie in corporate culture, the execution of accounting estimates, and the use of discretion in financial reporting. Corporate culture consists of the company's history, values, goals, management style (Škarić-Jovanović, 2007), achievements, human capital, interpersonal relationships, and other intangible and unquantified values that contribute to the company's image and guide it toward a sustainable future. The American Institute of Certified Public Accountants (AICPA) identified 28 variables of corporate culture (AICPA, 2002) that influence the emergence of financial fraud. Subsequent research (Avey et al., 2000) highlighted the most significant of these variables, assigning them a fraud risk potential rating.

Table: Elements of Corporate Culture and Their Impact on Fraud

Variable	Fraud Potential	
	High	Low
Management Style	Autocratic	Participative
Management Orientation	Low level of trust	High level of trust
Delegation of Authority	Centralized	Decentralized
Planning	Centralized, short-term	Decentralized, long-term
Management Goals	Profit achievement	Customer satisfaction
Reporting	Routine-based	Exception-based
Policies and Rules	Rigid, inflexible	Reasonable, always fair
Primary Concern of Management	Capital assets	Personnel, capital, technology
Business Ethics	Ambivalent, situation-dependent	Clearly defined, rule-compliant
Formula for Success	Hard work	Thoughtful work
Company Loyalty	Low	High
Management Control Systems	Bureaucratic, inflexible, vertically structured, fully documented, with unchanging rules	Collegial, open to change, horizontally structured, adequate but not burdensome documentation

Source: Avey et al., 2000.

Accounting estimates are a source of risk for financial fraud because companies operate continuously, necessitating the use of estimates. This allows management to utilize this tool if they aim to commit financial fraud (Vidaković, 2017). When discussing the right of choice, it is granted to companies by professional accounting regulations, specifically IFRS, which allow for choice in the normative basis and practices of financial reporting. This opens the possibility for fraudulent reporting. Vidaković (2017), in discussing the right of choice, emphasizes that by applying aggressive accounting policies and using available options, it is possible to modify financial results in a desired direction and achieve significant tax deferrals, effectively creating interest-free financing by showing lower operating results in financial statements than the actual ones.

Cvetković and Bošković (2018) highlight that fraudulent practices emerge due to "loopholes" in accounting standards and rules. These ambiguities enable entities to operate freely within the framework of accounting standards, modifying reports to suit the needs and desires of management, resulting in a misleading and deceptive picture of the financial position and earning potential of the entity. Financial statement falsification occurs in several ways, but most commonly, as noted by Belak (2011), it manifests as:

- Earnings management: This manipulation aims to report higher or lower earnings than actual to achieve self-serving interests, which vary by situation. Some focus on increasing profits, while others result in reducing them. Most earnings manipulation techniques fall into three categories: changes in accounting methods, combining managerial cost estimates and shifting periods, and deferring the recognition of revenue and expenses. On the one hand, intentional revenue manipulation is viewed as deceptive and akin to fraudulent financial reporting. On the other hand, US GAAP permits managerial discretion in reporting decisions, leading some to view such actions, aimed at achieving projected targets, as an integral part of managerial activity and protecting shareholder interests (Hamilton et al., 2018). "Bad" earnings management involves hiding business performance and misleading financial report users, while "good" earnings management is undertaken for efficient business management and value creation for shareholders. The ethical question arises here, as not all users of financial reports possess equal financial knowledge or access to internal and market information that management has. Science, profession, and regulators view earnings management ethics in two ways. Regulators take a conservative stance, considering any form of earnings modification to distort true earnings and mislead investors. Others argue that discretionary earnings management is a valuable tool for incorporating internal data and specific company circumstances into accounting records (Hamilton et al., 2018). Hamilton et al. (2018) found that managers from companies with weaker corporate cultures and financial fraud occurrences are more prone to earnings management, viewing it as morally acceptable. This research highlights that corporate culture and the tone at the top significantly influence managers' tendencies toward aggressive accounting practices like earnings management.

- Aggressive accounting: A particular form of illicit, unethical professional behavior. It involves applying principles and procedures to achieve a predetermined outcome, typically overstating profit. Such financial reporting is fraudulent, and the financial statements are falsified. Belak (2011) identifies common aggressive accounting techniques as aggressive capitalization, enhanced revaluation, increased expenses, reduced provisioning, and unjustified offsetting of customer and supplier accounts.
- Income smoothing: A manipulation strategy aimed at presenting a consistent profit level over several accounting periods. It is achieved by withholding profits in more profitable periods, creating latent reserves, which are then utilized in periods where the entity fails to meet expected revenues and profit targets.
- Falsified financial reporting: The deliberate misrepresentation or omission of balance sheet items or explanatory notes to deceive the audience. This includes fraudulent travel and work orders, fictitious sales, off-the-books payments, simulated legal transactions, fake expenses, and similar activities.

Over the years, the profession has identified several warning signs in companies that may indicate earnings management or aggressive financial reporting practices, including:

- Unusual changes in account balances;
- Changes in financial ratios;
- Account balance volatility over a two-year period;
- Unusual levels of accruals compared to prior reporting periods and/or industry competitors;
- Frequent changes in significant accounting policies;
- Inconsistent application of accounting policies (applied as needed);
- Changes in accounting estimates;
- Unusually complex disclosures;
- Disclosures that are unusual compared to industry peers;
- Outstanding issues noted by regulators;
- Negative opinions from external auditors;
- Delays in submitting financial reports;
- Restatements of financial statements;
- Lack of internal controls over financial reporting;
- Frequent changes of auditors;
- Changes in directors or CFOs;
- The presence of significant "packages," i.e., bonuses or compensation tied to achieving good business results;
- A large number of off-balance-sheet transactions;
- Achieving or exceeding projected earnings, revenue, etc., for the relevant reporting period.

Research by Perols & Lougee (2011) indicates that the likelihood of financial fraud is significantly higher in companies that have managed earnings in previous reporting periods, even in the absence of evidence of revenue inflation or meeting/exceeding management's analytical forecasts. They also note that companies that meet or exceed analysts' target forecasts are more likely to commit fraud, even when there is no prior evidence of earnings management. The results show that prior earnings management is associated with a greater likelihood of companies pursuing results or exceeding target outcomes and engaging in fraud, especially in cases involving inflated revenues. Beneish (1999), in his study of publicly listed companies engaged in fraudulent reporting, observed that these companies typically experienced revenue growth prior to the detection of manipulation.

These fraudulent accounting practices are common in business environments and are often observed as such by the profession. Weak punitive policies, along with police and judicial practices in EU and Balkan countries, contribute to the increase in such manipulations, as the fraudsters find them profitable – the benefits outweigh the threatened penalties. In contrast, the situation in the U.S. is different. The U.S. has recognized the extent of financial fraud, its volume, and the damage it causes to entities, affected users of financial statements, the financial market, and society as a whole. Particularly notable is the fact that the consequences of financial fraud often generate latent financial crises in national financial markets.

But why do these financial frauds, or accounting fraud practices, occur, and why are they happening more frequently? Was there less fraudulent reporting in earlier decades, or was it simply not suspected by the users of the reports, and thus there was no need to detect fraud? What are the motives and impulses that guide the entity's management in this fraudulent direction, and what is their potential benefit and interest?

Following the observation of economic and business relations in recent history, as well as financial arrangements and transactions in the financial market, it becomes evident that capital is consolidating, and acquisitions of multinational companies are increasingly frequent and substantial in terms of capital. The globalization of markets and capital appears unstoppable. Under such circumstances, companies are becoming larger, more powerful, and financially stronger. Fraudulent reporting in a single company over time poses a relatively greater risk to stakeholders – investors - due to the larger potential damages and the greater number of investors affected.

Secondly, the failure to uncover financial fraud leads to repeated fraudulent practices. Unless a critical event occurs, such as the bankruptcy of a major corporation involving numerous large and small investors losing substantial capital, savings, pensions, and more, it is unlikely that legislators will focus their attention on detecting fraud and fraudulent financial reporting. The bankruptcy of Enron demonstrates that lawmakers and the executive branch only became interested in fraudulent financial reporting after the collapse of large companies that adversely impacted many investors, both major and minor.

Dimitrijević (2013) discusses the influence of management on financial statement manipulations, including altering reported earnings in income statements, net assets in balance sheets, and net cash flow from operating activities. The American researcher and theorist, leading forensic accountant Howard Schilit (2002), categorizes manipulations into seven groups:

1. Premature recognition of revenue or recognition of questionable-quality revenue;
2. Recognition of fictitious revenue;
3. Inflating earnings through extraordinary gains;
4. Shifting current expenses to earlier or later accounting periods;
5. Misrecording or reducing liabilities;
6. Deferring revenue to a later period;
7. Shifting future expenses into the current period (Howard, 2002).

Belak (2011) identifies the most common forms of manipulation as follows: manipulation of expenses, revenues, and provisions; creation of unreal assets through the capitalization of current costs; aggressive revaluation; concealing liabilities; siphoning off funds; cash theft; and complex transactions.

When discussing the motives for committing fraudulent reporting through the application of negative creative accounting techniques, these motives often stem from immediate interests. Some aim to present a better financial position and income-generating capacity, while others focus on portraying a worse financial state and earning capacity of the entity. Depending on the interests driving management, they will direct their efforts accordingly: in the first case, overestimating certain financial statement positions, and in the second, underestimating them. The motives identified by Cvetković and Bošković (2018) as drivers for "beautifying financial statements" align with those mentioned by Amat et al. (1999), with the addition of motives such as defending against hostile takeovers and deferring tax liabilities. According to them, the motives are as follows:

- Increasing the company's value, i.e., raising stock prices. For business expansion and creating conditions for company growth and development, capital is required. Attracting investors to purchase new company shares or to invest in the company hinges on the trust investors place in the company's management. This trust is built solely on quality management and the achievement of satisfactory business results—figures that meet investor expectations. Business performance, and therefore management success, is measured by achieving planned goals, revenue and profit growth, stock price increases, market position strengthening, improved credit ratings, and more.
- Incentive packages for managers (performance bonuses). A manager's monthly salary is only part of the typical managerial package. This package, along with other benefits, often includes profit sharing or cash bonuses. Dyckman et al. (2001) note that bonuses based on a percentage of realized profit provide strong motivation to use negative creative accounting in periods when profits fall below expected or projected levels, to adjust the company's earnings to the desired level.
- Easier procedures, cheaper credit, and restrictive clauses in loan agreements. For regular operations and expansion through investments, companies often finance their growth with loans from commercial banks. The better or healthier the financial situation (position and income), the easier it is to obtain new loans and at lower costs. This aligns with banking credit policies, where financially stronger and more dynamic companies receive better terms and cheaper loans, i.e., with lower interest rates.
- Defending against hostile takeovers. Managers may apply negative creative accounting techniques to ensure the appearance of growth in the year preceding a takeover and in subsequent accounting periods. This strategy is used to protect their managerial positions and associated benefits, which would be at risk if a takeover occurred.
- Deferring tax liabilities. A universal motive for both owners and managers of a company is to minimize tax payments. Their interests align in this respect, as they act as part of the entity - a single organism aiming to retain as much capital as possible within the company while minimizing tax payments to the state. By deferring tax liabilities, the entity effectively obtains interest-free financing.

Škarić-Jovanović (2007) observes that, beyond these motives, which are the most common in business practice, there are additional motives. These may arise from the entity's market position, ownership structure, earning capacity, potential company restructuring, acquisitions, or mergers.

4. Investigation of fraudulent activities in accounting and development of forensic accounting

When discussing the history of financial fraud, it can be said that it dates back to the existence of the human race. It is interesting to note that in the Pergamon Museum in Berlin, there is a sarcophagus of the Pharaoh's auditor, a person who identified possible abuses in the spending of the Pharaoh's treasury. In the Code of Hammurabi (circa 1800 BC), a penalty is prescribed for a shepherd who incorrectly reports the number or increase of sheep in his possession or flock. The oldest fraud in modern history is one investigated by Charles Snell, the first formal fraud investigator, which concerned the South Sea Company[2] and its subsidiaries, known as the South Sea Bubble fraud (1720). In 1721, he discovered that the company had made profits from stock sales that were not recorded in the business books. Interestingly, Sir Isaac Newton lost £20,000 at the time (around £268,000,000 today) and, after learning the details of this wrongdoing, stated: "I can calculate the movement of the stars, but not the madness of men." This was the first major corporate fraud executed by artificially inflating stock values. The same occurred later with the Mississippi Company, a company with exclusive trading rights in the Mississippi River region. It is also worth noting that in the work of Pedro Antonio Alarcón in Spain, in the short story about pumpkins and tomatoes, the first form of forensic accounting was identified (Crumbley et al., 2007). A significant year for us is 1817 when expert testimony for bankruptcy was first used in the case of Meyer & Sefton, where the judge referred an expert to the company to examine the accounts and bookkeeping records and testify in court about their findings. This expert is promoted by Professor Larry Crumbley, PhD, as the first forensic accountant in history and the founder of the forensic accounting profession. In 1920, Charles Ponzi paid out a promised 50% profit every 90 days to investors, financed by new investors, which resulted in a loss of $15 million for 40,000 citizens due to this unsustainable scheme. Since then, pyramid fraud schemes have been called Ponzi schemes.

Regarding the history of forensic accounting, Louwers (2015) traces it back to the time of Al Capone and Bruno Hauptmann, whose cases were successfully investigated by U.S. Treasury agent Frank Wilson, whose methods led to their successful prosecution. His pioneering methods are still in use today, albeit improved due to advancements in science and technology, enabling the detection and prosecution of crime in the 21st century. This primarily refers to data mining techniques used by modern software, replacing tedious human labor (such as ACL and IDEA), as well as supported handwriting analysis and forensic skills. His dedication to investigations is confirmed by Spiering (1976), who states that "he was able to spend hours examining the same documents, data, and orders, trying to uncover the fraudulent scheme and secure evidence for the indictment." In the case of Al Capone, he used unusual detention to convince the bookkeeper that he could be killed simply for possibly "talking" during an unusually long detention, thus convincing him to cooperate (Wilson, 1947), which he also did with couriers in money laundering operations. The term "forensic accounting" was first used by Maurice E. Peloubet in 1946 in the article "Forensic Accounting: Its Place in Today's Economy." The first book on forensic accounting was published by Francis C. Dykeman in 1982 in the United States.

What is certainly interesting is that at the end of the previous and the beginning of the new millennium, the largest financial frauds occurred, and these frauds took place in almost all industries: Enron in the energy industry, WorldCom in telecommunications, Waste Management in waste management, Sunbeam in manufacturing, HealthSouth in healthcare, Pfar-Mor in pharmaceuticals, Adelphia in media, and so on.

As in other areas of finance, the United States holds the leading position in forensic accounting. Specifically, in developed countries with organized financial markets, forensic accounting first emerged. In the early stages of forensic accounting, government bodies, more specifically tax authorities, engaged financial forensic professionals to uncover corporate tax evasion. Ozcan (2019) notes that in well-known fraud cases such as the Ponzi scheme and money laundering carried out by Al Capone, forensic accounting proved to be effective, clearly demonstrating its contribution to judicial investigations. Therefore, the origins of forensic accounting development are tied to the period when it was engaged by authorities, specifically government institutions, to combat tax evasion, and these governmental agencies were the primary entities employing the profession.

However, these were the beginnings of forensic accounting, when it was previously seen solely as a necessity for detecting serious financial crime. In recent decades, discipline has become more proactive (Knežević et al., 2021, Milojević et al., 2024a., 2024b., Špiler et al., 2024). It is now more focused on the prevention of financial frauds before investigating the frauds that have already occurred and gathering evidence for legal proceedings.

As forensic accounting continued to develop, it turned towards the private sector, with professional forensic accountants being hired by companies to detect fraudulent financial reporting, manipulation, earnings evasion, and similar activities.

Finally, when the "Big Five" became the "Big Four"[3], auditing firms established departments for detecting fraudulent reporting, consisting of astute professionals with a "nose" for financial fraud. In Serbia as well, auditing firms designate a certified auditor exclusively for education in the field of fraudulent financial reporting and financial fraud, as mandated by the Central Securities Registry, primarily to combat money laundering.

The rapid advancement of technological changes and globalization has reduced the ability to detect financial information manipulation using traditional methods (Ozcan, 2019). In this regard, forensic accounting represents the only suitable tool for detecting manipulations and frauds. Ozcan (2019) states that financial market participants predict significant growth in the demand for forensic accountants in the business environment.

In his work, Louwers (2015) examines the origins of forensic accounting methodology and describes the first investigative methods, which later evolved with the use of new technological solutions. At the Third National Symposium of Forensic Accountants (Queensland University of Technology, 2014), he presented a new generation of forensic accounting tools aimed at detecting criminal activities, highlighting their broader use in the near future. The development of criminology, as a science, significantly impacts forensic accounting. It enables forensic accountants to profile fraudsters during the investigation process (Ozcan, 2019). The fraud triangle, created by criminology, is one of the effective tools that allows forensic accountants to assess the risk of fraud.

[2] Source: https://en.wikipedia.org/wiki/South_Sea_Company
[3] Deloitte, PricewaterhouseCoopers, KPMG, Ernst & Young

What is certain is that forensic accounting is a rapidly growing discipline, as noted by Joshi (2003), and it is slowly becoming an area of interest for accountants and auditors. A study conducted by Kessler International shows that 39% of organizations recognize the need for a forensic accountant due to the increase in fraudulent activities and other forms of economic crime (Ikechukwu & Okoye, 2018).

Several professional organizations are working to strengthen the profession, and among them, the most prominent is the Association of Certified Fraud Examiners (ACFE), founded by Joe Wells in 1988 in the U.S., following the principles of pioneers in financial forensics and "white-collar" crime, Donald Cressey and Edwin Sutherland. The association has over 30,000 members in more than 110 countries, who periodically enhance their skills and exchange experiences. Beginners in the field earn the internationally recognized Certified Fraud Examiner (CFE) certificate, for which knowledge of financial transactions, fraud investigations, criminology, ethics, and the legal elements of fraud is required.

The AICPA has promoted the Certified in Financial Forensics (CFF) certification since 2008, which requires knowledge of fraud investigations, insolvency and bankruptcy, computer forensics, economic damages, valuation, family law, litigation, and disputes among interested parties.

The Association of Certified Forensic Specialists (ACFS) certifies professionals (Certified Forensic Specialist - CFS) based on their professional experience.

The American College of Forensic Examiners Institute (ACFEI) is another organization fighting financial fraud. It is an independent, scientific, and professional organization with significant capacity to cover both the science and the profession, as it synthesizes multiple forensic disciplines, including forensic accounting. It certifies with several certifications, and for us, the most relevant is the Certified Forensic Accounting (Cr.FA) certificate, which requires knowledge that accountants typically do not acquire during formal education, such as legal processes, fraudulent schemes, warning signs, fraud risk assessment, profiling, interviewing and interrogation, criminology, psychology, sociology of white-collar crime, prevention, rules of evidence, internal controls, and the role of audits in fraud detection.

The first academic program for forensic accounting in the world is the master's program in forensic accounting at the University of Wollongong in Australia, which is recognized as the first professional program for formal academic education in forensic accounting. In the U.S., there is a program at West Virginia University (2007), which offers an appropriate educational curriculum and is well-known for its forensic accounting and fraud investigation certification. In the study by Rezaee & Burton (1997), typical obstacles hindering education in forensic accounting were identified, such as the lack of financial resources, administrative interest and support, curriculum flexibility (coverage), educational materials, and interest from higher education institutions (Hendi, 2013). Crumbley et al. (2015) note that forensic accounting has attracted significant attention, resulting in the offering of numerous forensic accounting programs by U.S. universities, published educational materials, and several universities promoting forensic accounting certification. Rezaee & Wang (2019), in examining the application of IT techniques in forensic accounting practice, conclude that the demand for forensic accounting will continue to grow in the future.

Conclusion

Fraudulent activities in accounting processes pose a significant threat to financial transparency, undermining the trust of investors, regulators, and other stakeholders. This paper highlights the complexities involved in identifying and preventing such activities, emphasizing the importance of applying forensic accounting techniques in fraud risk management. Achieving financial transparency is an ongoing endeavor that requires sustained vigilance, continuous innovation, and the alignment of organizational goals with ethical standards. By addressing these challenges and adopting recommended strategies, organizations can effectively minimize fraud risks and foster enduring trust among stakeholders.

It is crucial to highlight the ongoing development of forensic accounting curricula. The incorporation of forensic accounting into academic and professional training programs underscores its increasing significance in protecting organizational assets, enhancing transparency, and upholding legal and ethical compliance.

References

1) Amat, O. (2019). Detecting accounting fraud before it's too late. John Wiley & Sons.
2) Avey, T., Baskerville, T., Brill, A., AICPA (2000). The CPA's Handbook of Fraud and Commercial Crime Prevention, Association of International Certified Professional Accountants, https://competency.aicpa.org.
3) Belak, V. (2011). Poslovna forenzika i forenzičko računovodstvo, Belak Excellens, Zagreb.
4) Benson, M. L., & Simpson, S. S. (2017). White-collar crime: An opportunity perspective. Routledge.
5) Crumbley, L., Heitger, L., Smith, G.S. (2015) Forensic and Investigative Accounting, 7th Edition, WoltersKluwer, Chicago, USA.
6) Cvetković, D., Bošković, V. (2018). Pojavni oblici kreativnog računovodstva i najčešće manipulacije u finansijskim izveštajima, Oditor - časopis za menadžment, finansije i pravo, Centar za ekonomska i finansijska istraživanja, br. 2/2018, Beograd, 78-89.
7) Dimitrijević, D. (2013) Forenzičko računovodstvo - sredstvo zaštite kvaliteta finansijskog izveštavanja. Kragujevac: Ekonomski fakultet, doktorska disertacija.
8) Hamilton, E. L., Hirsch, R. M., Murthy, U. S., & Rasso, J. T. (2018). The ethicality of earnings management. Strategic Finance, 100(5), 48-63.

9) Houck, M. M., Kranacher, M. J., Morris, B., & Riley Jr, R. A. (2006). Forensic accounting as an investigative tool. The CPA Journal, 76(8), 68.
10) Howard, S. (2002). Financial Shenanigans: How to Detect Accounting Gimmicks & Fraud in Financial Reports, McGraw-Hill.
11) http://acfe.com
12) http://aicpa.org
13) https://en.wikipedia.org/wiki/South_Sea_Company.
14) Joshi, M. S. (2003), “Definition of Forensic Accounting” www.forensicaccounting.com.
15) Knežević, G., Stanišić, N., & Mizdraković, V. (2013). Analiza finansijskih izveštaja. Univerzitet Singidunum.
16) Knežević, S., Špiler, M., Milašinović, M., Mitrović, A., Milojević, S., Travica, J. (2021). Primena Beneish M-Scorei Altman Z-Score modela kod otkrivanja finansijskih prevara i neuspeha kompanije (Using Beneish M-Score and Altman Z-Score Models to detect financial fraud and company failure. *Tekstilna industrija*, 69(4), 20-29.
17) Lajoux, A., Elson, C. (2000). The Art of M&A Due Diligence: Navigating Critical Steps and Uncovering Crucial Data. McGraw-Hill, New York.
18) Louwers, T. (2015). The past, present, and future (?) of crime-related forensic accounting methodology, Accounting Research Journal, Vol. 28, No 1, pp. 4-9.
19) Milojević, S. V., Knežević, S. P., & Šebek, V. (2024). Identification and prevention of fraudulent financial reporting. *Tokovi osiguranja*, *40*(1), 146-182. DOI: 10.5937/TokOsig2401146M.
20) Milojević, S., Adamović, M., & Đokić, O. (2024). Internal control as a tool for fraud risk management in pharmaceutical companies. *International Academic Journal (*ISSN 2671-3748), 5(1), 33-37.
21) Nwoye, U.J., Ekesiobi, C., Abiahu, M-F.C. (2017). Financial Disclosures X-ray and Predictions Professional Appropriateness to creative Accounting Practices in Nigeria, Asian Journal of Economics, Business and Accounting, 4(1), 1-14, No AJEBA.35679.
22) Ozcan, A. (2019). Analyzing the Impact of Forensic Accounting on the detection of Financial Information Manipulation, Manas Journal of Social Studies, 8(2).
23) Peloubet, M. E. (1946). Forensic Accounting its Place in Today's Economy. Journal of Accountancy, 81(6), 458-462.
24) Perols, J., Lougee, B.A. (2011). The Relations between Earnings Management and Financial Statements Fraud, Advances in Accounting, incorporating Advances in International Accounting 27, pp. 39-53.
25) Popoola, O.M.J., Ahmad, A.C., Samsudin, R.S. (2014). Forensic Accounting Knowledge and Mindset on Task Performance Fraud Risk Assesment, International Journal of Business Management, 9(9), Canadian Center of Science and Education.
26) Report to the Nation, featuring data from 1996, 2002, 2004, 2006, and 2008.
27) Rezaee, Z., & Burton, E. J. (1997). Forensic accounting education: insights from academicians and certified fraud examiner practitioners. Managerial Auditing Journal, 12(9), 479-489.
28) Rezaee, Z., Riley, R. (2010) Financial Statement Fraud – Prevention and Detection, 2nd edition, John Wiley & Sons, Inc. Hoboken, New Jersey, USA.
29) Rezaee, Z., Wang, J. (2019). Relevance of Big Data to Forensic Accounting Practice and Education, managerial Auditing Journal, 34(3), 268-288.
30) Silverstone, H., & Davia, H. R. (2005). Fraud 101: Techniques and strategies for detection. John Wiley & Sons.
31) Spasić, K., Tanović, M. (2016) Primena stvarnog kreativnog računovodstva u oblasti novčanih tokova na primeru srpskih preduzeća, Forenzička revizija – zbornik radova, ISBN 2015 – 978-56-86745-56-9.
32) Sutherland, E. H. (1949). Principles of. Criminology. New York: Dryden.
33) Škarić – Jovanović, K. (2007). Kreativno računovodstvo – motivi, instrumenti i posledice, Zbornik radova sa 11. Kongresa SRRRS, Banja Vrućica.
34) Špiler, M., Knežević, S., Milojević, S., Slavković, M., Mitrović, A., Šebek, V. (2024). Does the Internal Control System Play a Strong Safeguarding Role against Fraud in Local Communities?. *Lex Localis - Journal of Local Self-Government*, 22(3), 188-208.
35) Vidaković, S. (2017). Uloga revizije i forenzičkog računovodstva u sprečavanju, otkrivanju i istraživanju računovodstvenih prevara, Zbornik Univerziteta EDUCONS za društvene nauke, 247-268.

The role of internal audit and internal control in managing fraud risk

Bosiljka Srebro[1], Miloš Milošević[2], Milan Resimić[3]

[1]Academy of Applied Technical Studies, Belgrade (AATSB), Belgrade, Serbia*
[2] Academy for Business Economics, Čačak, Serbia
[3] University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia
[*]Corresponding Author: e-mail: bsrebro@atssb.edu.rs

Abstract

Managing risks in a dynamic environment is a highly complex and challenging task. Internal audit and internal control are vital in proactively managing fraud risk within organizations. Among these risks is the ever-present threat of fraud. This study examines their interdependent functions in detecting, assessing, and mitigating fraud risks, highlighting their significance in promoting organizational integrity and financial stability. This paper explores frameworks and strategies for integrating internal audit and control processes to manage fraud risk. The study emphasizes the importance of continuous improvement and adaptability in addressing evolving fraud threats effectively.

Keywords: internal audit, internal risk, fraud risk, management

1. Introduction

Historically, financial frauds date back to 1792 when William Duer, a pioneer of financial fraud and Assistant Secretary of the US Treasury, engaged in insider trading. This trend continued in 1924 with Fred Stern & Company, a rubber importer, followed by Waste Management in 1998 and WorldCom in 2002. After the bankruptcies of WorldCom and Enron, the Sarbanes-Oxley Act was introduced in 2002. However, financial fraud persisted, causing varying degrees of damage to investors and creditors. Shortly after, Adelphia declared bankruptcy in 2005, and in 2008, the Bernard L. Madoff Ponzi scheme, involving the misuse of investor funds, garnered significant public and professional attention. Madoff was eventually sentenced to a lengthy prison term. That same year, the bankruptcy of Lehman Brothers occurred, primarily due to risky investments using borrowed capital. In 2018, notable fraud cases involved Taylor, Bean & Whitaker, as well as Colonial Bank and other prominent financial institutions and investment firms.

The author of this paper highlights these cases because of the staggering financial losses,[1] which are astonishing even by American standards of "large losses," ranging from $650 million (Tyco – security systems; 2002), $1.6 billion (Adelphia – cable TV operator; 2005), $1.7 billion (Waste Management – waste management company; 1998), $3.9 billion (American International Group–AIG – insurance company; 2005), $4.6 billion (HealthSouth – healthcare facility; 2002), $5 billion (Freddie Mac – mortgage loans; 2003), $11 billion (WorldCom – telecommunications company; 2002), to an incredible $50 billion (Lehman Brothers – investment bank; 2008). As observed, financial fraud is an expensive problem for organizations (Burnaby et al., 2011). Studies indicate that entities in the US lost 5% of their annual revenue to fraud in 2006 and 7% in 2008 (ACFE). The same study provides empirical evidence showing that 19% of fraud cases were detected by internal audit functions, while 9% were uncovered through external audits.

Today, companies in various industries, financial institutions, and other entities face fraud more than ever before, due to economic instability, significant reliance on information technology, and the complexity of organizational and transnational structures (multinational companies). An additional factor is the criminal code, investigative, and judicial practices in some countries, which fail to serve as a deterrent for fraud perpetrators. All these factors contribute to pressures (incentives) and enable different justifications for individuals in a position to commit fraud (the fraud triangle), which are also elements of fraud risk. While the motive of financial fraud perpetrators is undoubtedly money, the consequences for the affected entity are not necessarily limited to financial losses. Damage may also take the form of reduced organizational performance, reputation, and credibility, as well as loss of investor trust (Mousa, 2017), which increases the entity's exposure to various types of risks.

By reducing fraudulent activities, entities can increase profitability, while internal audit strengthens anti-fraud measures and creates significant organizational value. A PwC study on the growing role of internal audit, fraud, and reputational risk emphasizes that anti-fraud programs yield substantial returns. For instance, their insurance industry study demonstrates a $7.12 return for every dollar spent on anti-fraud efforts (IRP, 1996). The General Counsel Roundtable (GCR) study finds that every additional dollar invested in compliance saves organizations an average of $5.21 in avoided legal liabilities, reputational damage, and decreased productivity (PwC).

[1] The author will only reference cases involving damages exceeding 500 million USD.

Evaluating the three elements of fraud (the fraud triangle), organizational structure, and employee responsibilities reveals that nearly all employees have opportunities to commit fraud and harm the organization. Fraud and financial damage can occur in any workplace, varying only in extent. Even the lowest-ranking employees can cause damage in the course of their daily work, and as one ascends the hierarchy, the potential financial damage increases. It should not be overlooked that fraudulent activity does not necessarily result in financial loss for the company; it may artificially inflate assets or financial performance, such as profitability, thereby harming third parties (investors, creditors, suppliers, customers, etc.). On the other hand, it can undermine the company's credibility and reputation, which may not have immediate visible financial consequences (Milošević, 2018), but the repercussions are significant and often difficult to measure later.

1. Fraudulent activities and control mechanisms

The question that arises for an organization is whether it is necessary to have an internal audit function. Excluding banks, financial institutions, and publicly traded companies that are required to have an internal audit function, this question arises for many small, medium, and large corporations that have not yet recognized internal auditing as a valuable control element that provides assurance to the Audit Committee and company management, and strengthens the company's position with investors and creditors (Fraser & Lindsay, 2007). The same researchers note that in small companies, management is more focused on day-to-day operations and can effectively oversee and control the activities of employees. However, when the scope and complexity of operations significantly increase, the company management requires new employees whose task is to control work processes and staff, thus gradually strengthening internal controls. For new small companies or those without an established internal audit function, establishing one is seriously considered, provided that the size, business model, operational risks, and sources of financing warrant such organizational solutions. Nevertheless, considering the way financial fraud is detected, a study by the Association of Certified Fraud Examiners (ACFE) in 2014 stated that 14% of frauds were detected by the internal audit function (ACFE, 2014). The same study mentions that tips accounted for 42%, management review for 16%, while other methods such as coincidences, external audits, police, etc., accounted for 28% of fraud detection methods.

Internal audit is there to assist in compiling a list of potential frauds, the methods of committing fraud across all sectors of the organization, in the form of a checklist, to enable efficient and effective control, primarily focusing on the prevention of fraudulent actions, and even providing evidence for legal proceedings (Matriciani, 2014). Unlike external audits, internal audits do not have a strictly defined scope and role; instead, it is up to the entity to organize it according to its own needs and the demands of management or the ownership structure. It is established at the request of corporate management, creditors, or investors, and supports and communicates with the internal control system for which management is responsible (Fraser & Lindsay, 2007). The same researchers note that over time, many internal audit functions expand their scope to include broader aspects of control and provide services in other areas beyond internal control assessments, such as examining controls in large projects and new software solutions for problem prediction, conducting audits of the effectiveness and efficiency of business operations, assessing risks related to reputation, privacy, the environment, etc., providing consulting activities for entity risks and controls, and participating in fraud investigations (Fraser & Lindsay, 2007).

The first question facing internal auditors is the identification of elements that link the internal audit process to financial fraud, namely: fraud prevention, information management, and investigations conducted by the internal audit department. Fraud prevention has been addressed by various researchers and professionals. A reliable and comprehensive prevention mechanism is the application of the integrated framework sponsored by the Committee of Sponsoring Organizations of the Treadway Commission, known as the COSO Internal Control Framework. This framework involves evaluating internal control systems across the components of a report: control environment, risk assessment, control activities, information and communication, and monitoring, which will be discussed further in this segment of the dissertation. Professionals (Frank & LaTorre, PwC, 2004) promote a ten-step guide for financial fraud prevention, titled the Ten-Step Anti-Fraud Action Plan.

Researcher and professional Matriciani (2014) examines the relationships between internal audit and employee fraud within organizations, as well as the flow and quality of information. He categorizes information into two groups: those that interested parties wish to provide to the organization (e.g., whistleblowers, internal auditors, and information obtained through investigations) and those raising questions about how to process and communicate such information. Matriciani (2014) concludes that implementing effective information management procedures for potential fraud, developed by internal auditors within their departments, is essential for organizations aiming to reduce the manifestation of fraud risk. He also emphasizes the importance of compliance (adhering to legal and professional standards) and organizational learning as critical factors in an organization's commitment to preventing and detecting fraudulent actions. The relationship between fraud and internal audit is indisputable and has been formally codified in the International Standards for the Professional Practice of Internal Auditing (ISPPIA): "Internal auditors must have sufficient knowledge to evaluate the risk of fraud and the manner in which the organization manages it. However, they are not expected to possess the expertise of individuals whose primary responsibility is fraud detection and investigation" (ISPPIA 1210.A2-1).

In his observations, Matriciani (2014) identifies tasks related to information that he classifies in accordance with the ISPPIA into: information collection, management of fraud-related information, database management, dissemination of the final audit report, and management of a fraud scheme database.

Internal auditing focuses exclusively on professional fraud, specifically fraud committed by employees within the company or individuals involved in business operations through management structures. As such, it constitutes a significant part of corporate governance. The Institute of Internal Auditors (IIA) asserts that the role of internal auditing includes supporting and strengthening corporate governance mechanisms, as well as assessing and improving the effectiveness of management and risk control (Burket et al., 1999). The importance of internal auditing is also emphasized by the U.S. Securities and Exchange Commission (SEC) and the New York Stock Exchange (NYSE), which requires companies to have an audit committee as a condition for listing (NYSE, 2003; Milošević, 2018).

Analyzing findings from the Association of Certified Fraud Examiners (Mousa, 2017), the importance of the internal audit function in detecting fraud, embezzlement, and misuse of company assets is highlighted. Internal auditors were responsible for uncovering 16.5% of fraud cases in 2016, compared to 3.8% detected by external auditors (ACFE, 2016).

If a company lacks internal resources to consolidate the activities of its internal audit function, it can always resort to outsourcing. Elmghaamez & Ntim (2016) reference research on outsourcing internal audit functions to external firms. Carey et al. (2006) investigated companies listed on the Australian Stock Exchange and their propensity to outsource internal audit functions. The findings revealed that approximately 55% of companies employ their staff for internal auditing, while 45% rely on outsourcing, entrusting this function to external professionals. The study also concluded that companies are more likely to outsource internal audit functions during business expansion and to reduce employee training costs.

In their work, Elmghaamez & Ntim (2016) further discuss research conducted by Inua & Abianga (2015) in Nigeria, which examined the impact of outsourcing the internal audit function on the independence of internal auditors. The results indicate that while outsourcing offers certain benefits for both the company performing the function and the client, several drawbacks were identified. A significant concern is the potential compromise of external auditor independence when they simultaneously undertake internal audit functions and external audit duties.

At times, internal audit functions can be co-sourced, meaning the work is jointly conducted with a partner organization. This approach is often adopted to meet regulatory requirements within tight deadlines, as noted by Abdulhameed & Aruwa (2017), who investigated internal auditing in small and medium-sized enterprises (SMEs) in the UK. Lenz & Sarens (2014) analyzed responses from 134 audit directors from various German entities. It is no coincidence that internal auditors are referred to as the "first line" of defence against fraudulent behavior. They are well-suited to prevent and detect fraud due to their knowledge, competencies, understanding of internal procedures and control systems within an entity's business structure, and familiarity with the business environment. Internal auditors are in a position and capable of proactively detecting various types of fraud, including embezzlement, management fraud, and financial reporting fraud. The COSO integrated framework for internal controls serves as a tool to guide the internal audit process toward achieving greater efficiency (IA Middle East, 2015), which will be discussed in more detail later.

Đorđević and Đukić (2015) emphasize that internal auditing is the most critical element of corporate governance, focused on supporting and strengthening company management mechanisms and improving the efficiency of management and controls. The potential and capacity of the internal audit function stem from its comprehensive understanding of all processes and operational activities, existing risks, the company's level of exposure to them, internal control systems, and its human resources. These capabilities allow internal auditing to effectively prevent and detect fraudulent activities. The IIA standards themselves require internal auditors to "assess the organization's management of fraud risk" (ISPPIA 2120.A1) and "consider the potential for fraud" (ISPPIA 2210.A2).

Although the IIA highlights the role of internal auditing in fraud prevention and detection through adequate standardization and practical guides, regulations do not explicitly define the tasks and responsibilities of internal auditors (Đorđević and Đukić, 2015). This means that significant company support, a strong "tone at the top," and the personal professional capacities and accountability of internal auditors are essential.

A prerequisite for effective internal auditing is an efficient system of internal controls that ensures the prevention of fraudulent activities, strong auditor competencies in performing their functions that result in identifying financial reporting fraud, and the integrity and capacity of internal auditors to report to senior management. Effectiveness in these areas enables the internal audit function to play a key role in protecting the entity from fraud. In this regard, internal auditors should evaluate the organization's governance, risk, and control frameworks at least once a year (IA-ME, 2015).

Unlike external auditors, internal auditors are far better positioned to detect fraud. They are not restricted by formal procedures and can use informal collegial communication within the entity to identify symptoms or gather information pointing to potential fraudulent activities. Moreover, by observing employee behavior, they can direct their attention to specific tasks and how they are being performed. Internal auditors are also not constrained by time limitations or materiality, which could hinder their ability to carry out their functions.

2. Internal Audit Standards

The International Standards for the Professional Practice of Internal Auditing (ISPPIA, IIA, 2012), issued by the Institute of Internal Auditors (IIA), are regarded as international professional regulations within the scope of internal auditing. Their application ensures the proper organization, orientation, scope of work, evaluation, and reporting of internal audits. These standards are divided into two segments: Attribute Standards (classified as the 1000 series) and Performance Standards (classified as the 2000 series).

To regulate the behavior and activities of internal auditors across various aspects of their work, the standards employ the directive term “*must*”, indicating an unconditional requirement for specific actions or behaviors in different situations.

The International Standards for the Professional Practice of Internal Auditing require that an entity’s management effectively and efficiently address fraud risk and that performance standards be established for evaluating governance quality and mitigating fraud risks (Standard 2120.A2). Furthermore, Standard 2060 clarifies the role of the chief audit executive (CAE) in reporting fraud risks to senior management and the board of directors: "The chief audit executive must periodically report to senior management and the board on the purpose, authority, responsibility, and performance of the internal audit activity relative to its plan. Reporting must include significant risk exposures and control issues, including fraud risks, governance issues, and other matters…" Standard 1210 specifies the essential attributes that internal auditors must possess, particularly regarding their personal competencies: "Internal auditors must possess sufficient knowledge to evaluate fraud risks and must be individuals with specialized expertise whose primary responsibility is the detection and investigation of fraud."

Additionally, Standard 2060 elaborates on the CAE's role in communicating with senior management and the board regarding fraud risks: "The chief audit executive must periodically report to senior management and the board on the purpose, authority, responsibility, and performance of the internal audit activity relative to its plan. Reporting must include significant risk exposures and control issues, including fraud risks, governance issues, and other matters…"

3. Capacity of Internal Auditors

During the collection of data and information directly from employees, an auditor should be able to recognize suspicious behaviors, concealment of information, and/or obstruction of the internal audit process. In this sense, an internal auditor acts somewhat as a psychologist, capable of observing such behaviors, analyzing and documenting them, and linking them to potential risks. In research conducted by Burnaby et al. (2011), focused on applied competencies, respondents - internal auditors - confirmed that they value "soft skills" the most. Formal education and theory were not highly ranked. These soft skills were identified as skepticism, logic, creativity, independence, and the ability to put oneself in the position of a fraudster.

Regarding auditing skills, it is essential to note that these are acquired through formal education and practice. High-quality professional experience in a challenging control environment - such as in a company facing diverse challenges and business system deficiencies - is particularly valuable. This is because it provides opportunities to identify potential solutions, improve the business system, and strengthen the auditor’s competencies. Technical skills include auditing, analytical, and IT skills, particularly the ability to use software solutions.

As many perpetrators use technology to execute fraudulent activities, internal auditors should also leverage technology to detect fraud (IIA, 2009b). According to Burnaby et al. (2011), IIA Standard 1220.A2 – Due Professional Care specifically emphasizes the use of technology-based audit techniques (IIA, 2009a, p. 20). Internal auditors are encouraged to utilize various business intelligence tools to detect fraud in areas identified as high-risk. Several such techniques are outlined in the Global Technology Audit Guide (GTAG) published by the IIA (2009), titled Fraud Prevention and Detection in an Automated World (Burnaby et al., 2011).

It is further emphasized that internal auditors should dedicate more effort to mastering IT audit techniques, particularly business networking and data analysis software. Professional literature and studies indicate that most publicly traded companies hire younger auditors who lack sufficient IT knowledge and skills. ACFE, in a global study, confirms that data analytics is often used in the "mature" phases of fraud prevention efforts. The study notes that 5 out of 10 internal audit departments with active data analytics use it to identify potential fraud, a figure that rises to 62% in organizations with over 100,000 employees. This is unsurprising given that data analytics require significant investment, time, and other resources (ACFE, 2014).

Technology (Computer Aided Audit Techniques - CAAT) provides auditors (both internal and external) with the ability to streamline and accelerate their activities and detect errors (Olasanmi, 2013). It is becoming faster in operation, analyzing a large number of data to find anomalies, and allowing auditors to extract information based on specific patterns. What is significant is that more and more auditors are beginning to use it. Researchers have noted that internal auditors are being called to be more rigorous in their work.

A well-educated and properly trained internal auditor, with investigative competencies, integrity, and the capacity to report observed negative findings, positioned appropriately within the hierarchical structure of the entity, is the person best placed to detect fraud. According to relevant standards (SIAG No3), the responsibilities of the internal auditor for detecting, investigating, and reporting fraud in financial statements are as follows:

- Identify symptoms ("red flags") indicating that fraud has occurred;
- Identify the possibility of fraud (e.g., poor internal controls, weak audit committee);
- Assess the symptoms and possibilities, investigate their likelihood, and determine measures to reduce their occurrence;
- Exclude management personnel not involved in the fraud for further investigative actions (Rezae & Riley, 2010).

4. Detection and Prevention of Fraudulent Activities by Internal Auditors

Considering the role of the internal auditor and evaluating their work in detecting errors and fraud or preventing their occurrence, it is important to highlight that research has shown that the number and value of errors identified by external auditors is significantly lower in companies that have their internal audit function (Vallace & Kreutzfeldt, 1991), which underscores and emphasizes the role of internal auditing.

In cases of fraud in financial statements, research shows that internal auditors are highly aware of the potential for fraudulent activities to be detected by external auditors (Apostolou et al., 2001). Đorđević and Đukić (2015) explain that the internal audit function does not have the primary responsibility for preventing and detecting fraud, but that it should still be integrated into the process of managing fraud risk, which is a new challenge for the internal audit function. When it comes to detecting financial fraud, entities can use their internal audit function, outsource the internal audit function, or combine the two. Outsourcing the internal audit function aims to improve internal auditing performance by overcoming potential problems, primarily the traditional issue that haunts all auditors, directors, and shareholders: "How independent is the internal auditor?"

Looking at the core issues of financial fraud and entity protection, it is clear that the capacities of internal auditing in detecting fraudulent activities and assessing risk should be enhanced, potentially through outsourcing the internal audit function.

When discussing fraud risk management and the role of internal auditing, the following questions arise (Mousa, 2018):

1. Do senior management, the board of directors, and the audit committee have clear responsibilities regarding fraud risk management?
2. Does the entity have a fraud prevention strategy, a policy that coordinates activities to reduce and detect fraud?
3. Are new employees or candidates for higher positions in the hierarchy vetted, including checking their past history, etc.?
4. Is there an archive of documentation related to reported frauds, or a hotline for anonymously reporting fraud within the entity?
5. Is there regular evaluation of employee orientation, incentives, opportunities, and conditions that may lead to fraud?
6. Is there a categorization of potential frauds?
7. How are risks and internal control methods assessed?
8. Are there effective channels to improve the flow of information?
9. Is there training and awareness regarding fraud and corruption cases for all employees? Is training regularly repeated and improved, and what values are promoted within the entity?
10. Are there procedures to ensure “pressure” on management, or encouragement to improve the control environment?

The internal auditor is not fixedly assigned to any department or service within the entity; they approach each area impartially and objectively. This is where the manifestation of the risk of detecting anomalies, fraudulent actions, or errors comes into play, as internal auditors are, after all, people who have emotions and a need for collegial relationships and communication. This manifests when, during communication and the execution of internal audit tasks, the auditor refrains from conducting certain investigative actions or controls, either partially or entirely, because they are in good collegial, friendly, or familial relationships with an employee whose activities are under review, or simply because they feel a "debt" for their employment within the entity. The requirement set before internal auditors is that they remain independent in their work, avoid the influences of the business environment, and objectively perform their tasks, as this is how they protect the entity's assets. Therefore, the most significant quality of an internal auditor is integrity, which is accompanied by commitment and perseverance.

The detection of fraud is addressed through internal control methods designed to identify fraudulent actions and behavior. The existence of adequate detection methods, investigative procedures, and controls is essential for detecting fraud and inappropriate behavior. When combined with other (preventive) control methods, it increases the effectiveness of the fraud risk management program. It should be noted that investigative controls provide evidence of fraudulent actions but are not designed to prevent fraud. Improving related aspects of control activities, such as the frequency of controls and the depth of controls and investigations, contributes to strengthening the entity’s capacity to combat fraudulent behavior.

The requirements set for auditors in detecting fraudulent activities are (Mousa, 2013):

1. Specification of fraud risks within the entity through examination of controls and the operational environment to determine the category and method of fraud;
2. Risk assessment of fraud;
3. Examination of risks and their occurrence from the perspective of the perpetrator to determine the methods of control and manipulation that cause fraudulent activities;
4. Understanding the indicators of fraudulent actions;
5. Readiness for the emergence of any fraud cases as a result of existing indicators and knowledge of how to identify such indicators.

By fulfilling these requirements, perpetrators of fraudulent activities are demotivated and discouraged from committing fraudulent acts. Additionally, the development of adequate control mechanisms conducted investigations, and reporting of discovered fraud cases (notification) significantly deter them from engaging in fraud.

Considering the stages of fraud risk management, the role of internal auditing is:

1. Determining internal audit procedures related to fraud and assessing control methods;
2. Identifying fraud indicators – here, awareness of the properties and factors of individual fraudulent acts and the techniques used in their execution is required;

3. Readiness for any opportunity that could lead to fraud, such as weaknesses in internal controls (weaknesses in methods). Upon detecting deficiencies in control mechanisms, internal auditors must define fraud indicators;
4. Evaluating fraud indicators;
5. Alerting and reporting to relevant authorities within the entity if a fraud case is discovered, to recommend the initiation of an investigation;
6. Response and investigation – corrective actions for damages caused to the entity.

Information about fraud is structured under the following headings:

1. Collecting information about fraud;
2. Handling information about fraud;
3. Managing the fraud database;
4. Distribution of the final internal audit report;
5. Managing the fraud schemes database. (Matriciani, 2014)

By fulfilling these requirements, perpetrators of fraudulent activities are demotivated and discouraged from committing fraud, and through the development of adequate control mechanisms, conducting investigations, and reporting of discovered fraud cases, they are significantly deterred from engaging in fraudulent activities.

Considering the phases of fraud risk management, the role of internal audit is as follows:

1. Establishing internal audit procedures related to fraud and assessing control methods;
2. Identifying fraud indicators – this requires awareness of the characteristics and factors of each fraudulent activity and the techniques used in its execution;
3. Being prepared for any opportunity that may lead to fraud, such as weaknesses in internal controls (weaknesses in methods). Upon detecting a deficiency in control mechanisms, internal auditors must define fraud indicators;
4. Assessing fraud indicators;
5. Reporting and alerting the relevant authorities within the entity if a fraud case is discovered, to recommend the initiation of an investigation;
6. Response and investigation – corrective actions for damages caused to the entity.

Information about fraud is structured under the following headings:

1. Collecting information about fraud;
2. Managing (handling) information about fraud;
3. Managing the fraud database;
4. Distributing the final internal audit report;
5. Managing the fraud schemes database.

Information about potential fraud or suspicious behavior may be received in the form of a report, tip-off, or observed during control and audit activities. These can come from an employee or a third party. To ensure the efficiency of the internal audit process - avoiding the waste of time and resources - the source of the information is verified, along with its reliability and the motivation of the whistleblower. A preliminary assessment of the validity of the claims is then made by determining the credibility of the information and the reliability of the informant, as well as checking if the reported circumstances appear on the fraud checklist or the "red flags" checklist. It should be noted that many tips are submitted anonymously, either in writing or through a "hotline" via email or phone, making it difficult to determine the motive and profile of the fraud reporter.

When discussing motivations for committing fraud, it is important to note that there are various motives driving perpetrators of fraudulent actions. What is crucial to emphasize is that it is certainly not just a financial motive, i.e., money. A significant motivator for perpetrators may be "revenge" from an employee due to lack of promotion, unresolved issues, inadequate rewards, or insufficient investment in the employee. The task of the internal auditor (and the management function) is to design and influence the entity's policymakers to create procedures that would neutralize arbitrariness and evaluations based solely on individual opinions within the management structure. With adequate procedures, reliable mechanisms for assessing employee work quality (with a recommendation for the highest possible quantification of all work elements), and strong control systems, the possibility of motivations for fraudulent actions and other inappropriate behaviors is significantly reduced.

Promoting positive values, good communication and information sharing, a widespread perception of intolerance toward fraudulent actions and behaviors, establishing penal measures, and creating a controlled environment — as the key components of the internal control system - help spread ethical values and a positive business culture. By modelling appropriate behavior in management structures, the likelihood of fraud occurring is reduced.

5. Investigation by the Internal Auditor

The investigative process relies on the entity's adopted procedures. The chief internal auditor should have a plan for conducting investigative actions, which is implemented upon the discovery or receipt of information regarding a fraud. They determine the skills and competencies needed for conducting the investigative procedures and assign the internal auditor who will carry out the investigation. It is particularly important to select someone who is not in a potential conflict of interest or in close (collegial) relations with the employees under investigation.

Information (evidence) gathering is carried out through video surveillance, review of documentation, and interviewing employees. It is crucial that the method of information gathering is lawful; data, information, and evidence about fraudulent activities and implicated individuals must be obtained legally. During the investigative process, the extent of damage caused by the fraudulent activity is determined, as well as the individuals suspected of fraud, the scope of business operations affected by the fraud, and which department or sector was impacted, as well as any potential intangible damage if reliably assessable. Special attention should be focused on defining the method of executing the fraud (modus operandi) to develop or improve fraud indicators, as well as the reasons for committing the fraudulent act by the identified individuals.

When it comes to investigations based on various reports and notifications, it is important to emphasize that the internal auditor is obliged to investigate according to the audit manual, if available within the entity, as well as in compliance with laws, all applicable regulations, and international standards for the professional practice of internal auditing.

6. Internal Control as Support for Internal Audit in Effective Fraud Risk Management

Internal control plays a pivotal role in ensuring the quality and reliability of financial reporting while also serving as a critical mechanism for fraud prevention. Management is responsible for ensuring reliable financial reporting as well as designing a program for the prevention and detection of fraud. Internal control systems, internal auditing, and external audits have a leading role in defending against financial fraud. External audits and the investigative actions of forensic accountants represent the second line of defence against fraud. Carrying out this task involves organizing an adequate system where each segment has defined roles, tasks, and authorities (Krstić, 2009).

Internal audit assesses the internal control mechanisms of the entity (company, financial institution, organization, government agency), management, and accounting processes, ensures compliance with legal and internal regulations, and reliable financial reporting, all to increase operational business efficiency. The Audit Committee is a control body established by the entity to carry out audits more effectively. It reviews and analyzes financial statements, recommends changes to accounting policies, ensures the implementation of internal audit conclusions, and more (Andrić et al., 2004).

The internal control system is defined by the International Auditing Standards, initially in ISA 400, as a system that includes all policies and procedures adopted by the management of a legal entity to help achieve the organization's objectives in a way that ensures orderly and efficient operations. According to ISA 315, which replaced ISA 400, internal control is “a process designed, implemented, and maintained by those charged with governance, management, and other personnel, to provide reasonable assurance regarding the achievement of objectives related to reliable financial reporting, effective and efficient operations, and compliance with applicable laws and regulations, where 'control' refers to all aspects, whether involving one or multiple control components” (Simeunović & Knežević, 2016).

By reviewing the internal control system, both in terms of its architecture and the design of controls, as well as its functioning and the specific effectiveness of the controls, internal auditors determine whether the established controls are adequate and effective in preventing fraud and various forms of negative behavior. Through this type of assessment, senior management expects the internal audit department to:

- Assess and report on deficiencies in internal control;
- Assess, report, and inform about key business risks;
- Provide recommendations for improving the existing control system (Matriciani, 2014)

  and the financial extent of damage caused by fraudulent behavior.

Although internal control was initially seen as a set of measures to protect the entity's assets by verifying the accuracy and truthfulness of accounting records, over time, it has expanded to cover broader oversight responsibilities and is now viewed as “a set of policies and procedures established by management to ensure the achievement of specific goals.” (Andrić et al., 2004). As it represents a key element of effective management, there is a constant interest in increasing efficiency and developing internal control.

The importance of internal control has led to the development of various models, or frameworks, for internal control. The most notable model of good internal control practices is the COSO (Committee of Sponsoring Organizations of the Treadway Commission) model. The COSO model assumes that managing any business entity essentially means managing the entity's business risks. Therefore, the model emphasizes the importance of risk. The entity's management structure is responsible for initiating the implementation process of the model and applying it at all levels, with the goal of identifying potential events that may negatively impact the entity. The model allows entities to identify, categorize, and rank risks by importance. As this is a permanent process for which all employees are responsible, internal control serves as a mechanism to mitigate risks, i.e., minimize potential negative events.

Conclusion

Internal audits and internal controls serve as fundamental pillars in managing fraud risk within organizations. Their role extends beyond merely detecting and preventing fraud; they also play a critical part in fostering a culture of integrity and accountability.

Internal audit, through risk assessments, control evaluations, and the provision of recommendations, delivers independent and objective insights that help identify vulnerabilities in control systems early. Meanwhile, robust internal control systems establish preventive measures to minimize the likelihood of fraud and facilitate its detection when it occurs. Internal control is considered a significant prerequisite for the operations of an entity. Internal audit and control have a particularly important place in fraud risk management.

What business entities expect from internal auditing is certainly assistance in shaping the fraud risk assessment, by connecting those who know where fraud risks exist but do not have the power to act preventively, and those who have the power, authority, and responsibility to act but do not know where the fraud risks lie.

References

Andrić, M., Krsmanović, B., Jakšić, D. (2004). Revizija - teorija i praksa, Ekonomski fakultet Subotica.

Apostolou, B., Watson, S. F., Hassell, J. M., & Webber, S. A. (2001). Accounting education literature review (1997–1999). Journal of Accounting Education, 19(1), 1-61.

Burkett, W. P., Barbera, N. R., Leithhead, B. S., Lower, M. & Robuck, P. J. (1999). Competency Framework for Internal Auditing: The Future of Internal Auditing: The Delphi Study, The Institute of Internal Auditors Research Foundation, Altamonte Springs, Florida.

Burnaby, P., Howe, M., Muehlmann, B. (2011) Detecting Fraud in the Organization: An Internal Audit Perspectieve, Journal of Forensic & Investigative Accounting, Vol.3, Issue 1.

Coram, P., Ferguson, C., Moroney, R (2006). The Value of Internal Audit in Fraud Detection, file:///C:/Users/Korisnik/Desktop/Internal%20audit,%20fraud/The%20Value%20of%20Internal%20Audit%20in%20Fraud%20Detection,%20Paul%20Coram,%20Colin%20Ferguson,%20Robyn%20Moroney,%202006,%20преведено.pdf

Đorđević M., Đukić, T. (2015). Contribution of Internal Audit in the Fight Against Fraud, Facta Universitatis – Series: Economics and Organization Vol. 12, No 4, pp. 297-309. UDC 343.53:657.6

Fraser, J., Lindsay, H. (2007). 20 Questions Directors Should Ask about Internal Audit, 2nd Edition, Canadian Institut of Chartered Accountants, Toronto, Canada; ISBN 978-1-55385-285-8.

General Counsel Roundtable - GCR (2003) Seizing the Opportunity, Part One: Benchmarking Compliance Programmes, Corporate Executive Board.

http://acfe.com

http://coso.org

http://na.theiia.org

https://na.theiia.org/standards-guidance/Public%20Documents/IPPF%202013%20English.pdf

Institute of Internal Auditors (2012). International Standards for the Professional Practice of Internal Auditing (Standards), Issued: October 2008, Revised: October 2012.

Insurance Research and Publications (1996) Insurance Fraud: The Quiet Catastrophe, Conning and Co.

Internal Auditor Middle East, March 2015, www.internalauditor.me

International Standards for the Professional Practice of Internal Auditing – ISPPIA

ISA 240 – The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements, IAASB.

Krstić, J. (2009). Uloga forenzičkog računovodstva u otkrivanju prevara u finansijskim izveštajima, Facta Universitatis Series: Economics and Organization, Vol. 6, No 3, p. 295-302. UDK 343.72:657.375

Lenz, R., Sarens, G. (2012). Reflections on the internal auditing profession: what might have gone wrong?, managerial Auditing Journal, Vol. 27, No 6, pp.532-549; DOI 10.1108/02686901211236382; Emerald Group Publishing Ltd 0268-6902.

Lenz, R., Sarens, G. and D'Silva, K. (2014). Probing the Discriminatory Power of Characteristics of Internal Audit Functions: Sorting the Wheat from the Chaff, International Journal of Auditing, Vol. 18 No 2, p.126-138.

Matriciani Piero CFE, CIA, CCSA Ferrovie dello Stato Italiano (2014). Internal Audit and Fraud: How to Manage Fraud Information, ACFE.

Mihret, D. G., & Yismaw, A. W. (2007). Internal Audit Effectiveness: An Ethiopian Public Sector Case Study. Managerial Auditing Journal, 22, 470-484.

Milosevic, M. (2018). Internal Auditing Role in Prevention and Detection of the Fraud in Companies, 8th International Conference „Economics and Management – Based on New Technologies" EMoNT-2018, 25-28 June 2018, Vrnjačka Banja, Serbia.

Mousa, K. (2017).The Risk of Fraud and the Role of Internal Auditing, Internal Auditor Middle East, http://www.internalauditor.me/article/the-risk-of-fraud-and-the-role-of-internal-audit.

Olasanmi, O. O. (2013). Computer Aided Audit Techniques and Fraud Detection, Research Journal of Finance and Accounting, Vol. 4, No 5, ISSN 2222-2847.

Report to the Nations on Occupational Fraud and Abuse, Association of Certified Fraud Examiners, 2014.

Rezaee, Z., Riley, R. (2010). Financial Statement Fraud – Prevention and Detection, 2nd edition, John Wiley & Sons, Inc. Hoboken, New Jersey, USA.

Simeunović, N., Knežević, G. (2016). Interna kontrola kao mjera prevencije prevara u finansijskom izvještavanju, FINIZ 2016 – Rizici u savremenim uslovima poslovanja, Univerzitet Singidunum, DOI: 10.15308/finiz-2016-42-48.

The ACFE, 2014, Report to the Nations on Occupational Fraud and Abuse (Association of Certified Fraud Examiners, 2014).

Wallace, W. A., & Kreutzfeldt, R. W. (1991). Distinctive characteristics of entities with an internal audit department and the association of the quality of such departments with errors. Contemporary Accounting Research, Vol. 7, No 2, p. 485-512.

A Literature Review on the Cultural Challenges in the Development of Women's Entrepreneurship

Fatos Turkaj (PhD Student) [1], Prof.Dr Ermira Qosja [2], Dr. Bislim Ahmetaj [3]

[1*]Department of Management, Faculty of Business, Aleksander Moisiu University Albania
[2]Department of Management, Faculty of Business, Aleksander Moisiu University Albania
[3*]Department of Management, Faculty of Business, Aleksander Moisiu University Albania
[*]*Fatos Turkaj: e-mail: fatosturkaj@gmail.com*

Abstract

This paper presents a literature review on the cultural challenges influencing the development of women's entrepreneurship. Through a comprehensive analysis of literature and international practices, the study highlights that traditional gender norms and social discrimination are among the primary barriers faced by women entrepreneurs. These challenges range from structural limitations in developing economies to underrepresentation in innovative sectors in developed countries. The review provides a detailed examination of how these obstacles affect the performance of women entrepreneurs and emphasizes the importance of inclusive solutions such as mentoring, the creation of support networks, and empowerment through education and training. Furthermore, the paper offers a comparison between developed and developing countries to understand the diverse nature of cultural barriers and their impact on the growth of women's entrepreneurship. The findings underscore the necessity of addressing cultural challenges to foster a supportive environment that promotes gender equality and economic development.

Keywords: cultural challenges, social discrimination, traditional gender norms.

1. Introduction

The cultural challenges that impact female entrepreneurship are a complex interplay of social, psychological, and economic factors, which often hinder women from reaching their full potential as entrepreneurs. Unlike formal barriers, cultural challenges are often harder to identify and resolve, as they are deeply rooted in societal norms and expectations related to gender roles and women's place in society. On a global scale, one of the greatest obstacles for female entrepreneurs is the gender stereotype that perceives them as less capable of managing and developing businesses compared to men (Aldrich & Ruef, 2020).

In many cultures, women are considered more suited for traditional roles, such as that of mother and family caretaker, which often results in the neglect of opportunities for professional and entrepreneurial development. This phenomenon is not only present in developing countries but also in more developed economies, as evidenced by the challenges faced by women operating in the most innovative and high-tech sectors (Kelley et al., 2021). However, recent studies suggest that cultural challenges impacting female entrepreneurship are not uniform and are contingent on the cultural context and level of development within each country.

One of the most significant aspects of cultural challenges is the influence of traditional gender norms, which often create the greatest barriers for female entrepreneurs. These norms can relate to a wide range of issues, including the expectation to balance professional and family commitments. For example, a recent study revealed that women in many societies continue to face expectations to manage multiple responsibilities both inside and outside the home, which limits their opportunities to develop successful businesses (Carter et al., 2021). In many cases, these cultural expectations prevent women from seeking funding or engaging in professional support networks that are essential for business growth.

Furthermore, in countries such as Japan, South Korea, and China, cultural norms linking a woman's role to the family and the maintenance of social harmony often lead to women withdrawing from professional and entrepreneurial opportunities. Women in these countries often face a strong dilemma between professional aspirations and pressure to meet traditional family expectations (Yamamura & Sato, 2021). This challenge is further exacerbated when mentoring and training opportunities for women are limited or inaccessible.

In the context of developed countries, despite significant progress towards gender equality, women still face substantial obstacles. These include low representation of women in innovative and technology sectors, as well as limited access to capital to support the creation of new businesses (Brush et al., 2021). Recent research has shown that in technology and innovation sectors, where high levels of expertise and creativity are required, women often find themselves excluded—not due to their abilities, but because of ingrained beliefs about the capabilities and roles of women in these fields (Aldrich et al., 2020). Once again, these limitations stem from gender stereotypes that have persisted for centuries and are embedded within professional and societal cultures.

In several European countries, such as Germany and Switzerland, efforts are being made to address these barriers through policies aimed at promoting gender equality. However, cultural challenges remain deeply entrenched. Female entrepreneurs in these

countries often encounter a professional environment that favors men, and although institutional support and funding opportunities exist, they are often limited and fail to change the cultural practices that keep women from accessing equal opportunities (Siegrist et al., 2020).
Another important aspect of cultural challenges is the lack of equal opportunities for women in professional training and modern technology. Women engaged in entrepreneurship often have limited access to professional development opportunities, training, and resources necessary to prepare them for sustainable business development. This is particularly true in underdeveloped or less developed regions, where investments in education and professional training for women are limited. According to a recent study by Banerjee and Duflo (2021), the lack of institutional support for training and mentoring is one of the greatest barriers faced by female entrepreneurs in developing countries.
Globally, women face the need to acquire new skills and gain an edge in the labor market, equipping themselves with knowledge of technology and emerging trends essential for survival in an increasingly innovation- and digitalization-driven economy (Kelley et al., 2021).
The aim of this paper is to analyze the cultural challenges impacting the development of female entrepreneurship by identifying key factors arising from traditional social norms and gender role expectations, as well as their negative impact on women's opportunities to develop successful businesses. This research examines the impact of these cultural challenges at both global and regional levels, identifying the main barriers associated with gender stereotypes and social prejudices that limit women's opportunities to engage in entrepreneurial activities.
The structure of the paper is organized as follows: The first section provides an overview of the cultural challenges and their direct impact on female entrepreneurship. It highlights the barriers associated with traditional social norms, gender roles, and societal perceptions that limit women's opportunities to take the initiative in business. The second section examines the cultural factors hindering women in innovative sectors and in economic environments that require continuous development. This section emphasizes the influence of gender stereotypes and social pressures that negatively affect women's chances of achieving success in entrepreneurship. The third section summarizes the findings and offers recommendations to address and overcome these cultural barriers. This research suggests that an inclusive approach and interventions at both societal and institutional levels can help create equal opportunities for female entrepreneurs, alleviating cultural challenges and promoting more opportunities for equitable development.

The research question of this paper is: What are the key cultural challenges affecting the development of female entrepreneurship, and which supportive strategies are most effective in overcoming these challenges in varying socio-economic contexts?
To address this research question, the primary objectives of this paper are as follows:

1. To identify the main cultural challenges, including traditional gender norms and societal stereotypes, that influence the development of female entrepreneurship at global, regional, and local levels.
2. To propose comprehensive strategies, such as the establishment of support networks, mentoring programmes, and gender equality policies, aimed at overcoming these challenges and fostering the empowerment of female entrepreneurs.

2. Literature Review

The international literature highlights the significance of the role of women entrepreneurs in fostering economic and social growth, creating new opportunities for innovation and employment. According to the World Bank Report (2021), women entrepreneurs contribute significantly to global economic development, improving economic stability and creating new employment opportunities. However, cultural challenges, such as social norms and gender biases, remain substantial barriers for women leading businesses, limiting their opportunities for equal representation across various economic sectors (OECD, 2021). Gender stereotypes and societal perceptions, which often view women as more suitable for traditional caregiving roles, negatively impact their ability to engage and succeed in business and entrepreneurial fields (ILO, 2021).
A study by UN Women (2022) argues that the COVID-19 pandemic has exacerbated women's efforts to balance their family and professional responsibilities, thereby intensifying existing cultural challenges. Women have faced heightened demands and doubts regarding traditional roles and the division of labor within the household, worsening both economic and cultural challenges. This negative impact is more pronounced in developing economies, where cultural norms and stereotypes are more entrenched and harder to change. Consequently, women's participation in businesses and specific economic sectors remains restricted (World Economic Forum, 2022).

Developed Countries: The USA, United Kingdom, Germany, and Switzerland

In the United States, women entrepreneurs have succeeded in developing businesses across various fields, including technology, services, and healthcare. According to a report by the National Women’s Business Council (2021), women lead more than 40% of small businesses in the country but continue to face significant cultural and structural barriers. Cultural norms that perceive

women as more suitable for family caregiving roles often hinder their pursuit of careers in advanced and lucrative sectors (McKinsey & Company, 2020). Additionally, women entrepreneurs have limited access to venture capital, while their underrepresentation in professional networks places them at a disadvantage in advancing and developing their businesses.
In the United Kingdom, support for women entrepreneurs is emphasized through initiatives such as the *Rose Review of Female Entrepreneurship*. This program has helped women overcome funding barriers and provided opportunities for essential support and mentoring, critical for developing successful enterprises. However, cultural challenges related to traditional gender norms remain prevalent. Women often feel marginalized and face greater difficulties in building professional networks and managing businesses in dominant industry sectors (Carter et al., 2020). Furthermore, gender inequalities in pay levels and representation in leadership positions continue to negatively affect the long-term success of women-led businesses.
In Germany, the *EXIST Women* program provides support for women creating innovative businesses, primarily in the technology and science sectors (KfW Research, 2021). This program has made a noticeable difference for women entrepreneurs, enabling them to develop and manage businesses that face intense competitive challenges. In Switzerland, initiatives like the *Swiss Female Entrepreneurship Program* have highlighted the importance of mentoring and skill development to help women overcome cultural barriers often present in countries with traditional family norms and gender expectations (Siegrist et al., 2020). Nonetheless, cultural challenges persist, with many women continuing to face difficulties associated with traditional roles dividing family and professional responsibilities.

Developing Economies: India and South Africa

In India, women entrepreneurs are often confined to low-profit-margin sectors due to traditional norms that limit their participation in high-growth-potential businesses (Kabeer, 2020). Studies show that cultural challenges and gender norms prevent women from developing and scaling their businesses beyond traditional constraints. Women who attempt to establish businesses often face negative perceptions that undervalue their capabilities and consider them unsuitable for leading large and innovative organizations. In South Africa, cultural challenges and traditional norms similarly hinder women from participating in male-dominated markets and industries. In this country, initiatives aimed at creating training opportunities and professional networks often face implementation difficulties, leaving many women without the necessary resources to engage and advance (World Bank, 2022).

Western Balkans: Kosovo and Albania

In Kosovo and Albania, women entrepreneurs face similar obstacles. Gender stereotypes and traditional norms are among the primary barriers women must overcome to establish and grow businesses. According to the Riinvest Institute (2021), only 12% of businesses in Kosovo are led by women, reflecting a significant gender gap in entrepreneurship. In Albania, efforts such as those by UNDP have brought progress, but the lack of long-term supportive policies continues to challenge women entrepreneurs (UNDP Albania, 2020). Women in these countries are often restricted by cultural perceptions and norms that view sectors led by women as less significant or advanced than those led by men. Furthermore, the lack of mentoring opportunities and support from professional networks leaves women without the means to grow and develop sustainably.
The international literature and various reports emphasize that cultural barriers for women entrepreneurs are similar across many regions and countries. Gender stereotypes, traditional societal norms, and a lack of institutional support are some of the factors influencing the development of women-led businesses. However, best practices from developed countries, such as mentoring and the creation of supportive networks, can serve as models to address these challenges and enable the growth and development of female entrepreneurship in countries like Kosovo and Albania.

3. Methodology

This paper adopts a systematic literature review approach, focusing specifically on the cultural challenges impacting the development of female entrepreneurship. The methodology is designed to identify and analyse the influence of cultural norms, gender stereotypes, and structural barriers on the growth of women-led enterprises across various contexts.
Literature Selection: The selection process involved the use of key terms such as “Cultural barriers in female entrepreneurship” and “Gender stereotypes in entrepreneurship.” Sources were drawn from peer-reviewed journals and reports by international organisations published between 2019 and 2024. Databases such as Scopus, Web of Science, ResearchGate, and Google Scholar were utilised to collect relevant materials.
Selection Criteria: The inclusion criteria focused on empirical studies and literature reviews addressing cultural challenges and supportive strategies for female entrepreneurs in diverse contexts.
Source Filtering: Only materials with direct relevance to the research topic were selected, excluding informal or unpublished sources.
Thematic Selection: Key themes were identified, including traditional gender norms, societal expectations, and discrimination in access to capital and professional networks.
Analysis Approach: A qualitative thematic analysis was conducted to identify key challenges, such as cultural norms, gender expectations, and the impact of stereotypes on women’s opportunities for entrepreneurial success. This approach facilitated the

synthesis of best practices and the identification of cultural barriers in countries such as the United States, Germany, Japan, and the Western Balkans.
Limitations: The study relied exclusively on published literature, excluding informal sources. Furthermore, the selection of resources was influenced by access to certain databases and specific reports. Nonetheless, this methodology provides a robust foundation for understanding and analysing cultural challenges while offering practical recommendations to enhance support for female entrepreneurs in Kosovo and Albania.

4. Findings

To address the aim of this paper, which seeks to analyze and compare the cultural challenges affecting female entrepreneurship at the global, regional, and local levels, key findings have been identified from the scholarly literature. These findings are categorized into three main contexts: the global landscape, developed countries, developing countries, and Kosovo and Albania, offering insights into the challenges and opportunities faced by women entrepreneurs in these settings.
At the global level, cultural challenges for women entrepreneurs are interconnected with traditional gender norms, social stereotypes, and restricted access to economic resources and professional networks. Women continue to encounter significant barriers, such as underrepresentation in high-potential sectors like technology and discrimination in accessing venture capital. For instance, only 2.3% of venture capital in the U.S. goes to women (McKinsey & Company, 2020). The literature suggests that, despite economic advancements, cultural norms still perpetuate common patterns of discrimination (Brush et al., 2019; OECD, 2021). Efforts to address these challenges are more advanced in developed countries, where supportive programs and networks for women entrepreneurs have been established.

The USA and the United Kingdom:

In the USA and the UK, supportive structures such as Women's Business Centers and Start-Up Loans help women address key challenges like access to capital and the creation of networks. However, gender stereotypes continue to negatively impact women's aspirations and confidence in developing their businesses (Carter et al., 2020). The percentage of women in innovative sectors like technology and sciences remains low, necessitating more integrated policies that promote gender equality (British Business Bank, 2021).

Germany and Switzerland:

In Germany, programs like *EXIST Women* have supported women in innovation sectors, while in Switzerland, mentoring and training are key pillars for integrating women into the entrepreneurial market (Siegrist et al., 2020). Despite the success of these programs, traditional expectations regarding gender roles, especially in rural areas, continue to limit women's participation in entrepreneurship.

India and South Africa:

In developing countries such as India and South Africa, challenges are more pronounced due to a lack of access to formal financing and institutional support. In India, women face traditional norms that restrict their opportunities to start their own businesses. Programs like *Stand-Up India* have supported women, but their impact remains limited due to a lack of widespread implementation and reach (Kabeer, 2020). Similarly, in South Africa, women often turn to informal economic sectors to start businesses, where they face a lack of legal security and financial support (World Bank, 2022).

Kosovo and Albania:

In Kosovo and Albania, women entrepreneurs face a combination of cultural and structural challenges. According to a report by Riinvest Institute (2021), only 12% of businesses in Kosovo are owned by women, most of which are concentrated in the services sector. Similarly, in Albania, efforts to empower women have increased awareness of gender equality, but supportive policies are often limited and fragmented (UNDP Albania, 2020). Traditional gender norms and women's roles within the family influence their engagement in entrepreneurship, forcing them to confront challenges such as balancing family and professional responsibilities, the lack of support networks, and limited access to formal financing.
In summary, cultural challenges for women entrepreneurs are numerous and vary across cultures, but efforts to address these challenges are becoming increasingly evident. Supportive interventions and integrated policies that promote gender equality are necessary to help women reach their potential in entrepreneurship, particularly in contexts like the Western Balkans.

Category	Key Cultural Challenges	Best Practices in Addressing Cultural Challenges
Global	Traditional gender norms that limit women's opportunities in entrepreneurship. Cultural stereotypes that influence women's aspirations and confidence.	The creation of professional networks, mentoring, and training for women to strengthen their confidence and promote gender equality (Brush et al., 2019; OECD, 2021).
Developed Countries - USA and UK	Discrimination in access to capital, limitations on opportunities for women in innovative sectors. Cultural norms that support traditional roles for women.	The creation of support centers for women entrepreneurs such as Women's Business Centers, Start-Up Loans, and policies promoting gender equality in innovative sectors (McKinsey & Company, 2020; Carter et al., 2020; British Business Bank, 2021).
Developed Countries - Germany and Switzerland	Traditional gender role expectations that affect women's participation in entrepreneurship, especially in rural areas.	Support programs such as EXIST Women for empowering women in innovative sectors and education focused on training women in entrepreneurship and mentoring (Siegrist et al., 2020).
Developing Countries - India and South Africa	Traditional norms that prevent women from pursuing entrepreneurial opportunities, limiting opportunities in the formal sectors.	Support programs such as Stand-Up India for women entrepreneurs, interventions in the informal sector, and promotion of opportunities for women in business (Kabeer, 2020; World Bank, 2022).
Kosovo and Albania	Traditional gender norms that force women to balance family and professional responsibilities. The lack of supportive networks and access to funding.	Supportive policies for women entrepreneurs, training for innovation, and opportunities for mentoring. Development of support networks and opportunities for access to financing (Riinvest Institute, 2021; UNDP Albania, 2020).

Table 1: Cultural Challenges and Best Practices for Female Entrepreneurship at the Global, Developed, Developing Countries, and Kosovo & Albania Levels

At the Global Level: Cultural challenges are significantly high due to pronounced gender stereotypes and the lack of support for women in innovative sectors. However, several supportive practices have been developed to address these challenges, including networks and organizations designed to empower female entrepreneurs.
In Developed Countries: While cultural challenges, such as gender norms, persist, supportive practices are well-established and have a considerable impact, particularly through structures like Women's Business Centers and mentoring programs. This reflects a noticeable improvement in addressing cultural challenges.
In Developing **Countries:** Challenges are more pronounced due to the lack of resources and support, especially in areas like financing and education. Supportive practices are still in the early stages and are often not widespread.
In Kosovo and Albania: Cultural challenges are clearly present, especially in the form of traditional norms and family-related barriers. Supportive practices remain limited but have grown as several initiatives have been created to support female entrepreneurship.

Level	Cultural Challenges	Supportive Practices	Comments
Global	Many	Average	Gender discrimination and limited access to economic resources.
Developed Countries	Average	Many	Support structures such as Women's Business Centers and Start-Up Loans.
Developing Countries	Many	Need Improvement	Lack of access to funding and institutional support.
Kosovo & Albania	Many	Average	Cultural challenges due to traditional norms and gender roles.

Table 2: Presents an analysis of the cultural challenges and supportive practices that women entrepreneurs face at four different levels: global, developed countries, developing countries, and Kosovo & Albania.

Table 2: Presents an analysis of the cultural challenges and supportive practices that women entrepreneurs face across four different levels: global, developed countries, developing countries, and Kosovo & Albania. This table is structured into four main columns, with each category analyzed for the cultural challenges and supportive practices that assist women in entrepreneurship.

Global Level

Cultural Challenges: Women globally face significant cultural challenges related to traditional gender norms and social stereotypes. This includes low representation in high-potential sectors like technology and sciences, and discrimination in accessing capital, as evidenced by McKinsey & Company (2020), where only 2.3% of risk capital is invested in women-led businesses.
Supportive Practices: Global efforts to support women entrepreneurs are often scattered and varied, including the creation of support structures that offer access to capital and networks. However, the support provided remains limited, especially in innovative sectors and opportunities for mentoring and training for women entrepreneurs.

Developed Countries

Cultural Challenges: In developed countries, such as the USA and the UK, challenges include cultural norms and gender stereotypes that still negatively affect women's self-confidence and aspirations to grow their businesses. Despite supportive programs, women often feel constrained by societal and professional pressures.
Supportive Practices: These countries have more developed support structures for women entrepreneurs, such as Women's Business Centers and Start-Up Loans, which offer financing and mentoring opportunities. However, women's participation in sectors such as technology and sciences remains low and requires more integrated policies to address gender inequalities.

Developing Countries

Cultural Challenges: In developing countries like India and South Africa, women face more pronounced cultural and structural challenges. Traditional norms, lack of access to finance, and institutional support create significant barriers for women entering entrepreneurship. In many cases, women are excluded from professional and financial growth opportunities.
Supportive Practices: Programs like Stand-Up India offer women opportunities to start businesses, but their impact is often limited due to a lack of widespread and continuous support. In South Africa, women are often forced to enter informal economy sectors to start businesses, increasing the risk and limiting access to financial support.

Kosovo & Albania

Cultural Challenges: Women in Kosovo and Albania face a combination of cultural and structural challenges, including traditional gender norms that require them to balance family and professional responsibilities. As a result, they often have fewer opportunities to participate in business or lead businesses. Moreover, challenges such as a lack of support networks and limited access to finance are widespread.
Supportive Practices: According to reports from the Riinvest Institute (2021), in Kosovo, only 12% of businesses are women-owned, and most are concentrated in small service sectors. Supportive policies and programs are limited and often fragmented, making an integrated and sustainable approach necessary to enhance opportunities for women in entrepreneurship.

5. Conclusions and Recommendations

In conclusion, the research on the cultural challenges affecting the development of women entrepreneurship has shown that cultural norms and gender stereotypes are the main obstacles women entrepreneurs face at the global, regional, and local levels.
At the global level, traditional cultural norms and gender stereotypes have a significant impact on women's opportunities to engage in entrepreneurship. Women are often faced with societal expectations to be more involved in family roles and childcare, limiting their opportunities to develop businesses. Despite progress in some countries, these norms still negatively influence women's aspirations and self-confidence in running businesses (OECD, 2021; Carter et al., 2020).
Another cultural challenge is the low representation of women in high-potential economic sectors, such as technology and sciences, where cultural norms often create barriers to women's inclusion. This occurs due to the mistaken belief that women are not suited for these industries, hindering their involvement in technology and science entrepreneurship (Brush et al., 2019).
In addition to visible cultural barriers, the invisible challenges related to cultivating self-confidence are also present. Women often struggle to develop aspirations to create their own businesses due to norms that frequently convey the message that

entrepreneurs are expected to be men. This influence is also evident in the experiences of women in highly developed countries like the US and the UK (Carter et al., 2020).

In some cases, it is evident that changing cultural norms is a slow but necessary process. Although some programs and initiatives have improved opportunities for women, improving societal perceptions about women's entrepreneurial opportunities remains a major challenge. Women are often forced to confront stereotypes and prejudices that affect their ability to build supportive networks and obtain investments for their businesses (McKinsey & Company, 2020).

In Kosovo and Albania, cultural challenges are also present and have a significant impact. Traditional cultural norms and societal expectations for women, including family duties and traditional roles, make it difficult for many women to engage in entrepreneurship. Women face visible barriers in developing business ideas due to gender discrimination and cultural limitations imposed by society (Riinvest Institute, 2021).

Cultural challenges remain a significant barrier for women entrepreneurs, making it difficult for them to engage in and develop successful businesses. Traditional norms and gender stereotypes are present in many parts of the world and have a noticeable impact on the support women receive in starting and running businesses. Despite efforts to change these norms, there is a great need to address these challenges in order to create equal opportunities for women entrepreneurs.

Cultural Norms and Gender Stereotype Change

One of the main recommendations is to intensify efforts to change cultural norms and gender stereotypes that prevent women from engaging in entrepreneurship. Educational programs and societal awareness campaigns are essential to challenge traditional roles and encourage women to pursue entrepreneurial careers. Women's participation in social and professional initiatives can help change perceptions about their skills and opportunities.

Examples: Media campaigns promoting women entrepreneurs as success models, and integrating these initiatives into schools and universities to educate younger generations about equal opportunities for both women and men in entrepreneurship.

Support for Women Entrepreneurs in Innovation Sectors

To address the low representation of women in innovation sectors such as technology and sciences, it is necessary for governments and international organizations to create equal opportunities for women in these sectors. Programs that offer training, mentorship, and financial support for women in such sectors can help increase their representation.

Examples: Creation of mentoring groups and support networks for women in technology and sciences, as well as offering grants and financial opportunities dedicated to women entrepreneurs in these fields (e.g., innovation grants from international institutions).

Enhancing Women's Self-confidence

Boosting women's self-confidence and aspirations is a key aspect for the development of women entrepreneurship. This can be achieved by providing opportunities for personal and professional development, as well as creating opportunities for women to engage in supportive networks.

Examples: Leadership development programs for women and creating opportunities for training that enhance women's self-confidence to become leaders in entrepreneurship.

Engaging Men and Boys in Gender Norm Change

For true change to occur, it is necessary to involve men and boys in challenging gender stereotypes. This can help create a culture of support for women and increase awareness about gender equality.

Examples: Programs that encourage men and boys to support and motivate women in entrepreneurship, as well as help dismantle the myth that women cannot run successful businesses.

Creation of Policies Supporting Women Entrepreneurs in Rural Areas

In many cultures and countries, women living in rural areas face numerous cultural and economic challenges. Policies and programs that encourage and support women entrepreneurs in these areas are necessary to address these challenges and enable greater equality of opportunities.

Examples: Policies offering specialized training and support for women entrepreneurs in rural areas, as well as opportunities for access to markets and professional networks.

Integrating Cultural Challenges into Business Development Policies

Cultural challenges that have a direct impact on the development of women's entrepreneurship should be integrated into business development policies. Governments must include cultural and gender aspects in creating programs and policies to support entrepreneurs, offering equal opportunities for both genders.
Examples: Integrating gender equality and cultural challenges training into support policies for start-ups and new businesses.

Improving Education and Training for Women Entrepreneurs

Provide women with opportunities for advanced education and training in management, technology, and entrepreneurial skills to improve their positions and help shift cultural perceptions.
Examples: Creation of specific programs aimed at developing entrepreneurial skills for women, focusing on fields with high economic potential that remain underutilized by women.
These recommendations are crucial for overcoming cultural barriers and enabling a more equal and supportive environment for women entrepreneurs worldwide, particularly in regions where cultural challenges are more pronounced. Integrating these suggestions could increase opportunities and strengthen the impact of women in economic and social development.

References:

1. Aldrich, H. E., & Ruef, M. (2020). *Organizations Evolving* (4th ed.). SAGE Publications.
2. Banerjee, A. V., & Duflo, E. (2021). *Good Economics for Hard Times: Better Answers to Our Biggest Problems*. PublicAffairs.
3. Brush, C. G., De Bruin, A., & Welter, F. (2021). *Women Entrepreneurs and the Global Economy*. Springer.
4. Carter, S., Shaw, E., & Mwaura, S. (2021). The Role of Gender in Entrepreneurial Practice. *Journal of Business Venturing*, 35(1), 14-32.
5. Kelley, D. J., Singer, S., & Herrington, M. (2021). *Global Entrepreneurship Monitor 2021: Women's Entrepreneurship Report*. GEM.
6. Siegrist, M., & Kassen, M. (2020). *Gender and Entrepreneurship in Germany and Switzerland: Cultural and Institutional Barriers to Female Entrepreneurs*. Springer.
7. Yamamura, S., & Sato, M. (2021). Women Entrepreneurs in Japan: Overcoming Cultural and Institutional Barriers. *Asian Journal of Business Venturing*, 36(3), 228-245.
8. Carter, S., Anderson, S., & Shaw, E. (2020). Gender and entrepreneurship: A review of research and its implications for policy. *International Small Business Journal*, 38(3), 193-212.
9. International Labour Organization (ILO). (2021). *Women Entrepreneurs and the World of Work: Global Challenges and Opportunities*. Geneva: International Labour Organization.
10. Kabeer, N. (2020). Gender, entrepreneurship, and social transformation: The case of women in developing economies. *Development and Change*, 51(4), 916-940.
11. KfW Research. (2021). *The Role of Female Entrepreneurship in Innovation-Driven Economies: A Study of Women-Led Businesses in Germany*. Frankfurt: KfW Bank.
12. McKinsey & Company. (2020). *Women in the Workplace: A Global Perspective on Barriers to Entry and Advancement*. McKinsey & Company.
13. OECD. (2021). *Gender and Entrepreneurship: An Overview of Recent Policy Developments*. Paris: Organisation for Economic Co-operation and Development.
14. Siegrist, H., Herrmann, M., & Müller, C. (2020). Cultural Barriers to Female Entrepreneurship in Switzerland: An Empirical Investigation. *Journal of Business Research*, 114, 306-319.
15. UNDP Albania. (2020). *Challenges and Opportunities for Women Entrepreneurs in Albania: Addressing Gender Inequalities in Business*. United Nations Development Programme.
16. UN Women. (2022). *The Impact of COVID-19 on Female Entrepreneurship*. United Nations Women.
17. World Bank. (2022). *Women Entrepreneurs in Sub-Saharan Africa: Overcoming the Barriers to Success*. World Bank Group.
18. World Economic Forum. (2022). *The Future of Gender Equality in Business: Opportunities and Challenges for Women Entrepreneurs*. Geneva: World Economic Forum.
19. National Women's Business Council. (2021). *The State of Women's Entrepreneurship in the United States*. U.S. Small Business Administration.
20. Carter, S., & Shaw, E. (2020). The Influence of Gender on Entrepreneurship and Innovation. *Innovation: Organization & Management*, 22(1), 10-25.
21. Brush et al. (2019) - Brush, C. G., de Bruin, A., & Welter, F. (2019). A Gender-Aware Framework for Entrepreneurship Research. *Small Business Economics*, 52(2), 319-331. doi:10.1007/s11187-018-0067-9

22. OECD (2021) - Organisation for Economic Co-operation and Development. (2021). *Women's Entrepreneurship 2021: Unlocking the Potential of Women Entrepreneurs*. OECD Publishing. doi:10.1787/9789264523997-en
23. McKinsey & Company (2020) - McKinsey & Company. (2020). *Women in the Workplace 2020*. McKinsey & Company.
24. Carter et al. (2020) - Carter, S., Shaw, E., Lam, W., & Wilson, F. (2020). Gender and Entrepreneurship: A Review and Critical Analysis. *International Journal of Entrepreneurial Behavior & Research*, 26(2), 335-351. doi:10.1108/IJEBR-10-2019-0406
25. British Business Bank (2021) - British Business Bank. (2021). *The Role of Gender in Entrepreneurship: Evidence from the UK*. British Business Bank.
26. Siegrist et al. (2020) - Siegrist, M., Gmür, M., & Dreiling, M. (2020). Women Entrepreneurs in Switzerland: Success Factors and Challenges. *Journal of Small Business Management*, 58(4), 722-739. doi:10.1111/jsbm.12534
27. Kabeer (2020) - Kabeer, N. (2020). Gender, Work, and Economic Development in India: Overcoming Cultural Barriers. *International Development Review*, 12(1), 45-67. doi:10.1093/idr/idez031
28. World Bank (2022) - World Bank. (2022). *Women's Entrepreneurship and the Informal Economy in South Africa*. World Bank Group.
29. Riinvest Institute (2021) - Riinvest Institute. (2021). *Women Entrepreneurship in Kosovo: Challenges and Opportunities*. Riinvest Institute.
30. UNDP Albania (2020) - United Nations Development Programme (UNDP). (2020). *Gender Equality and Women's Empowerment in Albania: Progress and Challenges*. UNDP Albania.

Analytical Learning: Utilising Data to Improve Student Outcomes in Biology. A Case Study in Middle Schools in Tirana.

Gëzim Bara[1], Sara Bomi[2], Sara Pupe[3]

[1] *Department of Biology, Faculty of Natural Sciences, Albania*
[2] *Department of Biology, Albanian University, Albania*
[3] *Department of Biology, Aldent University, Albania*
Corresponding Author: sarabomi@gmail.com

Abstract

This case study investigates the impact of analytical learning strategies in biology on improving academic outcomes and fostering student engagement in middle schools in Tirana. These strategies encompass critical thinking, the breakdown of complex biological concepts, data interpretation, and problem-solving-centered learning. Among the challenges faced by education systems today, this study underscores the significance of analytical learning in equipping students with the skills needed to address future academic and professional demands. The research combines a literature review with qualitative methods such as teacher interviews, classroom observations, and pre- and post-diagnostic testing. Results show significant progress in concept comprehension, motivation, and collaboration among students. The study offers practical recommendations for integrating analytical learning methods to create dynamic educational environments that connect theoretical knowledge with practical applications.

Keywords: Analytical learning, critical thinking, problem-based learning, active learning.

1. Introduction

The word “analytic” originates from the Greek word “ἀναλυτικός” (analytikos), meaning the ability to analyze and break down a whole into its fundamental components. According to Gogus (2012), Analytic Learning refers to an approach that utilizes prior knowledge as a foundation to describe concepts, develop hypotheses, and rationally generalize ideas. This approach enables learners to critically process information by breaking it down into manageable parts and analyzing the structure and components of concepts. Through this, learners can uncover underlying patterns and generate hypotheses using logical thinking. Analytical thinking is a vital higher-order thinking skill necessary for students to tackle the challenges of the 21st century (Prawita et al., 2019). It involves breaking down information into smaller parts, identifying relationships between these elements, and understanding the overall structure of the material (Anderson & Krathwohl, 2001/2015). Analytical thinking helps provide deeper insights by dissecting information into manageable components (Irwanto, 2017).

To effectively identify and solve problems, students must develop strong analytical thinking skills. These skills are integral to the problem-solving process, allowing students to make informed decisions, such as answering complex questions (Wahyuni & Analita, 2017). Analytical thinking encompasses processes such as distinguishing relevant information, organizing ideas logically, and attributing meaning or purpose to the information (Anderson & Krathwohl, 2001/2015). Educational objectives related to analytical thinking include sorting and identifying relevant information (distinguishing), structuring fragmented information into a coherent whole (organizing), and understanding the purpose or perspective of the information (attributing). The level of students’ analytical thinking skills can be assessed through several indicators. Setyani et al. (2017) outline indicators such as interpreting information, applying prior knowledge to solve problems, evaluating conclusions based on evidence, and providing logical reasoning. Wahyuni and Analita (2017) expand on these by including formulating assumptions, interpreting observations, integrating prior knowledge and experience, drawing conclusions, and applying learned concepts to new problems. Prasetiyaningsih (2020) contends that analytical thinking skills serve as a benchmark for students’ progression toward higher-level cognitive abilities, which are especially important in today’s rapidly advancing scientific and technological landscape, particularly within the field of education.

Science education plays a crucial role in developing analytical thinking skills. It encourages students to engage actively in learning, process information, and apply concepts to solve real-world problems (Qomariya et al., 2018; Fadilah et al., 2020). Science instruction not only imparts facts, concepts, and laws but also helps students recognize, understand, and address problems (Nilah & Roza, 2020). Analytical thinking allows students to identify and describe problems, differentiate between unrelated issues, and connect related concepts to formulate appropriate solutions (Fitriani et al., 2021). These skills are essential for understanding complex information in detail and establishing logical connections. Jean Piaget’s theory supports the early development of analytical thinking skills. Santrock (2011) explains that students aged 11–13, typically in junior high school, are at the concrete operational stage, where they excel at identifying tangible problems but may struggle with abstract reasoning.

Learning through analysis has a profound impact on biology education, enhancing critical thinking, improving knowledge retention, and fostering skills essential for lifelong learning. Analytical approaches allow students to deconstruct complex biological systems, such as genetics or ecosystems, identifying patterns and relationships crucial for solving problems. For instance, Freeman et al. (2014) demonstrated that analysis-based active learning methods improved student performance in STEM disciplines by 6% compared to traditional lectures. Furthermore, engaging students in analytical tasks leads to deeper cognitive processing, which improves knowledge retention and the ability to apply concepts across disciplines. Prince (2004) highlighted how problem-based learning, a form of analytical education, enhances both retention rates and interdisciplinary application. Biology, as a data-intensive science, also benefits from analytical learning's focus on interpreting experimental results and reasoning with graphical and statistical data. A meta-analysis by Lazonder and Harmsen (2016) found that guided inquiry-based learning significantly developed students' data interpretation skills, preparing them for academic and professional challenges. Finally, analytical learning promotes independence and adaptability, equipping students to tackle complex biological questions and continuously engage with evolving scientific knowledge.

Educators can employ a variety of strategies to develop students' analytical skills, fostering critical thinking and enabling them to tackle complex problems effectively. By using effective teaching strategies, educators can foster strong analytical thinking skills in students. For example, Klionsky (2004) emphasizes that education should not just focus on retaining facts but on "developing the ability to ask questions, find relevant information, and use that information to solve problems." Effective teaching strategies, such as guided inquiry and generative learning, are key to promoting analytical thinking. These approaches encourage students to engage in higher-order thinking and transition from passive learning to active problem-solving (Prawita et al., 2019; Wahyuni & Analita, 2017). Inquiry-based learning encourages students to ask questions, conduct research, and analyze results. By engaging in this process, learners cultivate curiosity and the ability to solve problems using evidence-based reasoning (Llewellyn, 2001). Hattie (2009) identified strategies like inquiry-based approaches and self-regulation as highly effective for fostering self-directed learning and long-term academic success. Another impactful method is case study analysis, where students evaluate real-world scenarios and apply theoretical concepts to practical situations. This technique bridges the gap between theory and practice, enhancing both analytical and application skills (Kolb, 2015). Additionally, collaborative problem-solving tasks promote teamwork and critical discussions, allowing students to share diverse perspectives and develop creative solutions together. Research by Prince (2013) highlights the effectiveness of group-based activities in fostering problem-solving abilities. Lastly, engaging students in data-driven projects helps them interpret qualitative and quantitative data, a skill crucial for making informed decisions. Freeman et al. (2014) found that incorporating data analysis into learning activities enhances students' ability to reason and apply knowledge in STEM disciplines. These strategies collectively equip students with the analytical tools necessary to navigate complex challenges and succeed academically and professionally.

The educational system in Tirana, as part of Albania's broader framework, is shaped by efforts to align with European Union standards and the Sustainable Development Goals (SDG4) of ensuring inclusive, equitable, and quality education for all. Albania has implemented significant reforms to modernize curricula, improve teacher training, and enhance infrastructure, particularly in urban centers like Tirana. However, challenges remain, including disparities between urban and rural education quality, outdated curricula in some areas, and limited funding (UNESCO, 2017; Generis Online, n.d.). Biology education holds particular importance in Tirana and Albania due to its role in fostering critical thinking, problem-solving, and an understanding of life sciences that are essential for societal health and environmental sustainability. The government has emphasized science education, integrating modern teaching methods and competency-based curricula to better prepare students for contemporary challenges. These efforts aim to improve students' readiness for higher education and their ability to address real-world biological and ecological issues (Generis Online, n.d.; Ministry of Education and Sports, 2020). Moreover, biology education supports the national goals of increasing digital literacy and promoting STEM (Science, Technology, Engineering, Mathematics) fields, which are critical for Albania's development. International collaborations, including those with UNESCO and UNICEF, have further advanced the implementation of innovative and inclusive educational practices (UNESCO, 2017; Ministry of Education and Sports, 2020).

This study fills a critical gap by focusing on the role of analytical learning in enhancing biology education outcomes in schools of Tirana, Albania. While international studies, such as those by Freeman et al. (2014) and Prince (2004), emphasize the efficacy of problem-solving and inquiry-based learning in STEM education, there is limited research that applies these strategies within the Albanian education system, particularly in Tirana. This is significant because Tirana's schools face unique challenges, including large class sizes, uneven access to resources, and a curriculum that tends to prioritize theoretical knowledge over practical applications. By incorporating analytical methods such as data-driven case studies and inquiry-based learning tailored to Tirana's urban context—such as studies on urban pollution's impact on public health or biodiversity in the city's green spaces—this research builds upon existing international frameworks and localizes them. These approaches address the specific needs of Tirana's educational environment, making the global methods more applicable and impactful in this setting.

2. Methodology

This study used a qualitative research approach to understand how analytical learning affects students' biology performance and engagement. Data were gathered through teacher interviews, classroom observations, and pre- and post-intervention assessments. The study was conducted over a period of six weeks at Ahmet Gashi School and Hasan Vogli School, with observations occurring once every two weeks.

Classroom observations provided direct insights into how students interacted with the methods and how effectively these strategies were being applied in real-time. Regular feedback from these observations was used to adjust teaching practices and ensure the methods were being implemented as intended.

Two biology teachers from Ahmet Gashi School and Hasan Vogli School in Tirana, who have experience with inquiry-based teaching methods, participated in the study. The primary goal was to gain insights into their views on analytical learning and observe how students responded to activities like case study analysis, data interpretation, and experiment design. The interviews delved into the educators' methods, challenges encountered during the intervention, and the changes they observed in student engagement and behavior.

Pre- and post-intervention assessments were administered to students to measure their engagement, problem-solving abilities, and understanding of biology. These assessments included open-ended questions to measure students' ability to interpret data, design experiments, and connect biological concepts to real-world problems. The assessments were administered to students in six classes, spanning grades seven to nine, at Ahmet Gashi School and Hasan Vogli School, comprising a total of 150 students.

3. Results

The study revealed several key findings that underscore the positive effects of analytical learning strategies on student engagement, critical thinking, and problem-solving in biology. Teachers reported a significant increase in student involvement, particularly in tasks such as data interpretation and experiment design. Many noted that previously disengaged students became more active in problem-solving activities. However, challenges were also noted, including time constraints and the difficulty some lower-performing students had in adapting to these methods.

Before the intervention, many students lacked confidence in analytical tasks, such as data analysis or experimental design. However, after the intervention, enthusiasm for biology increased, with students finding the lessons more engaging and relevant. Many reported feeling more confident in their ability to approach complex biological problems, highlighting the positive impact of the new methods.

In terms of critical thinking and problem-solving, students demonstrated notable improvements in their ability to analyze data, recognize patterns, and propose evidence-based solutions. Post-assessment results showed that students had developed a more systematic approach to designing experiments and interpreting results, with an increased accuracy in applying biological concepts to real-world situations.

Additionally, students were able to connect biology concepts to real-world applications. For example, they investigated the role of Grand Park of Tirana in supporting biodiversity and improving air quality. This exploration prompted them to develop innovative strategies for urban sustainability, making them more aware of how biology can address local and global challenges.

Overall, the study emphasized the effectiveness of analytical learning in fostering student engagement, critical thinking, and problem-solving. Teachers strongly supported these methods, though they recommended additional training and resources to help address the challenges encountered during the intervention.

4. Discussions

This study demonstrated that integrating analytical learning strategies into biology lessons significantly enhances student engagement, critical thinking, and real-world problem-solving skills. Key findings indicated that students became more active in learning, with increased participation in problem-solving tasks and greater enthusiasm for the subject. Teachers reported that analytical approaches, such as data interpretation and experiment design, fostered a deeper understanding and application of biological concepts (Hattie, 2009).

Recommendations for educators include providing ongoing professional development to help teachers integrate analytical learning methods more effectively. Professional development workshops focused on data interpretation, experiment design, and fostering critical thinking could address implementation challenges (Hattie, 2009). To assist lower-performing students, differentiated support, such as additional practice, small group discussions, and targeted feedback, should be offered to ensure that all students benefit from these strategies (Prince, 2004).

Educators are also encouraged to design learning activities that connect biological concepts to real-world issues. Case studies, local environmental projects, and health-related topics can make biology more relevant and engaging for students, fostering a deeper understanding of the subject (Sjøberg & Schreiner, 2010). Finally, given time constraints, teachers should incorporate shorter, more focused analytical activities that still encourage critical thinking and problem-solving without overwhelming the curriculum (Freeman et al., 2014).

5. Conclusion

This study highlights the significant role of analytical learning strategies in enhancing biology education outcomes. By integrating methods such as inquiry-based learning, case study analysis, and data-driven projects, students demonstrated improved engagement, critical thinking, and problem-solving skills. Teachers observed a notable increase in student participation and confidence, particularly in complex tasks such as data interpretation and experiment design.

Despite challenges such as time constraints and the need for additional support for struggling students, the study reinforces the effectiveness of analytical learning in fostering a deeper understanding of biological concepts and real-world applications. Moving forward, the integration of professional development for educators, tailored support for students, and continued emphasis on real-world connections in biology teaching could further enhance the impact of these strategies in classrooms.

Appendix A

- Teacher Interview Questions

Can you describe your current approach to teaching biology?
What role do analytical or inquiry-based methods currently play in your lessons?
How did you adapt analytical learning strategies to your classroom?
What challenges did you face while implementing these methods?
How did students respond to activities like data interpretation or experiment design?
Did you notice any changes in student engagement during the intervention?
How did students' critical thinking or problem-solving skills evolve over time?
Can you provide an example of a student or group of students who demonstrated significant improvement?
How well do you think these strategies align with the current biology curriculum?
What improvements would you suggest for incorporating analytical learning in future teaching?

Appendix B

- Pre- and Post-Intervention Assessment for Students

Engagement Questions:

- Pre: How would you describe your interest in biology? Do you enjoy solving problems or analyzing data in class? Why or why not?
- Post: After participating in analytical biology activities, has your interest in biology changed? If so, how?

Problem-Solving and Analytical Thinking Questions:

- Pre: A sample table shows the growth rate of plants under different light conditions. What steps would you take to analyze this data and draw a conclusion?
- Post: Given this table of plant growth data, interpret the results and explain what conclusions you can draw.

Application of Concepts:

- Pre: How would you design an experiment to study the effect of temperature on enzyme activity? Outline your steps.

- Post: Based on the data provided from an enzyme activity experiment, explain the relationship between temperature and enzyme efficiency.

Real-World Contexts:

- Pre: How do you think biology concepts apply to solving real-world problems like pollution or health issues?
- Post: Describe how you analyzed data or solved a case study during the biology activities. How did it help you connect biology to real-world problems?

References

Anderson, L. W., & Krathwohl, D. R. (2015). Kerangka landasan untuk pembelajaran, pengajaran, dan asesmen: Revisi taksonomi pendidikan Bloom. Pustaka Belajar.

Fadilah, M. S., Jatmiko, B., & Prastowo, T. (2020). Validity and effectiveness of argument-driven inquiry model with contextual approaches to improve critical thinking skills in science learning. Studies in Learning and Teaching (SiLeT), 1(2), 92–101. https://doi.org/10.46627/silet.v1i2.32

Fitriani, F., Fadly, W., & Faizah, U. N. (2021). Analysis of students' analytical thinking skills on the theme of inheritance. Jurnal Tadris IPA Indonesia, 1(1), 55–67.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. Proceedings of the National Academy of Sciences, 111(23), 8410–8415. https://doi.org/10.1073/pnas.1319030111

Gogus, A. (2012). Analytic Learning. In N. M. Seel (Ed.), Encyclopedia of the Sciences of Learning (pp. 490). Springer. https://doi.org/10.1007/978-1-4419-1428-6_490

Hattie, J. (2009). Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. Routledge.

Irwanto. (2017). Integrated measurement of students' analytical thinking skills and science process skills. Proceedings of International Seminar on Science Education, 217–225. https://doi.org/10.31227/osf.io/v9dtz

Klionsky, D. J. (2004). Constructing knowledge in the classroom: Increasing student learning in biology. The American Biology Teacher, 66(5), 319–324.

Kolb, D. A. (2015). Experiential learning: Experience as the source of learning and development (2nd ed.). Pearson.

Lazonder, A. W., & Harmsen, R. (2016). Meta-analysis of inquiry-based learning: Effects of guidance. Review of Educational Research, 86(3), 681–718. https://doi.org/10.3102/0034654315627366

Llewellyn, D. (2001). Inquire within: Implementing inquiry-based science standards (3rd ed.). Corwin.

Ministry of Education and Sports. (2020). National Strategy for Development and Integration (NSDI) 2014-2020. Tirana, Albania: Ministry of Education and Sports.

Nilah, N., & Roza, L. (2020). Analysis of analytical and evaluation thinking skills in physics learning on the topic of work and energy. Prosiding Seminar Nasional Fisika SNF 2020, 75–81.

Prawita, W., Prayitno, B., & Sugiyarto, S. (2019). Effectiveness of a generative learning-based biology module to improve analytical thinking skills of students with high and low reading motivation. International Journal of Instruction, 12(1), 1460–1476. https://doi.org/10.29333/iji.2019.12193a

Prince, M. (2004). Does active learning work? A review of the research. Journal of Engineering Education, 93(3), 223–231. https://doi.org/10.1002/j.2168-9830.2004.tb00809.x

Prasetiyaningsih, A. (2020). Improving students' analytical skills and activities through the application of the POE (Prediction, Observation, Explanation) learning model. Jurnal Pembelajaran Fisika, 9(1), 26–32.

Qomariya, Y., Muharrami, L. K., Hadi, W. P., & Rosidi, I. (2018). Profile of junior high school students' analytical thinking ability using the pictorial riddle method in guided inquiry learning. Journal of Natural Science Education Research, 1(1), 9–18.

Santrock, J. W. (2011). Psikologi pendidikan. Salemba Humanika.

Setiawaty, B. T., Sunarno, W., & Sugiyarto, S. (2019). Profile of junior high school students' analytical thinking skills in Surakarta. Proceedings of the National Seminar on Science Education, 234–238.

Setyani, N. D., Suparmi, S., & Sarwanto, S. (2017). Analytical thinking skills of students in learning using the free inquiry model. Proceedings of the National Seminar on Physics Education III Universitas PGRI Madiun, 54–59.

Sjøberg, S., & Schreiner, C. (2010). Science Education and Career Choice: The Impact of Analytical and Problem-Solving Learning Approaches. International Journal of Science Education, 32(4), 487–502.

UNESCO. (2017). Education policy review: Issues and recommendations. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000266100

Wahyuni, T. S., & Analita, R. N. (2017). Guided-inquiry laboratory experiments to improve students' analytical thinking skills. AIP Conference Proceedings, 1911(1). https://doi.org/10.1063/1.5016010

Generis Online. (n.d.). An overview of the education system in Albania. Retrieved from https://generisonline.com/overview-albanian-education-system/

The role of literary text in foreign language learning

Sonila Alla

PhD Candidate, Department of English
Faculty of Foreign Languages, University of Tirana, Albania
E-mail:sonila.alla@unitir.edu.al

Abstract
Literary text in general and poetry in particular is one of the artistic forms of the language use. Apart from its artistic form, this kind of text can be widely used even in foreign language classes in different ways, either in spoken or written language. The place that literary text occupies in school programs of foreign languages still remains negligible considering the nature of the activities proposed in the text. In this point, it's the duty and privilege of the foreign language teacher to give the right importance to the literary text during the process of learning and teaching of a foreign language. Frequently placing the literary text in the centre of teaching and learning brings forth numerous advantages, especially in the aspect of motivating students and creating an attractive environment during this process.

Keywords: poetry, literary text, motivation, creativity, spoken language.

1. Introduction

Learning a foreign language is exploring a different way of looking at the world, discovering a cultural and linguistic universe different from the one of origin. The learning process itself requires the application of different learning strategies in order to create a positive and motivating environment between the student and the relevant language.

To support the above idea, the hypothesis of our work will be: can the literary and poetic text serve as important teaching materials, since through them the language is treated in all its dimensions, including the lexicon, grammar, syntactic construction, as well as the new ideas that the text proposes.

Despite the evolution of teaching methods, the literary and poetic texts have never been studied apart from the linguistic function, but always being closely related to foreign language competences. Based on what we ourselves remember about foreign language lessons, the poetic or literary text took up little space and the few materials proposed in the method were usually learned by heart, neglecting any other opportunity to deal with it, supporting the educational process.

Based on this phenomenon, we have tried to see in more detail the place and the role played by the literary and poetic text in the methods of foreign languages used in Albania. Being aware that the treatment of this type of text is limited, we should understand if this is also one of the reasons that students are not motivated during the lesson, on the contrary, they show a feeling of monotony as a result of the treatment of the language mainly in its grammatical aspect.

Our paper is divided into three main parts. In the first part, we have treated the theoretical aspect related to the history of the literary text used as pedagogical material, and its functions in the foreign language classroom. The second part is focused on the importance of the selection of the literary text, taking into account a number of criteria, while the third part presents the practical side of the paper, which consists in the observation and study of three methods of foreign languages to clarify the role and the place of the literary text in the learning process. In addition, we worked with students of the English language on different poetic materials with the aim of motivating the students but also testing the importance of the poetic text as a supporting element in the learning process. Through this practical activity, we tried to respond to the problem posed above.

2. Poetic text as supporting material in the foreign language classroom

Teaching and learning is as old as humanity itself. The need to learn and get to know everything that happens in the environment that surrounds us has encouraged people to learn and explore for themselves and for others.

Learning methodologies have always been in the process of continuous change, and the supporting materials used during the learning process have also undergone significant changes. Following the above idea, our paper also focuses on the supporting materials during a language lesson, so the question we initially addressed is: Does the poetic text help in the learning process?

According to M. Patin, [1]the poetic text definitely helps in the learning process, but not in every aspect and not every time. Various pedagogical studies have proven that literature in general and poetic text specifically, cannot serve as effective teaching materials in any period of time. In certain periods, literary and poetic texts have been treated in different forms during the learning process.

The traditional methodology that emerged at the end of the 16th century has given the literary and poetic text a very essential place in the learning process. The poetic text was mainly the basis of any activity in the foreign language classroom and its application also served as a vector to penetrate the culture and civilization of each language.

[1] Patin, M. (1848). *La poésie didactique à ses différents âges*.

Unlike the traditional methodology, the core of the direct methodology is the spoken language, but totally excluding the literary text as a necessary tool for the development of communication skills. According to the supporters of this methodology, literary and poetic texts appear more as obstacles to the acquisition of a foreign language.

In contrast to the direct methodology, what is considered the active methodology once again brings the literary and poetic text to the center of the process. The period of implementation of this methodology in teaching is also considered as the period of the return of the written literary text.

The case of the audio-visual methodology, [2]which is the same as that of the direct methodology, should not be left unmentioned, so the literary text is completely excluded from the teaching process. From the name itself, the audio-visual methodology uses only audio-visual materials as didactic elements.

2.1. The functions of the poetic text

The poetic text as didactic support in foreign language learning has not been at the center of pedagogical debates, compared to other elements such as grammar, linguistics or lexicon. The old teaching methodologies have integrated the poetic text only to achieve the fulfillment of grammatical and lexical objectives and in other cases have served as materials that carry more cultural than linguistic values.

With the evolution of communicative methodologies, the poetic text is placed in a different position and is treated as an important didactic element, as it offers an unconditional vocabulary in quantity and quality, but also helps to increase the imagination and creativity of students. In other words, the use of poetic text in the foreign language classroom has several functions, among which we can mention: poetic function, psychological function, communicative function, social function, intercultural function, etc.

Also, from the beginning, we have underlined the fact that poetry cannot be treated only in its grammatical or lexical aspect. Through the poetic text, the student develops speaking and writing skills in the best way. At the same time, a number of other linguistic objectives and activities play an important role in the foreign language class, among which we mention: linguistic objectives, lexical objectives, grammatical objectives, phonetic objectives.

2.2. Criteria for the selection of poetic text in the foreign language class

The effectiveness of the poetic text as a supporting element in teaching depends mainly on the selection we make. Before choosing the text we will work on, we must take into consideration some important elements such as: the level of the students, their favorite topics, the time available, the objectives to be achieved during the lesson, etc.

Poetic text can be best handled at all language levels if the teacher shows due care in the selection of materials, and also in the selection of activities that will be developed during the teaching session. The determination of objectives is also an equally important element, so the selection of literary materials should always support the objectives predetermined by the teacher and serve the interest of the class.

In addition, [3]the language teacher must absolutely not neglect the fact that each student in a class carries a different cultural, linguistic or even literary background. At this point, it is definitely the teacher's duty to apply a differentiated methodology, so regardless of the selection of the poetic text, the proposed activities should reach every student and arouse everyone's interest. Group work or role playing will help the selected material to be comprehensive.

If the poetic text fails to meet the needs of the student or the class as a whole, it risks losing its function and value as a supporting element in the teaching process.

Below, we will introduce you some of the choices that the language teacher can face, respecting the criteria mentioned above.

An original or translated text? The language teacher should not be in a dilemma between a translated text and an original text. The latter undoubtedly remains the ideal model of the language, while a translated text carries some shortcomings:

- The translator cannot bring the author's idea unchanged
- The translated text risks introducing us with grammatical structures that are not those of the original language
- Poetry in particular will lose its form if it is introduced as translated material, taking into account the changes in rhyme or even verse which play a very important role in the treatment of language.

Classical or modern text? Both texts, whether classic or modern, are very useful if they are used in the foreign language class, but we have found out that the contemporary poetic text brings more advantages in the teaching process.

First, a classical poetic text has a grammatical and lexical structure that is extremely difficult for the student. In addition, the linguistic structures presented in the classical texts may no longer be used in the written and spoken language.

Second, the topics covered in a classical poetic text are usually not contemporary, which directly affects the loss of interest on the part of students.

A modified or unmodified text? Usually, modified poetic texts undergo major changes in terms of vocabulary (replaced words), syntax (reconstructed sentences) and also structure (removal of stanzas or their addition). This type of practice of modifying the text is justified by the fact of creating a more attractive and simplified text for the student, but on the other hand, this appears as a big shortcoming as it leaves the text without any linguistic or cultural value. The task of the teacher is to always

[2] Puren, Ch. (1988). *Histoire des méthodologies de l'enseignement des langues*. Paris : Nathan-CLE International
[3] Collés, L. (2014). *La poésie en classe de FLE*

use the original text, given that the lexical richness that the latter carries, allows us to work on the material in several linguistic and grammatical levels.

2.3. The place of poetic text in foreign language methods

During our research, we have found out that the literary text in general as a supporting element in the teaching part, has undergone continuous changes.

Its importance, the way it is treated in class, as well as the place that the literary text occupies in the methods of foreign languages, causes a problem that needs to be analyzed. Based on this problem, we raised the following questions:
- What place do literary texts occupy in the methods of foreign languages used in Albania?
- How are they adapted?
- What are the types of activities proposed to be worked on?

To answer the above questions, we have analyzed three different methods that are currently used in secondary schools and university, namely: Alter Ego 4 (French language method), On Screen B2+ (English language method)) and Progetto Italiano B2 (Italian language method).

Methods	Literary texts	Poetic texts	Text presentations	Activities proposed
Alter Ego B2	10 texts	1 text	- Author - Title of the material - Publishing date - Publishing house	- Questions about the text - Grammatical exercises to understand the text - Treating the writing section based on the theme of the poetic text - Comments on the text
On Screen B2+	No texts	No texts	-	-
Progetto Italiano B1-B2	No texts	2 texts	- Author	- Questions about the text - Grammatical exercises to understand the text

The table above presents the analysis of three methods of foreign languages based on the following criteria:
1. Number of literary and poetic texts included in each method.
2. Presentation of literary texts (information about the material proposed in the method).
3. The nature of the activities proposed by the method, always having the literary text as an orientation.

3. The results

The number of literary and poetic texts presented in the observed methods

Observing and analyzing the three methods mentioned above, we have concluded that the literary text finds use in the foreign language class, regardless of its low or high presence. There were observed three methods which belong to the same language level, i.e. level B2. The selection of this level was made taking into account the knowledge and lexical capacity that the students have, which means they are able to perfectly understand a literary or poetic text.

We note that in the Alter Ego method of the French language, we are introduced with a total of 11 literary texts, one of which is a poetic text. This result is very satisfying and surprising at the same time, considering the methods of other languages. If we mention here the case of the On Screen English method, it does not even have a literary or poetic text, but is mostly focused on authentic materials.

Unlike the English method, the Italian Progetto Italiano contains two poetic texts treated mainly in terms of grammar.

3.1. Presentation of texts in the method

In the observed methods, we found out that the information about the literary texts is very limited and does not provide any orientation for the student, except some biographical elements that accompany the text (author, title of the work, year of publication, publishing house).

3.2. Proposed activities

In both methods, the literary text is treated more as a complementary element in the language class, than as a separate material to be analyzed in the respective language. The nature of the proposed activities is mainly related to the understanding of the text, the grammatical part, as well as the lexical part. The other sections (learning, writing and speaking) are represented by exercises such as: silent reading, role play, retelling of the literary piece, etc.

We also noticed exercises related to creativity in the foreign language, but even in this case, they are closely related to the text and its structure. We can mention here exercises such as: "Write a similar text considering the author's style".

On the one hand, these types of activities help the student to develop writing skills in a foreign language, but on the other hand, they show a binding nature, preventing the student from expressing himself freely. Being a "slave" to the text proposed in the method, can be penalizing, as it does not motivate the students of a foreign language class and therefore, does not encourage them to show or test their creative abilities.

3.3. Poetic text as a supporting element in literary creations

As we have underlined several times, the literary text in general and especially the poetic text, play an extremely important and useful role in the foreign language classroom. This finding is also supported by various researchers: [4]"The idea still remains that literature constitutes an essential element of civilization and that its study constitutes the achievement of French learning". (Mouginot, 2014. P. 10)

In the quote above, one of the most famous researchers of linguistics claims that the idea of using the poetic text lies in the fact that literature is the main element of civilization and its study has greatly contributed to foreign language learning. So, through the use of the poetic text, the learning process can be developed in the best way, affecting all the competences of a foreign language. Literary creations during the learning process are not only interesting, but also attractive for the lesson, because a poetic text allows us to play with elements of language such as: words, meaning, rhythm, rhyme, etc.

4. Conclusions

Knowing the influence of other teaching materials, the work we have had to do with placing the literary text at the center of teaching, has been relatively demanding, since the students' interest in literature is not at the right level.

If we return to the question addressed at the beginning of the paper, does the poetic text help in learning a foreign language? During our research, we found that literary and poetic texts offer teachers and students a number of opportunities to work and realize different literary projects. In every situation where the student is in contact with a literary text, he is provided considerable information to acquire the language in all its sections.

During our study, we found that apparently, those interested in learning a foreign language do not show any kind of attraction or interest towards poetic texts, especially as a result of two main factors: Firstly, the improper selection of foreign language methods which lack literary and poetic texts. Secondly, the lack of commitment of language teachers to include those literary texts themselves, thanks to which the lesson would be more varied and consequently even more productive.

Bibliography

Bara, S.Bonvallet, M. & Rodier, C. (2011). *Pourquoi des activités d'écriture créative en classe de FLE.*

Bidault, M. Chort, G. Kablan, F. &Treffandier, F. (2012). *Agenda 3.* Paris : Hachette Publishing.

Bidault, M. Chort, G. Kablan, F. &Treffandier, F. (2012). *Agenda 3 : Guide pédagogique. Paris* : Hachette Publishing.

Collés, L. (2014). *La poésie en classe de FLE*. Taken from : http://luccolles.canalblog.com/archives/2014/07/05/30196665.html

Dollez, C. & Pons, S. (2008). *Alter Ego 4*. Paris : Hachette Publishing.

Dollez, C. Vasiljevic, I. Berthet, A. Humery, J. & Pons, S. (2008). *Alter Ego 4 : Guide pédagogique.* Paris : Hachette Publishing.

Georges, J. (1989). *À l'école de la poésie.*

L. Ruggieri, S. Magnelli, T. Marin. (2013). *Progetto Italiano 2 : Libro dello studente*, Rome : Edi Lingua Publishing

Marchand, F. (1997). *Premièrs concours interne de progresseur des écoles*. Paris : Vuibert.

Menand, R. Berthet, A. &Kizirian, V. (2009). *Le nouveau taxi 2.* Paris : Hachette Publishing.

Mouignot, O. (2014). L'atelier d'écriture créative en didactique dufrançais langue étrangère. Mémoire de master : Sciences dulangage, Paris : Université Sorbonne Nouvelle – Paris 3.

Patin, M. (1848). *La poésie didactique à ses différents âges*.

[4] Mouignot, O. (2014). L'atelier d'écriture créative en didactique dufrançais langue étrangère. Mémoire de master : Sciences dulangage, Paris : Université Sorbonne Nouvelle – Paris

Puren, Ch. (1988). *Histoire des méthodologies de l'enseignement des langues*. Paris : Nathan-CLE International. Taken from :https://www.scribd.com/document/116810061/HISTOIRE-DES-METHODOLOGIES-DE-L-ENSEIGNEMENT-DES-LANGUES-Christian-PUREN

Salman, A. (n.d). *La production des textes poétiques en classe de Fle : de la découverte à la créativité.* Taken from : http://eprints.aidenligne-francais-universite.auf.org/533/1/Production_poesie_Salman.pdf

V. Evans, J. Dooley. (2014). *On Screen B2+ : Student`s Book,* UK : Express Publishing.

Effective communication. Its role in the teaching process, as well as the process of cooperation and knowledge of students in their curriculum in the digital age.

Enkelejda Bara[1], Brilanda Berdica[2]

[1]*Curriculum Specialist, Rectors, University of Tirana*
[2] *"Luigj Gurakuqi" University, Shkodër*
[*]*Corresponding Author: e-mail: enkelejdabara@yahoo.com*

Abstract

Introduction: Today society is rapidly developing, as well as the rapid growth of information, it is required from the teachers to use strategies, efficient techniques and in particular the use of effective communication, as well as communication using digital platforms in the teaching process with aim to prepare students as best as possible to be successful in the future to face the challenges of the time.

Communication is the ability to share information involving a sender and a receiver.

Effective communication is the key job skill in the teaching process. Teachers are individuals who develop effective communication skills.

The way he communicates, how he transmits knowledge, as well as the ability to reflect creates the possibility of developing students' skills, increasing the degree of interaction, as well as creates the student's ability to use strategies to learn.

But this process is not as easy as perceived, this process requires skills, strategies, professionalism, as well as a high degree of use of digital platforms in the teaching and learning process.

Being an effective teacher means that, in addition to a high scientific level in the subject of biology, he must possess management, communication, organizational skills, as well as create a positive climate in the classroom, where he can create interactive relationships with students, promoting motivation, care, enthusiasm and kindness.

Teachers who communicate effectively are friendly, understanding, helpful and supportive, managing to create an attractive classroom climate, managing to control it by being more liked and respected by students, achieving a higher level of student learning in the subject of biology.

For the realization of this study, literature was identified and analyzed where different authors have different approaches to this problem. At the same time, a concrete study was carried out in the gymnasiums of Tirana and Kamza, where concrete results and conclusions were drawn in relation to the selected topic that will be treated in this study.

Purpose: With the help of this study, it is possible to find out the role of effective and digital communication in the process of teaching biology, in creating the classroom climate, as well as how much the students understand and appreciate where they stay, learn and learn, with aim to increase the level of students' learning in the biology curriculum.

Methodology: Quantitative and qualitative methods were used in the realization of this study. The study is based on the use of methodological instruments such as questionnaires, free conversations, direct interviews with teachers and students in order to collect data to reach more accurate conclusions for the study.

The study was carried out in ZA (Tirana) and (Kamez) high schools, specifically: "Aleks Buda", "Ibrahim Rugova" and "Elez Isuf Ndreu".

Results: The study showed that effective communication alternating with digital communication is an innovation for effective teaching, creating an appropriate and positive climate for learning more efficiently.

At the same time, the study highlighted that the students in their interviews also expressed opinions that there is room for improvement on the part of the teachers in terms of the way of communication.

The study also concluded that teachers need methodological training in particular for effective communication, classroom management, as well as the use of digital platforms in the teaching process.

Conclusions: Being an effective teacher, as well as knowing and implementing digital platforms is very important in creating a positive and supportive climate by achieving effective teaching, which will manage to raise a higher level of student learning.

.

Effective and digital communication will achieve:

• Promotion for students and teachers;
• Promotion of social and emotional learning;
• Promotion of academic learning

Keywords: effective communication, teaching, strategy, approach, curriculum, platform.

1. Introduction

Communication is the transmission of information between parties, which can be done in verbal form or through electronic means. Communication is a process that involves two or more people, accompanied by the transfer of information from the source to the receiver, followed by the receiver's response.
The basic elements of communication are: the sender, the receiver, the referent, the code, and the message.
Today, in the teaching process, the goal is to achieve successful teaching in order to reach a high level of student learning. Alongside the methods, techniques, and strategies in the teaching process, an important role is played by the use of effective communication, which can only be achieved by effective teachers. By using effective communication and alternating it with digital platforms, especially interactive STEM platforms, a high level of learning in biology can be achieved.
Studies have shown that effective communication plays a role in creating a positive classroom climate, increases collaboration between teachers and students, as well as among students themselves, and at the same time increases students' interest in the lesson.
To communicate does not only mean speaking, but transmitting information, creating relationships, and playing with needs and emotions.
Communication, in itself, expresses the style of an individual's unique personality traits. Communication in the classroom is more specific because it relates to the specific context of the classroom. This communication includes discussions, studies, questions, answers, and research, all of which are focused on the teacher-student interaction. Therefore, it must be understood that classroom communication is more than just "the teacher speaks and the student listens" and more than just words exchanged between individuals.
Teaching is a profession, and effective teachers are passionate about the profession they have chosen.
Being an effective teacher as a concept differs for each individual. However, to be an effective teacher, one must practically embody certain qualities that should be concrete.
An effective teacher creates a positive classroom climate, must be a perfectionist figure, encouraging, intelligent, and capable of creating interactive relationships with students.
With the significant developments occurring in education and science, it is crucial for effective teachers to dominate the teaching process.
Through this research study, conducted in high schools in the ZVA area (Tirana, Kamëz), using questionnaires and interviews with biology teachers and student focus groups, a lot of information was gathered regarding this issue, and the study concluded with some findings and recommendations.
The research study focused on the following issues:

• How well do biology teachers know about effective communication and interactive platforms to implement them in the teaching process?
• What does it mean to be an effective teacher?
• What are the professional and personal qualities and skills that a teacher must possess to be effective?
• How has the use of effective communication in the teaching process in the classroom influenced classroom management, the creation of a positive environment, and the attractiveness for students?
• How do students react to the behavior and effective communication used by the teacher, and how do they contribute to changing the classroom climate as a result of the teacher's use of effective communication and digital platforms in the teaching process?

2. Methodology

The research study was conducted in three high schools in Tirana and Kamëz: "Aleks Buda," "Ibrahim Rugova," and "Elez Isuf Ndreu."

To carry out this study, a variety of qualitative and quantitative techniques and methods were used. Among the methods that alternated were: research, interviewing, comparisons, and analysis. Regarding the research method, literature from various authors related to the study of issues dealing with concepts such as: communication, effective communication, effective teaching, digital communication, characteristics of an effective teacher, positive classroom climate, etc., was studied, analyzed, and cited.

The interviews were conducted using prepared questions for the teachers and discussions with the teachers to gather responses regarding the issues related to the case study.

Regarding the method used in data analysis, the focus was on analyzing the responses of both teachers and students, according to the student questionnaires and teacher interviews. In analyzing their responses, the focus was on the most fundamental problems they expressed, highlighting and comparing them with the given answers, all centered around the concepts cited above.

POPULATION AND SAMPLE

Since the population was expanded due to being spread across three high schools, it was limited because the study is based on a qualitative method, covering three years of high school and involving 15 students from each year, totaling 45 students per school. The students were selected randomly, but with a ratio of 35 girls and 10 boys.

For each school, the questionnaire was distributed, and a specific analysis was conducted for each one. Meanwhile, individual and group interviews were carried out with the biology teachers of each high school. The results of the questionnaires and interviews will be addressed in the section on Results and Conclusions.

DATA COLLECTION AND INTERVIEWS

The instruments used were questionnaires prepared for students and interviews with teachers.

The data collection was carried out separately for each school, as well as for the students and teachers.

For data processing, the technique of grouping the data by years, schools, and teacher groups was used. All collected data were analyzed, interpreted, and compared according to the issues identified in the study.

The qualitative analysis of the data was carried out with accuracy, highlighting the issues encountered either individually or as a group.

By analyzing, studying, and comparing the results, we relied on them to provide concrete recommendations for the problem under study. Throughout the entire process of data collection during the development of the questionnaires and interviews, we adhered to institutional ethical standards.

3. Theoretical section

"Careful and attentive listening is a significant way to assist someone." - K. Rogers

Effective communication is crucial for better classroom management and leadership. Communication does not simply mean raising the volume of one's voice; it is another approach that pertains to how the teacher behaves and interacts with students during the teaching process. The essence of communication is the respect created as a result of respectful communication between teachers and students. Here are some characteristics of effective communication, where mutual respect is at the core:

• Using a careful, tactful tone;
• Using words that are appropriate to the situation and not provocative language;
• The listener maintaining eye contact with the speaker and being an active listener;
• Maintaining order in speaking;
• Encouraging discussion, not just staying focused on one’s own opinion;
• Cultivating respect in students on how to communicate;
• Teachers must be aware that until now, they have been trained to transmit knowledge but not instructed on how to convey meaning, demonstrate values, or provide motivation.

Punishing students who do not learn or do not wish to learn is not effective; they do not need punishment, but encouragement to foster their desire to learn.

Students need motivation, stimulation to build motivation starting from their own selves, evaluating their level of knowledge and aiming for their life’s project.

"Didactics is also a form of communication. The teacher communicates when explaining, when encouraging students in difficulty, when trying to ease the learning process of difficult concepts, when correcting mistakes, when adapting the arguments of their discipline to the students, their mentality, language, needs, and motivation." (Francescato D., Putton A., Cudini S. 2001).

“A positive classroom climate and learning thrive only in situations of welcome and reciprocal appreciation. Without welcome, there is no communication, only devaluation and aggression.” (Di Pasquale G., Maselli M. 2003).

An effective teacher is one who is persistent and flexible to new teaching approaches, and simultaneously prepared for discussion scenarios.

"An effective teacher has a psychological impact on students and a strong influence on their achievements." (Stronge et al. 2004).

"An effective teacher is one who has clear goals and objectives in teaching." (Killen 2006).

"Teachers with higher ratings on a classroom communication principles test and who had a positive attitude with students were more successful in creating a climate of cooperation in the classroom compared to teachers with less knowledge, according to a study conducted in 1977 by" (Cantrell, Stenner & Katzenmeyer).

We cannot have effective communication in the lesson without proper lesson planning. Well-prepared planning makes the lesson or lecture more interesting and engaging for the class or audience, thus creating a calm, cooperative, and positive environment.

"Good planning also ensures free hours where students are allowed to discuss in open or closed groups among themselves." (Craig & Dickenson, 2003).

Effective communication will lead to effective classroom management.

“Good classroom management is a key component of classroom success, teaching, and learning.” (Musai, B., 1999).

An effective teacher does not only focus on relationships with students in the classroom but also shows interest in their lives beyond the classroom.

"Teacher-student interaction encourages achievement and the learning process among students. This helps introverted students and those with low self-esteem to better integrate into the group." (Stronge et al., 2004).

"A strong relationship with students helps reduce disciplinary problems." (Wolk, 2002).

Effective communication plays a positive role in the progress of the entire educational and learning process. Effective communication creates effective teachers. Effective teachers, alongside their professional skills, use their personal skills with students, who play an important role in the learning process, achievements, and behavior.

4. Results and discussion

The results of this study are based on the analysis of responses from both students and teachers, gathered through questionnaires and teacher interviews at the schools "Aleks Buda," "Ibrahim Rugova," and "Elez Isuf Ndreu." The findings of the study highlight some interesting data obtained from the responses of the teachers and students, focusing on the themes addressed in the questions and teacher interviews.

In summary, the main issues identified through this study are:

- How well do teachers know and apply effective communication?
- Are teachers using ineffective, acceptable, or ideal effective communication?
- The impact of effective communication on the classroom climate.
- How effectively do teachers use communication and digital platforms during lesson explanations?
- Respect in the classroom—Are students treated equally?
- The quality of teacher-student relationships, as well as student-student relationships.
- How do students feel in the classroom during lessons?
- How does the communication and organization of lessons by teachers affect student interest?
- What is the classroom climate promoted by the teacher?
- How well do teachers understand the classroom environment and assess their own performance?

Based on the responses from the teachers and students, as well as the data collected during interviews, each answer was carefully analyzed and summarized. Below are the key points from the interviews and responses:

Teacher Interviews:

During the interviews, all biology teachers were cooperative and forthcoming, clearly identifying the problems and issues raised by the interview platform.

- All teachers expressed that effective communication and the use of digital platforms are crucial for effective teaching, which leads to:
    - A productive learning environment.
    - Collaborative learning and the creation of positive teacher-student relationships.
- Teachers are aware of the three types of communication but acknowledge that they most often apply acceptable effective communication. However, in certain cases, due to psychological pressures or undisciplined students, they may resort to ineffective communication, but they recognize and correct it quickly.
- Regarding the measurement of results from effective communication and the use of digital platforms, teachers are convinced that using these tools enhances the teaching process:
    - Increases collaboration and student engagement.
    - Prevents lessons from becoming boring.
    - Helps students listen attentively and remain engaged.
- Most teachers feel that the level of content retention by students is higher when effective communication is used. However, they note that there are material shortages and insufficient digital tools to fully implement these platforms in their teaching.
- Teachers express the need for improvement and more focus on these areas to achieve better outcomes.

Student Interviews:

Based on the analysis of the students' responses to the questionnaire, students shared their thoughts openly about the various issues raised.

- Generally, students feel comfortable and free to communicate with their teachers, feeling understood and respected. However, some students expressed dissatisfaction with certain teachers' communication styles.
- The classroom climate is mostly friendly and cooperative, although some teachers occasionally fail to create a positive atmosphere due to ineffective classroom management.
- Most students feel that teachers generally use acceptable effective communication, but in some cases, ineffective communication occurs, preventing the establishment of a positive classroom climate.
- Some students specifically mentioned certain teachers who stand out for their ability to create a democratic atmosphere and engage students by making lessons interesting and clear, gaining respect and prestige from their students.
- Teachers are said to treat all students equally with respect. However, some students pointed out that certain classmates' behavior disrupted the classroom climate and led to a loss of respect from the teacher.
- Teachers are available and responsible whenever students need help.

- As for the use of technology in teaching, students report that its usage is relatively low, which negatively impacts content retention and student interest.

5. Conclusions

Based on the study conducted and after analyzing each detail, we reach the following conclusions:
Effective communication, as well as the implementation of digital platforms, remains an important factor in achieving effective teaching. Through effective communication during the teaching process with students, the following outcomes are achieved:

- Students understand the world and our experiences.
- The teacher has a positive influence on students' behavior.
- The teacher understands the needs of students.
- Information is shared and received effectively.
- Important decisions for problem-solving are made.
- A productive learning environment is created.
- Teaching becomes more collaborative, fostering positive teacher-student relationships.
- Classroom management is improved, addressing a key issue in education.
- A positive classroom climate is created.
- Teachers become more open to addressing student issues.
- Students feel comfortable and communicate freely with their teachers.
- Modern methods and techniques are employed in the teaching process.
- Increased student interest in learning leads to improved learning outcomes in the educational process.

6. Recommendations

Based on the findings of this study, we present the following recommendations:

- Utilize various communication techniques in teaching.
- Deliver clear messages about the importance of being understood correctly in the content being addressed.
- Clearly define the goals and objectives in teaching.
- Develop activities that motivate and encourage students to learn.
- Create a positive, peaceful, engaging, and enthusiastic classroom environment.
- Foster a positive and collaborative relationship with students, where mutual respect is key, increasing productivity in the learning process.
- Treat students with fairness and equality, while also adapting appropriate disciplinary methods.
- Be clear and understandable during explanations, and open up spaces for students to feel safe.
- Establish trust with students, allowing them to express themselves freely regarding any problems they may have.

References

1. Gurney, P. (2007) “Five factors for effective teaching” Journal of Teachers Work, Vol. 4, Issue 2, 89-98.
2. Holt, J. (1964) “How children fail” Nueva York, EUA: Dell January (2010) “How to teach the six traits of writing” (Accessed on 3rd Feb. 2010) http://effectiveteachingarticles.blogspot.com/2010/01/how-to-teach-six-traits-of-effective teachers-profesional and personal skills ISSN 2171-9098 ENSAYOS. *Revista de la Facultad de Education de Albacete*, No 24, 2009, (35-46) 45.
3. Kohn, A. (1996) Beyond discipline: From compliance to community. Alexandria, VA: Association for Supervision and Curriculum Development.
4. Brekelmans M., Levy J. e Rodriguez R. (1993) “A Typology of Teacher Communication Style”.
5. Chiari G., Clima di classe e apprendimento, Franco Angeli, 1994.
6. Ferguson, P., & Womack, S. T. (1993) “The impact of subject matter and education coursework on teaching performance”, Journal of Teacher Education, 44 (1), 55-63.
7. Francescato D., Putton A., Cudini S., Star bene insieme a scuola. Strategie per un educazione socio-affettiva dalla maternal alla media inferior, Carrocci, 2001.
8. Killen, R. (2006) “Effective teaching strategies-Lessons for research and practice” 4th edit., Thomsin, Social Science Press, UK.
9. Musai B., 1999 “Psikologjia e Edukimit”, Tiranw.
10. Mann R., Gibbard G., Hartmann J., (1967) *Interpersonal Styles and Group Development*, John Wiley, New York.

11. Stronge J. H., Tucker P. D. & Hindman J. L (2004) “Handbook for qualities of effective teachers” Association for Supervision and Curriculum Development, Alexandria, VA, USA
12. Wolk S., (2002) Being good: Rethinking classroom management and student discipline. Portsmouth, NH: Heinemann.
13. Wubbels T., Levy J., *Do you know what you look like? Interpersonal Relationship in Education*, pp. 46-55.

http://effectivecommunicationadvice.com/effective-communication-for-teachers
http://classroom-management-success.org/classroom-climate.html

14. Norton R., (1983) *Communicator Style Measure*. Sage Pubblications, Inc. Beverly Hills.

Resilience of Tangible and Intangible of Cultural Heritage to Climate Change

Anila SULAJ[1], Alerta BASHA[2]

[1]Department of Rural Tourism Management, Agricultural University of Tirana, Albania*
[2]Department of Mathematics and Informatics, Agricultural University of Tirana, Albania
[*]Corresponding Author: e-mail: asulaj@ubt.edu.al

Abstract

Climate change, characterized by extreme weather events and environmental degradation, poses one of the greatest threats to cultural heritage. Its adverse effects on both tangible and intangible aspects of culture are often considered in relation to cultural properties. In Albania, understanding the influence of climate change on cultural heritage is an urgent priority, serving as a foundation for developing strategies to preserve this legacy. This paper aims to assess the threats posed by climate change and other risks to cultural heritage, proposing measures to prevent destruction, enhance protection, and strengthen related policies. Through a review of key literature, participatory research, and in-depth interviews, an initial framework for understanding the impact of climate change on cultural heritage was developed. The interdisciplinary research highlights various approaches to securing sustainable development through the preservation of cultural heritage. Focusing on Albanian cultural heritage, the paper explores protective measures and the role of local and policy-making processes in fostering resilience. It underscores the importance of addressing current challenges to ensure cultural heritage is safeguarded for future generations. Finally, it emphasizes the need for collaborative initiatives involving individuals, communities, stakeholders, and governmental organizations as important actors of preserving cultural heritage.

Keywords: Cultural heritage, threats, climate change, resilience.

1. Introduction

Cultural heritage encompasses both tangible and intangible elements, reflecting the multidimensional nature of this heritage (UNESCO, 2019). Tangible heritage includes physical artifacts, monuments, and sites, while intangible heritage involves traditions, practices, expressions, knowledge, and skills passed down through generations (Vecco, 2010). This holistic concept emphasizes a universal understanding of heritage as a shared legacy that embodies the values, identities, and creativity of humanity.

Heritage is often understood as something inherited "from the past," yet it evolves through collective human effort and adaptation (Lombardo et al., 2023). National frameworks play a crucial role in shaping its preservation and in contributing to Europe's sustainable future (UN, 2015). Cultural heritage encompasses diverse forms, including tangible elements such as buildings, monuments, artifacts, historic cities, and archaeological sites, as well as intangible aspects like practices, expressions, knowledge, languages, oral traditions, performing arts, social practices, and traditional crafts. It also includes natural heritage, such as landscapes, flora, and fauna, and digital heritage, encompassing resources created in digital form or digitized for preservation. This multidimensional perspective highlights heritage's evolving nature and its importance in fostering identity, sustainability, and intercultural understanding (Lombardo et al., 2023).

The preservation of both tangible and intangible heritage is critical in addressing contemporary challenges, such as globalization, climate change, and socio-political conflicts, which threaten the continuity of cultural expressions. Tangible or intangible forms of culture connect us with the past and help to understand the present we live in and what we will pass on to future generations (Sulaj et al., 2023). UNESCO's approach highlights the collective responsibility of nations and communities to safeguard heritage, ensuring its transmission to future generations while fostering intercultural dialogue and sustainable development.

Cultural heritage sites are not only important components of a country's identity but can also be important drivers of tourism. Albania's cultural heritage, which includes archaeological sites, historic cities, and natural landmarks, plays a pivotal role in the rising sector of tourism (Sulaj & Themelko, 2024). This heritage serves as a cornerstone for the country's tourism industry, driving economic growth and contributing to social development and a increasing awareness about national cultural heritage. However, an increasing number of extreme events associated with the impacts of climate change, natural hazards and human-induced threats are posing significant problems in conserving and managing this cultural heritage. Albanian cultural heritage is under the effect of natural damage and human destruction, therefore it must be protected, because it is the main economic source for tourism and economic and social development. It is under threat from both natural factors such as climate change and human-induced actions like urbanization and inadequate conservation efforts (Barber et al., 2004). Safeguarding cultural heritage not only preserves Albania's identity and history but also ensures sustainable opportunities for economic advancement and community enrichment. By protecting these invaluable assets, Albania can strengthen its cultural legacy while fostering long-term economic and social benefits (Sulaj et al., 2022).

Sustainability and resilience emphasize long-term impacts and a holistic approach to socio-economic growth and cultural heritage. While Goal 11 of the 2030 Agenda for Sustainable Development: "Make cities and human settlements inclusive, safe, resilient and sustainable" highlights the importance of safeguarding cultural and natural heritage (UN, 2015, p. 18). While these efforts have advanced the recognition of heritage's role in risk management and its potential contribution to disaster resilience, achieving this objective presents challenges.

Different authors have been highlighted efforts to preserve this heritage and have been discussed the evolving legal frameworks in Albania to protect cultural sites (Giambruno & Pistidda, 2018; Sulaj et al., 2023). Additionally, UNOPS and the European Union have undertaken restoration projects to not only preserve cultural heritage but also support community development. In the absence of any comprehensive legal framework for protection, cultural heritage is vulnerable not only to impending disasters but also during emergency and post-disaster recovery phases. The major underlying causes for its increasing vulnerability are climate change, population growth, urbanisation and poverty, especially in developing countries (Jigyasu, 2016). Reports by UNESCO and other cultural initiatives emphasize the dual importance of safeguarding heritage for its intrinsic value and for its contributions to Albania's aspiration for EU integration, with tourism as a significant economic driver.

The paper is focused on the opportunities and challenges in preserving Albanian cultural heritage, while identifying pathways for sustainable investment in heritage recovery and conservation. The focus is on providing practical tools to guide decisions that ensure preservation efforts align with the unique cultural and historical identity of Albania. This involves planning strategies that respect and maintain the cultural "genetic code" of the nation, fostering development and transformations that are culturally and historically compatible. And taking a careful consideration of the interplay between cultural preservation, economic development, and sustainable practices to ensure the safeguarding of Albania's cultural legacy. It aims to create recommendations for policy adjustments or new frameworks identification of critical areas requiring immediate intervention, and practical tools for monitoring and evaluation of preservation efforts.

2. Methodology

The methodology that was used during the survey involved a preliminary gathering of information about the status of Albanian cultural heritage and on the different agencies involved on a national and local level. A sample questionnaire was used in interaction with different stakeholders during frequent visits and carrying out of conversation and interviews with cultural heritage practitioners and representatives of different public institution in Albania.

In order to find data related to the state of cultural assets and the impact of climatic conditions and other extreme conditions, data sources of the Ministry of Culture and Tourism, data of projects on cultural heritage and its preservation were used. Scientific articles by Albanian and foreign authors have been a source of data and discussions regarding the current state of heritage and the harmful consequences caused by weather disasters and earthquakes.

Methodically, it is intended to select information to answer questions such as: What is the situation in Albania regarding the preservation of the diverse wealth of cultural heritage? Has there been damage caused by extreme climate conditions and natural disasters and is there a strategy for the preservation of cultural heritage? The conducted study is based on a detailed analysis of events, facts found in recent years on the basis of literature sources and data collected from institutions, associations, individuals and direct contacts with representatives of museums, archaeological centers, institutes and cultural institutions.

3. Findings

Albanian tangible and untangible cultural heritage is very rich and creates potential and opportunities to transform the social and economic development through the sector of tourism while being resilient to challenges of risk disasters and climate weather. Among tangible cultural heritage sites most visited in Albania are archeological ruins such as Butrinti, Apollonia, Dyrrahu, medieval castels in Shkodër, Gjirokastër, Krujë, Berat and different religious sites as churches and mosques. Some of these cultural sites are protected by UNESCO and listed as cultural monuments. Other objects of material and ethnographic culture are related with traditional culinary, products of territory, and the way of living. Albania's cultural heritage ecompasses more than its castles, museums, and remote monuments. It extends to its people and their customs, artistic expressions, knowledge, and skills, including instruments, objects, artifacts, and cultural spaces. In the last decade, several projects supported by the governemental agencies and civil society are giving their contributions in preserving Albanian cultural heritage in mitigating the climate change impacts.

Fig. 1. Photos from Albanian cultural heritage, Tirana Mosque, Butrint, Shkodër castle, traditional costumes.

The findings show that cultural heritage can be a powerful tool to stimulate national solidarity and commun social values. Local people, stakeholders and other participants from non governemental agencies discussed that tangible and untangible culture may become “emblems of national identity” producing core values, national unity, and perseverance. From group discussion was highlighted the role that tangible and intangible cultural heritage can play in tourism activities, as a result on the improvement of economic and social growth of communities. The discussion from focus group also pointpointed out that sometimes local or rural cultures are subjected to local and national neglect in efforts of disaster risk reduction, prevention, mitigation, response and recovery. It is very important to support local values and cultural practices in cultural heritage preservation programs and projects mitigating the effects of environment challenges.

In order to minimize the impact of climate change, various risk management laws and strategies are being implemented for cultural heritage preservation under the pressures of climate change and other risks, prioritizing sustainable practices. Albania’s National Civil Emergency Plan incorporates measures to protect cultural heritage in disaster scenarions, including floods, earthquakes, and wildfires, key risks exacerbated by climate change. Albanian National Strategy for Culture 2019-2025 is generally focused into three key areas:

- Strategies aimed at improving preparedness, prevention and mitigation. This includes efforts to enhance preparedness for cultural heritage and reduce risks. Examples include training programs and awareness campaigns as well as documentation activities such as mapping, digital databases, records and registers of cultural heritage vulnerability analysis.
- Strategies focusing on the development of national action plans. These plans and strategies focus on addressing emergencies and they outline measures for emergency response and recovery tailored to Albania’s unique cultural assets.
- Strategies intented to post-event recovery and resilience for the preservation of cultural heritage. These strategies focus on restoring normal operations following a disaster while safeguarding Albania’s rich heritage. Measures include addressing physical damage to historic sites, social and cultural impacts on communities, and environmental challenges, all guided by sustainable development principles, partnering with organizations like UNESCO, AADF to access expertise, funding, and best practices for heritage preservation.

The interdisciplinary research highlights various approaches to securing sustainable development through the preservation of cultural heritage. Focusing on Albanian cultural heritage, the findings explores protective measures and the role of local and policy-making processes in fostering resilience. They underscore the importance of addressing current challenges to ensure cultural heritage is safeguarded and transmitted. Efforts prioritize the preservation and restoration of cultural monuments, traditional architecture, and artifacts, alongside rebuilding in ways that reduce the risk for future disasters. This approach ensures Albania’s cultural legacy remains resilient and protected for future generations.

4. Conclusions

Climate change represents a significant and multifaceted threat to cultural heritage, impacting both its tangible and intangible elements. In Albania, where cultural heritage forms a cornerstore of national identity, understanding and addressing these challenges is crucial. The research presented here underscores the urgency of developing targeted strategies to mitigate risks, enhance protective measures, and strengthen policy frameworks for cultural heritage preservation.

The findings highlight the value of interdisciplinary approaches, to build a framework for assessing climate change impacts. These efforts reveal the potential of sustainable development practices to support resilience in cultural heritage management.

In conclusion, Albania's cultural heritage preservation requires collaboration among local communities, policymakers, stakeholders, and governemental organizations. While laws and strategies provide a robust framework, challenges remain in enforcement, funding, and coordination among stakeholders. Enhacing the enforcement of policies, investing in advanced technologies, and promoting collaboration across various sectors are essential for safeguarding Albania's cultural heritage against the challences posed by climate change. By fostering such cooperation and integrating protective measures into broader sustainable development goals, it becomes possible to safeguard this invaluable legacy for future generations. Addressing these challenges will ensure that Albania's cultural heritage remains resilient in the face of climate changes and other risks.

References

Barber, C.V., Miller, K. and Boness, M.M. eds., 2004. *Securing protected areas in the face of global change: issues and strategies* (p. xxxiii). Gland: IUCN.

Giambruno, M., & Pistidda, S. 2018. Cultural Heritage for Urban Regeneration. Developing Methodology Through a Knowledge Exchange Program. *Sustainable Urban Development and Globalization: New strategies for new challenges—with a focus on the Global South*, 251-262.

Jigyasu, R., 2016. Reducing disaster risks to urban cultural heritage: global challenges and opportunities. *Journal of Heritage Management*, 1(1), pp.59-67.

Lombardo, L., Saeli, M., & Campisi, T. 2023. Smart technological tools for rising damp on monumental buildings for cultural heritage conservation. A proposal for smart villages implementation in the Madonie montains (Sicily). *Sustainable Futures*, 6, 100116.

Sulaj, A., Tërpollari, A. and Kondi, B., 2022. Villages' Revitalization Supports a Sustainable Agritourism in Albania. *Journal of Environmental Management & Tourism*, *13*(2), pp.546-560.

Sulaj, A., Kadiu, B. and Terpollari, A., 2023. The need to safeguard cultural heritage against climate change. *Technical Annals*, 1(3).

Sulaj, A. and Themelko, H., 2024. Agritourism as A Pathway to Women's Empowerment: Insights From Rural Albania. *European Countryside*, 16(4), pp.628-646.

UNESCO, 2019. Intangible Cultural Heritage. "What is intangible cultural heritage.", https://whc.unesco.org/, last accessed 10/10/2024

UN, 2015. Transforming Our World – The 2030 Agenda for Sustainable Development, UN Resolution Adopted by the General Assembly on Sep 25, 2015.

Vecco, M., 2010. A definition of cultural heritage: From the tangible to the intangible. *Journal of Cultural Heritage*, 11(3), pp.321-324.

Analysis of the Financial Performances of Commercial Banks in the Republic of Serbia

Nikola Radović[1], Miljan Adamović[2]

[1*] *University of Belgrade, Faculty of Organizational Sciences, Republic of Serbia, master's student*
[2] *EDUCONS University, Faculty of Business Economics, Sremska Kamenica, Serbia*
[*] *Corresponding Author:*
e-mail: miljan.adamovic@educons.edu.rs

Abstract

Commercial banks are key institutions in the financial system of every country. By collecting available funds from individuals and legal entities and directing them to economic entities that need these funds, banks facilitate the smooth functioning of the economy in each state. In carrying out their primary activity of mediating between various economic entities, banks face numerous risks that directly affect the quality of their operations and can diminish financial results. To minimize these risks and ensure uninterrupted business operations, it is necessary to measure and analyse the financial performance of banks, which represents a measure of the success of resource management in achieving set business objectives. This paper presents various instruments and indicators used in the analysis of the financial performance of commercial banks, as well as their practical application to commercial banks in the Republic of Serbia.

Keywords: Commercial banks, financial performance, bank risks, financial performance indicators, capital adequacy, liquidity, profitability

1. Introduction

Commercial banks represent the key institutions of the financial system of every country. The primary function of commercial banks is the collection of excess free funds of individuals and legal entities and their placement to economic entities that are in need of these funds. Due to the performance of this basic activity, banks enable the unhindered development of the economy as a whole. When carrying out these activities, banks face numerous risks, which can threaten their operations and reduce the trust of clients in the bank, but also in the entire financial system of a country. In order to minimize these risks and manage them effectively and efficiently, measuring and analysing financial performance is necessary. Financial performance is a measure of the bank's success in managing its assets in order to achieve defined goals. Based on the obtained results, it is necessary to make appropriate decisions and apply adequate measures in order to correct or improve the recorded situation.

Financial institutions represent organizations, i.e., participants in the financial market who deal with the provision of numerous financial services and mediation between entities that have a surplus of financial resources and entities that are in need of these funds. Financial institutions today function as service financial institutions (broker-dealer houses, investment banks, investment advisers) and financial intermediaries. Financial intermediaries can be further divided into depository financial institutions (commercial banks, savings banks, savings and credit associations, credit unions) and non-depository financial institutions (insurance companies, pension funds, investment funds).

Performance is a concept that has become established in a large number of speaking areas. Thus, in the English language, the word "performance" means "how well a person or a machine does a piece of work or an activity" (Cambridge Dictionary). In the French language, the word "la performance" means "an outstanding feat or achievement in a certain field" (Larousse Dictionnaire), as well as in Italian, where the word "prestazione" means "an accomplished performance or result in a certain field" (Dizionario di Italiano). From the above definitions, it can be concluded that performance represents the quality of the execution of a certain job or activity. In addition to the general concept of performance, it is also necessary to define operating performance, which is a measure of the success and efficiency of a particular company. They reflect the company's ability to achieve set goals and expected results. By analysing business performance, stakeholders can assess how well the company is using its resources and whether it is achieving a competitive advantage in the market.

The bank is a basic financial institution that collects free funds in the form of deposits, on the basis of which it grants loans and provides other financial services. The paper is organized as follows. The second part provides an overview of the literature. After that, a case study related to the analysis of the financial performance of commercial banks operating in Serbia was presented. Concluding remarks and references follow at the end of the paper.

2. Literature review

Operating performance is measured using key performance indicators (KPIs). Key performance indicators (KPI) are indicators of the achieved level of progress in reaching the set goal. They enable the organization to understand how successful it is in achieving results of strategic importance. Not all performance indicators are key performance indicators. When defining them, it is necessary to determine those indicators that best describe the set strategic goals. For example, if a consulting firm's strategic goal is to achieve the largest market share, a key performance indicator would be year-over-year revenue growth.

In order for a performance indicator to be well defined, it must be (Franceschini, Galetto, Maisano 2007):

- representative,
- comprehensible,
- suitable for following the trend in a certain time,
- adaptable to changes,
- simple to calculate,
- sensitive to changes that occur inside and outside the organization.

Financial performance is a measure that reflects the organization's success in managing its assets and achieving the set financial goals. Financial performance can be expressed by various financial indicators, such as liquidity, solvency, profitability or efficiency indicators. By analysing an organization's financial performance, stakeholders can assess how efficiently the company manages its assets, whether it is financially sound, stable and capable of generating profits and growth in the future. The starting point for the analysis of financial performance is the financial analysis, that is, the analysis of financial reports.

Financial analysis, i.e., analysis of financial reports is the basis of operating analysis, which in addition to financial analysis also includes analysis of the environment, competitors, strategy and quality of business (Knežević et al., 2019). The analysis of financial reports is done with the aim of considering the financial health of the company, primarily the ability to generate earnings, but also to see how it manages its cash flows, capital and liabilities. The financial analysis of the company uses *the balance sheet, income statement* and *cash flow statements* as the main subjects of its work.

Financial reports enable managers and analysts to review and determine (Vuković Perduv 2024):

1. The state and development of the financial position of the company stated in the balance sheet,
2. The results of the company's operations shown in the income statement and
3. Flows of financial assets through activities..

The bank's financial performance is a measure of the bank's success in managing financial assets and achieving business goals. When analysing the financial performance of commercial banks, several financial analysis instruments are used, such as horizontal analysis, vertical analysis, and ratio analysis. By using these instruments, coefficients are obtained, which can be used to adequately assess the bank's financial performance. The basic set of coefficients of the bank's operations contains the coefficients of liquidity, profitability, asset quality and efficiency (Dabić et al., 2013). In addition to these coefficients, other indicators can be used in order to adequately assess the financial health, as well as the stability of the bank.

Commercial banks are obliged to follow the values of individual financial indicators prescribed by the central bank. In the case of commercial banks in the territory of the Republic of Serbia, the National Bank of Serbia prescribes indicators of capital adequacy, liquidity, risk of exposure to one person, foreign exchange risk and investment in persons not in the financial sector. Maintaining the value of these indicators at the recommended level enables the smooth operation of banks, as well as the safety and stability of the financial system as a whole.

Presented below are both mandatory financial indicators and other indicators that are used in the analysis of the financial performance of commercial banks.

Capital is a basic indicator of the bank's financial strength and stability. Thanks to the capital, investors gain confidence in the bank as a financial institution, and the bank gets the opportunity to collect additional financial resources. The bank acquires capital through the issue of ordinary and priority shares, as well as on the basis of realized profits, part of which is translated into capital.

Capital has several functions (Dabić et al., 2013):

- Absorbing unexpected losses while maintaining the ability to operate normally.
- Growth in client and investor confidence.
- Protection of depositors in the event of bank insolvency or bankruptcy.
- Providing funds for investments in equipment, buildings and other non-interest-bearing placements required for performing business activities.

In order for the capital to adequately fulfil the aforementioned functions and for the bank to carry out its activities unhindered, the National Bank of Serbia prescribes the following indicators and their minimum values (nbs.rs 2024):

- The value of the bank's capital must not be at a level lower than EUR 10.000.000 in dinar equivalents according to the official middle exchange rate on the calculation day.
- The adequacy indicator of the basic share capital, which is calculated as the ratio of the basic share capital and risk assets, must not be lower than 4.5%.
- The bank's core capital adequacy indicator, calculated as the ratio of the bank's core capital to its risk asset, must not be lower than 6%.

- The adequacy indicator of the bank's total capital, which is calculated as the ratio of the bank's total capital to risk assets, must not be lower than 8%.

Liquidity of the bank

Liquidity is the ability of a company to convert its assets into cash in a short period of time in order to settle its due obligations. In order to effectively manage the company's liquidity, and assets in general, it is necessary to analyse liquidity and measure changes in its level over time. A low level of liquidity indicates that the company is in a risky financial position and will not be able to respond to upcoming obligations, while on the other hand, an excessively high level of liquid assets indicates poor management of the company's assets.

When analysing the bank's liquidity, numerous ratio indicators are used, the most important of which are the regulatory indicators prescribed by the central bank (shown below). In our case, as we are dealing with the analysis of banks operating in the territory of the Republic of Serbia, we will use the indicators prescribed by the National Bank of Serbia.

The National Bank of Serbia, in accordance with the guidelines of the European Bank Authority (EBA) and Basel III regulations, prescribes three basic liquidity indicators that banks must maintain at a certain level: *liquidity indicator, narrow liquidity indicator*, *liquid asset coverage indicato*r (nbs.rs 2024).

The bank's liquidity indicator represents the ratio of the sum of the bank's liquid receivables of the first and second level, on the one hand, and the sum of the bank's obligations at sight or without an agreed maturity date and the bank's obligations with an agreed maturity date in the next month from the day of the calculation of the liquidity indicator, on the other hand.

The bank's liquidity indicator must amount to:

- Minimum 1 - in case the value for the whole month is viewed;
- Minimum 0.9 – in case the value is viewed for three consecutive working days;
- Minimum 0.8 – when observing one working day.

The narrow indicator of the bank's liquidity is the ratio of the bank's liquid receivables of the first level, on the one hand, and the sum of the bank's liabilities payable on demand or without an agreed maturity date and the bank's liabilities with an agreed maturity date falling due within a month from the date of liquidity ratio calculation. The narrow indicator of the bank's liquidity must amount to:

- Minimum 0.7 – as an average value for the whole month;
- Minimum 0.6 - as an average for three working days;
- Minimum 0.5 – as a value for one working day.

The Liquidity Coverage Ratio (LCR) is the ratio of the bank's liquidity protection layer and the net outflow of its liquid assets that would occur during the next 30 days from the date of calculation of this indicator under assumed stress conditions. The liquidity buffer represents a liquid asset that, according to regulations, can be included in the calculation of this indicator, while the net outflow of liquid assets represents the difference between the outflow and inflow of liquid assets, determined in accordance with the decision on bank liquidity risk management (nbs.rs 2024). The bank is obliged to maintain this indicator at a minimum level of 1.0 (100%).

In addition to these legally prescribed liquidity indicators, the bank can also use internal indicators in order to maintain its liquidity at the desired level.

Indicators of the bank's exposure to risk

The National Bank of Serbia prescribes several indicators of the exposure of commercial banks to various risks. Banks have to maintain the values of these indicators at a defined level in order to be able to carry out their activities unhindered and so that the financial system of the country remains stable.

The foreign exchange risk indicator points to the bank's exposure to foreign exchange risk, which represents the probability that the bank will incur a financial loss due to a change in the exchange rate. This indicator is calculated as the ratio of total net open foreign exchange position to total capital. According to the regulations of the National Bank of Serbia, the value of this indicator must not exceed 20% at the end of each working day.

The bank's exposure indicator to a single counterparty or group of related parties indicates the probability of financial loss due to placement in a single person or group of related parties. This indicator must not have a value higher than 25%, i.e., the bank's exposure to one counterparty or a group of related persons must not exceed 25% of the capital value.

The indicator of the bank's investment in persons who are not in the financial sector, as well as in fixed assets and investment real estate, must not amount to more than 60%, i.e., the value of these investments must not exceed 60% of the value of the total capital.

Profitability indicators

Profitability represents the ability of a company to make a profit. When assessing the profitability of the company, the profitability ratios are used. The purpose of profitability ratios is to determine whether the company is efficient in terms of costs incurred during the creation of products or services that can be sold at reasonable prices on the market (Knežević et al., 2019).

Profitability ratios are used both by internal users (managers) and by external users (investors, auditors, authorities).

The two basic ratios of profitability that are used when analysing the financial performance of commercial banks are (Dabić et al., 2013):

- Return on Assets (ROA)
- Return on Equity (ROE)

The rate of return on assets is calculated as the ratio of net profit to total assets. This indicator tells how many monetary units of net profit are generated based on each monetary unit invested in an asset (business property). The rate of return on assets is an indicator of managerial efficiency and ability to transform assets into net profit.

$$\text{Rate of Return on Assets } = \frac{\text{Net income}}{\text{Total asset}}$$

The rate of return on equity is calculated as the ratio of net profit to equity capital. This indicator tells how many units of net profit are generated for each unit of basic capital, i.e., how efficiently the money invested by the shareholders in the company, the bank in this case, is used.

$$\text{Rate of Return on Equity} = \frac{\text{Net income}}{\text{Shareholders equity}}$$

In addition to these two basic indicators, profitability can also be quantified by the net interest margin. Net interest margin is calculated as the difference between interest income and interest expenses in relation to total assets or interest-bearing assets. This ratio shows how much the bank earns from its core activity, granting loans and collecting deposits, and whether it effectively balances its income and expenses based on interest in order to keep profits at the desired level.

$$\text{Net interest margin} = \frac{\text{Interest income} - \text{Interest expenses}}{\text{Total assets (interest} - \text{bearing assets)}}$$

Asset quality

Asset quality implies an assessment of the adequacy and safety of the assets managed by the bank and indicates the credit risk to which the bank is exposed in its operations. This, first of all, refers to the existence of uncollectible receivables within the bank's assets, which reduce the liquidity, solvency, and therefore the bank's profitability. High asset quality implies safe, liquid and less risky assets that the bank owns.

Asset quality can be measured by the following coefficients (Dabić et al., 2013):

- Ratio of reservations for potential loan losses to total loans;
- The ratio of net write-offs and total loans;
- Ratio of net profit to provisions for potential loan losses.

3. Case Study – Analysis of Financial Performance of Commercial Banks in the Republic of Serbia

In the practical part of this paper, an analysis of the financial performance of commercial banks in the Republic of Serbia is presented. During the analysis, publicly available data from the website of the National Bank of Serbia (www.nbs.rs), data from the annual reports of observed banks, as well as data from external auditors' reports were used.

There are currently 20 commercial banks operating in the territory of the Republic of Serbia, different in size and origin, as well as in terms of financial performance achieved. Some of them have been operating in the Republic of Serbia for several decades, while some have only existed for a few years. Some were created by acquisition or merging with other banks, such as "*NLB Komercijalna banka*" or "*Eurobank Direktna banka*".

Commercial banks in the territory of the Republic of Serbia are shown below according to the size of net balance sheet assets (Table 1).

Table 1: Commercial banks by size of net balance sheet assets (https://www.nbs.rs 2024)

Ord.No	BANK'S BUSINESS NAME	TOTAL NET BALANCE SHEET ASSETS (IN RSD 000)
1	Banca Intesa a.d. Beograd	923,791,828.00
2	OTP Banka Srbija a.d. Novi Sad	838,502,146.00
3	Raiffeisen banka a.d. Beograd	677,940,743.00
4	Unicredit Bank Srbija a.d. Beograd	634,723,388.00
5	NLB Komercijalna banka AD Beograd	596,439,122.00
6	Banka Poštanska štedionica a.d. Beograd	513,686,421.00
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	436,131,396.00
8	Erste Bank a.d. Novi Sad	384,518,877.00
9	Eurobank Direktna akcionarsko društvo Beograd	305,235,969.00
10	ProCredit Bank a.d. Beograd	164,292,155.00
11	Halkbank a.d. Beograd	128,052,263.00
12	Addiko Bank a.d. Beograd	106,664,759.00
13	ALTA banka a.d. Beograd	75,170,621.00
14	Srpska banka a.d. Beograd	49,447,465.00
15	Bank of China Srbija a.d. Beograd	48,079,316.00
16	Mobi Banka a.d. Beograd	35,515,808.00
17	3 BANKA a.d. Novi Sad	31,239,631.00
18	Adriatic Bank akcionarsko društvo Beograd	28,395,622.00
19	API Bank a.d. Beograd	19,215,594.00
20	MIRABANK a.d. Beograd	5,739,815.00

The differences in the size of the assets of the banks shown are enormous, and thus the differences in the financial performance. In the analysis of financial performance, the indicators of capital adequacy, liquidity, risk exposure and profitability, taken for the period from 2019 to 2023, were used.
The following subheadings present the results of the individual analysis of these banks, as well as the analysis of the entire system of commercial banks in the Republic of Serbia.

BANCA INTESA A.D. BELGRADE

„*Banca Intesa a.d. Belgrade”* is the largest commercial bank in the Republic of Serbia in terms of net balance sheet assets, and therefore the most important for the functioning of the banking business system. On the territory of the Republic of Serbia, it owns 147 branches, has more than 3000 employees and about 1.37 million clients. It belongs to the large international group "*Banca Intesa Sanpaolo*". It has been operating in the Republic of Serbia since 1991, since which it has recorded a constant increase in profits. Below is Table 2, which refers to the financial performance of “*Banca Intesa a.d. Belgrade”*

Table 2: Financial performance of “Banca Intesa a.d. Belgrade”

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 695,000,000.00	€ 692,000,000.00	€ 693,000,000.00	€ 693,000,000.00	€ 689,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	21.23%	19.85%	19.29%	17.30%	17.07%	27.24%
Basic capital adequacy	minimum 6%	21.23%	19.85%	19.29%	17.30%	17.07%	27.27%
Total capital adequacy	minimum 8%	21.23%	19.85%	19.29%	17.30%	19.41%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.25	2.15	2.02	1.88	2.24	3.05
Narrow liquidity indicator	minimum 0.5	1.64	1.83	1.70	1.47	1.65	2.50
Liquid assets coverage indicator	minimum 1.0	2.39	2.74	2.71	2.22	4.11	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	0.36%	1.46%	1.48%	0.81%	0.46%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	16.58%	20.72%	21.66%	22.24%	22.56%	15.78%
Bank's investment	maximum 60%	12.20%	12.46%	12.22%	12.37%	10.70%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.89%	1.32%	1.39%	1.54%	2.27%	0.91%
Rate of return on equity	no value is prescribed	12.32%	8.70%	8.71%	12.97%	18.99%	6.24%
Net interest margin	no value is prescribed	3.12%	2.90%	2.86%	2.94%	4.09%	3.25%

„Banca Intesa a.d. Belgrade" keeps the values of operating quality indicators at a level that is significantly higher than prescribed. The size of the regulatory capital is constantly about 69 times higher than the prescribed minimum, as well as 2.5 - 3 times higher than the average on the Serbian market (the average size of the regulatory capital in the period from 2019 to 2023 is EUR 253.000.000,00). The total capital adequacy in the defined period is about 2.5 times higher than the prescribed minimum; however, it is lower than the average value on the Serbian market, which in the defined period from 2019 to 2023 is 28.02%. The bank keeps the liquidity at a fairly high level, the liquidity indicator is between 2.5 and 3 times higher than the minimum allowed value, but it is slightly lower than the average of the activity in the observed period, which is 3.05. This indicates that the bank maintains a sufficient amount of liquid assets for smooth functioning, but at the same time markets the surplus of these assets in order to increase profits. The bank's exposure to risk is at a significantly lower level, both in relation to the legal maximum value and to the average activity in the defined period. This indicates adequate risk management. The profitability indicators of the bank are at a significantly higher level than the average values in the industry. In the period from 2020 to 2021, the bank recorded a decline in all profitability indicators due to the epidemic of the Kovid 19 virus, but after that it managed to return to the previous level, and in 2023 it also recorded an increase in these indicators by about 50%. Chart 1, which refers to the liquidity indicators of “*Banca Intesa”*, is shown below.

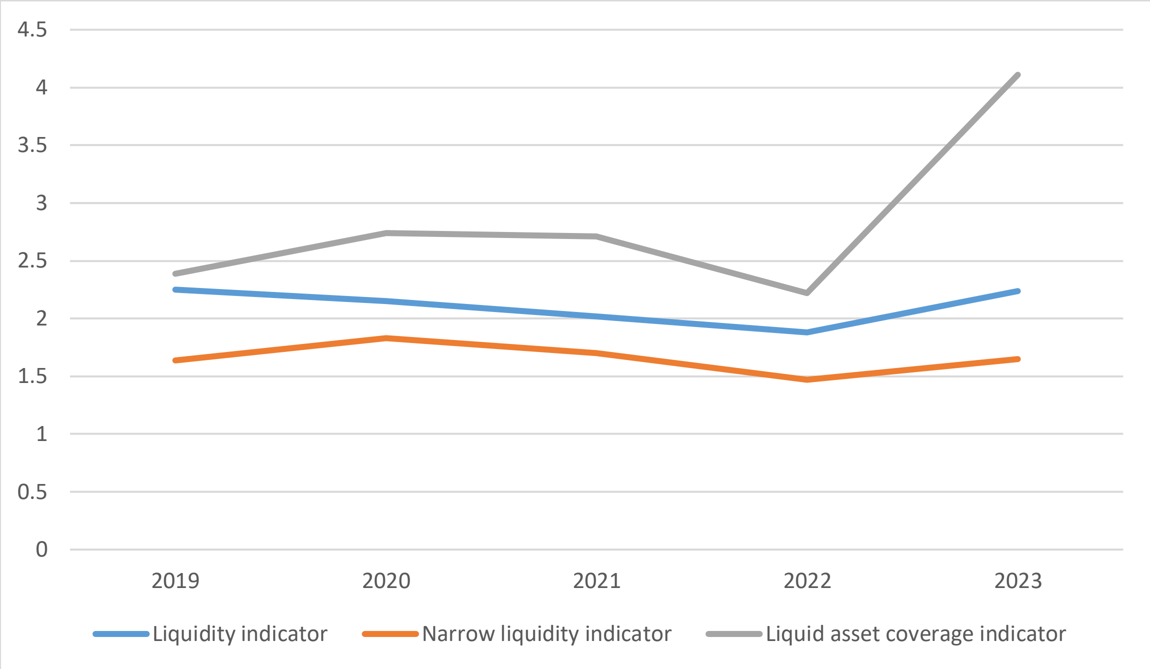

Chart 1: Liquidity indicators of “Banca Intesa” 2019 - 2023

OTP BANKA SRBIJA A.D. NOVI SAD

“OTP Banka Srbija a.d. Novi Sad” represents the second largest bank in the Republic of Serbia in terms of total net assets and has 155 branches. It belongs to the Hungarian bank "*OTP BANK*", which represents one of the largest independent providers of financial services in Central and Eastern Europe. *"OTP Banka Srbija"* was created by the purchase of the bank *"Société Générale Srbija"* in 2019. In 2021, it merged with "*Vojvođanska banka*". Table 3 related to the financial performance of "*OTP Bank*" is presented below.

Table 3: Financial performance of "OTP Banka a.d. Novi Sad”

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 428,000,000.00	€ 484,000,000.00	€ 822,000,000.00	€ 876,000,000.00	€ 885,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	16.73%	17.24%	19.57%	17.31%	17.81%	27.24%
Basic capital adequacy	minimum 6%	16.73%	16.58%	16.88%	17.31%	17.81%	27.27%
Total capital adequacy	minimum 8%	20.55%	16.58%	16.88%	20.19%	20.71%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	1.99	1.51	1.8	1.86	2.45	3.05
Narrow liquidity indicator	minimum 0.5	1.37	1.37	1.63	2.06	1.74	2.50
Liquid assets coverage indicator	minimum 1.0	1.29	1.3	1.36	1.46	1.41	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	1.24%	2.48%	0.25%	2.16%	1.07%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	15.15%	24.25%	16.79%	19.16%	16.66%	15.78%
Bank's investment	maximum 60%	7.12%	30.99%	12.94%	11.61%	11.86%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	2.78%	0.53%	0.86%	1.46%	2.02%	0.91%
Rate of return on equity	no value is prescribed	18.79%	3.93%	6.33%	10.82%	15.54%	6.24%
Net interest margin	no value is prescribed	2.74%	3.09%	2.31%	2.84%	3.58%	3.25%

The regulatory capital of "*OTP Bank*" is many times higher than the prescribed legal minimum and is constantly increasing in the observed period. In the period between 2020 and 2021, the value of regulatory capital increased by 58.8% due to the merger with "*Vojvođanska banka*", which at that time was the sixth largest bank in the territory of the Republic of Serbia. The capital adequacy is about two times higher than the prescribed minimum, but it is lower than the average of the industry in the observed period, which is 28.02%. The bank maintains liquidity at a high level, the indicators are 2.5 - 3 times higher than the legal minimum, but lower than the industry average, which indicates adequate liquidity management and not allowing the "accumulation" of liquid funds, but rather their efficient use. The bank tries to minimize its exposure to risk and maintains the indicators at a level many times lower than the prescribed maximum. As "*Banca Intesa*", "*OTP Bank*" experienced a drop in profitability during the Kovid 19 epidemic, but from 2022 it began to return to its previous state. Chart 1 is shown below, which represents the regulatory capital of "OTP Banka" in the observed period. This indicator had a greater change than all other indicators since 2019.

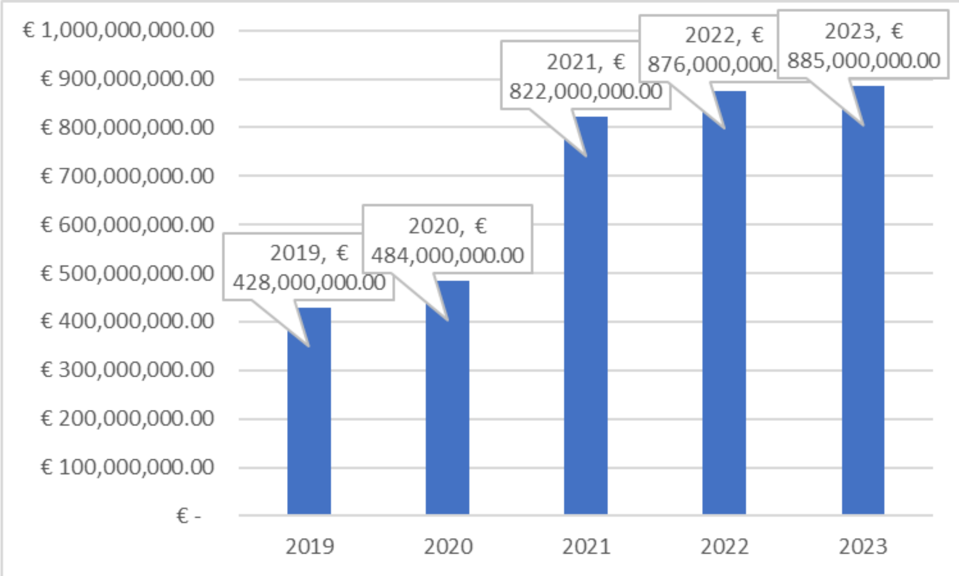

Chart 2 : Regulatory capital of "OTP Banka a.d. Beograd“ 2019 – 2023

RAIFFEISEN BANK A.D. BEOGRAD

„*Raiffeisen Bank a.d. Beograd*“ is the third largest bank by net balance sheet assets in the territory of the Republic of Serbia, where it has been operating since 2001. It is part of “*Raiffeisen Bank International*”, one of the largest banking groups in Eastern and Central Europe. It has 106 branches, with over a million clients and about 2.250 employees. Below is Table 4, which refers to the financial performance of “*Raiffeisen Bank a.d. Beograd*“.

Table 4: Financial performance of “Raiffeisen Bank a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 411,000,000.00	€ 408,000,000.00	€ 404,000,000.00	€ 519,000,000.00	€ 648,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	20.55%	19.66%	17.48%	15.10%	18.68%	27.24%
Basic capital adequacy	minimum 6%	20.55%	19.66%	17.48%	12.92%	16.52%	27.27%
Total capital adequacy	minimum 8%	20.55%	19.66%	17.48%	12.92%	16.52%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	1.96	2.31	2.25	2.04	2.37	3.05
Narrow liquidity indicator	minimum 0.5	1.63	1.95	1.85	1.79	1.73	2.50
Liquid assets coverage indicator	minimum 1.0	1.73	1.96	1.7	1.48	n/a	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	3.07%	2.65%	3.35%	2.02%	1.88%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	16.29%	16.73%	21.16%	17.53%	14%	15.78%
Bank's investment	maximum 60%	12.92%	12.85%	12.95%	14.36%	10.81%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.92%	1.46%	1.58%	1.81%	3.22%	0.91%
Rate of return on equity	no value is prescribed	10.56%	8.69%	11.73%	14.29%	24.50%	6.24%
Net interest margin	no value is prescribed	3.17%	2.56%	2.27%	2.32%	4.30%	3.25%

The value of regulatory capital in 2019 was about 41 times higher than the legally prescribed value, while in 2023 it was about 65 times higher than the prescribed value. Capital adequacy recorded a decline in the observed period, so in 2019 it amounted to 20.55%, while in 2023 it amounted to 16.52%, which is significantly less than the average of the activity in the observed period. This decline in value may occur due to an increase in credit or operational risk. As the bank increased loans granted to banks and other financial institutions by 300% in 2023, this may be the cause of such a drop in the capital adequacy indicator. As with previous banks, the liquidity indicator is between 2.5 and 3 times higher than the prescribed minimum and 22% lower than the average activity in the observed period. The bank-maintained risk exposure indicators below the prescribed maximum and hovered around the industry average. The bank records growing profitability indicators, significantly higher than the industry average. Unlike the previous banks, already in 2021 it began to approach the values from the period before the COVID-19 epidemic. Chart 3 is presented below, which shows the rate of return on equity of "*Raiffeisen Bank*" in the period from 2019 to 2023.

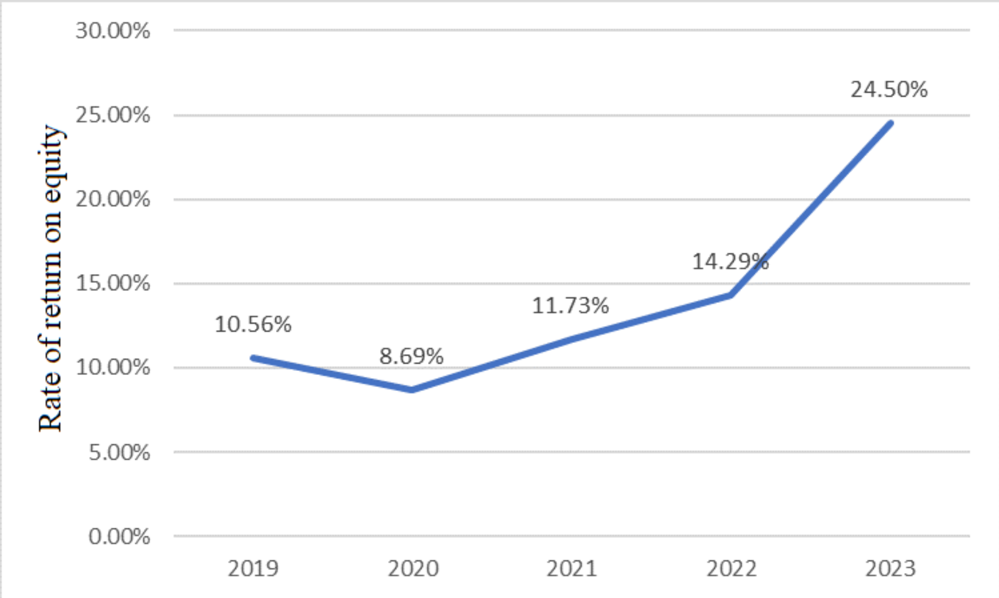

Chart 3: Rate of return on equity of "Raiffeisen Bank" 2019 - 2023

UNICREDIT BANK A.D. BEOGRAD

„*UniCredit banka Srbija a.d. Beograd*“ is the fourth largest bank by net balance sheet assets in the territory of the Republic of Serbia. It belongs to the large Italian banking group "*UniCredit*", and has more than 70 branches and over 1300 employees. It has been operating in Serbia since 2001. Table 5 related to the financial performance of "*UniCredit Bank a.d.*" is presented below. *Beograd*“.

Table 5: Financial performance of "Unicredit Bank a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 648,000,000.00	€ 646,000,000.00	€ 648,000,000.00	€ 638,000,000.00	€ 649,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	23.40%	23.90%	22.00%	21.30%	19.72%	27.24%
Basic capital adequacy	minimum 6%	23.40%	23.90%	22.00%	21.30%	19.72%	27.27%
Total capital adequacy	minimum 8%	23.40%	23.90%	22.00%	21.30%	19.72%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	1.80	2.00	1.98	2.00	2.29	3.05
Narrow liquidity indicator	minimum 0.5	1.54	1.68	1.73	1.27	1.70	2.50
Liquid assets coverage indicator	minimum 1.0	1.35	1.75	1.65	1.59	1.65	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	2.09%	1.00%	3.02%	2.07%	3.78%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	n/a	n/a	15.78%
Bank's investment	maximum 60%	n/a	n/a	n/a	n/a	n/a	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.90%	1.10%	1.10%	1.50%	2.90%	0.91%
Rate of return on equity	no value is prescribed	10.10%	6.30%	7%	10%	20.30%	6.24%
Net interest margin	no value is prescribed	3.12%	2.68%	2.41%	2.61%	3.83%	3.25%

The bank maintains regulatory capital at the level of around EUR 648.000.000,00 in the observed period, which is 64.8 times higher than the minimum prescribed value. The capital adequacy has registered a slight decline in the past 3 years, which is caused by the growth of total risk-weighted assets by 9.8% in 2023. As with the previous banks, the liquidity indicator is about 2.5 times higher than the prescribed minimum. It should be noted that the bank recorded an increase in liquidity even during the epidemic, with the fact that profitability was on the decline, as with other banks. The foreign exchange risk indicator was below the market average until 2023, but in 2023 it increased to 3.78%, which was caused by the growth of the net foreign exchange position from 83.160.616.000 dinars in 2022 to 97.943.898.000 dinars in in 2023. "*Unicredit Bank*" did not present other indicators of the bank's risk exposure in its annual report. Chart 4 is presented below, which shows the change in the rate of return on equity of "*UniCredit*" bank in the period from 2019 to 2023. This is the indicator that had the highest percentage growth after falling during the epidemic.

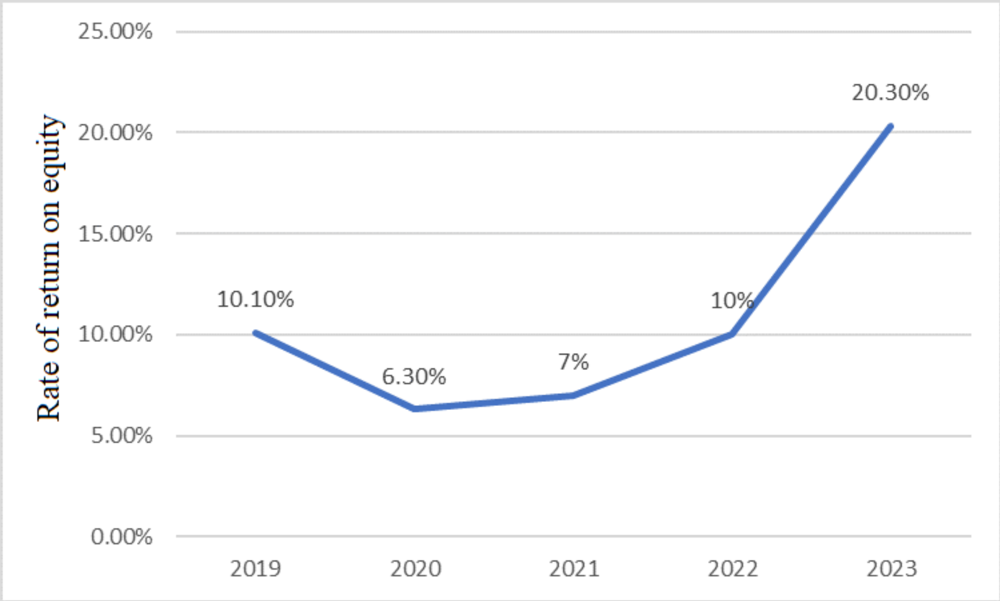

Chart 4: Rate of return on equity of " Unicredit Bank" 2019 - 2023

NLB KOMERCIJALNA BANKA A.D. BEOGRAD

„*NLB Komercijalna Banka a.d. Beograd*“ is the fifth largest bank by net balance sheet assets in the territory of the Republic of Serbia. It was created by the purchase of Komercijalna bank by the Slovenian "*NLB Group*" in 2022. It has 163 branches and about 2750 employees. Table 6 is presented below, which shows the financial performance of "*NLB Komercijalna Banka*" in the period from 2019 to 2023.

Table 6: Financial performance of NLB Komercijalna Banka a.d. Beograd

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 549,000,000.00	€ 585,000,000.00	€ 553,000,000.00	€ 617,000,000.00	€ 713,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	27.07%	28.67%	28.39%	23.90%	26.40%	27.24%
Basic capital adequacy	minimum 6%	27.23%	28.82%	28.55%	24.03%	26.52%	27.27%
Total capital adequacy	minimum 8%	27.23%	28.82%	28.55%	24.62%	27.09%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	3.95	4.06	3.88	2.84	3.17	3.05
Narrow liquidity indicator	minimum 0.5	3.70	3.94	3.65	2.71	3.01	2.50
Liquid assets coverage indicator	minimum 1.0	4.02	4.05	4.54	2.16	2.16	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	10.61%	10.13%	2.00%	2.63%	1.99%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	n/a	n/a	15.78%
Bank's investment	maximum 60%	n/a	n/a	n/a	n/a	n/a	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.70%	0.80%	0.50%	1.60%	2.60%	0.91%
Rate of return on equity	no value is prescribed	10.20%	4.90%	3.40%	10.20%	16.20%	6.24%
Net interest margin	no value is prescribed	3.38%	3.18%	3.26%	2.95%	4.41%	3.25%

The regulatory capital of the bank is at a significantly higher level in the observed period than the prescribed minimum. In 2022, regulatory capital growth of 11.5% is seen, which is a consequence of the merger of "*Komercijalna banka*" and "*NLB Banka*".

The capital adequacy is significantly higher than the capital adequacy of the previous banks and approaches the average of the industry in the observed period. Thus, in 2023 it amounted to 27.09%, while in 2020 and 2021 it was higher than the average with values of 28.82% and 28.55%, respectively. The liquidity indicator is in a slight decline in the observed period, with the fact that it is always above the industry average and is many times higher than the prescribed minimum. During 2019 and 2020, the bank was significantly exposed to foreign exchange risk with values of 10.61% and 10.13%, respectively, which is three times higher than the industry average, but significantly below the prescribed maximum of 20%. As with other banks, profitability was in decline during the Kovid 19 epidemic, but in 2022 it recovered the value from the period before the virus, while in 2023 it exceeded that value. Chart 5 is presented below, which shows the movement of indicators of foreign exchange risk, which the bank tried to minimize in the observed period.

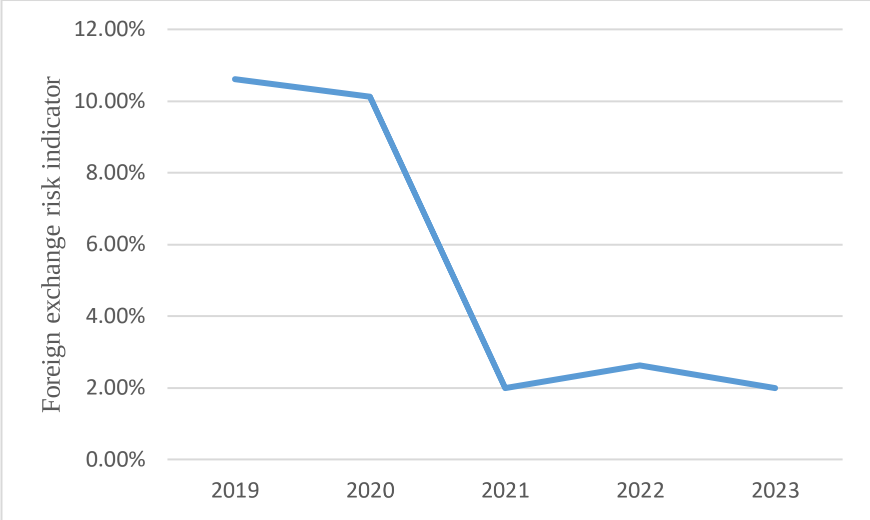

Chart 5: Indicator of foreign exchange risk of "NLB Komercijalna Banka" 2019 - 2023

BANKA POŠTANSKA ŠTEDIONICA A.D. BEOGRAD

"*Banka Poštanska štedionica a.d. Beograd"* is the sixth bank in terms of net balance sheet assets in the Republic of Serbia. It was founded in 1921 with headquarters in Belgrade. It is majority owned by the Republic of Serbia. It has 190 branch offices. In April 2021, it took over "*MTS Bank*". Below is Table 7, which refers to the financial performance of "*Banka Poštanska Štedionica*" in the period from 2019 to 2023.

Table 7: Financial performance of "Banka Poštanska Štedionica a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 192,000,000.00	€ 191,000,000.00	€ 207,000,000.00	€ 218,000,000.00	€ 272,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	27.57%	20.27%	17.63%	16.26%	18.14%	27.24%
Basic capital adequacy	minimum 6%	27.57%	20.27%	17.63%	16.26%	18.14%	27.27%
Total capital adequacy	minimum 8%	27.57%	20.27%	17.63%	16.26%	18.14%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.20	1.97	1.80	2.32	3.05	3.05
Narrow liquidity indicator	minimum 0.5	2.02	1.91	1.74	2.19	2.81	2.50
Liquid assets coverage indicator	minimum 1.0	2.44	2.3	2.39	1.82	1.99	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	2.70%	1.80%	1.80%	3.92%	0.48%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	22.44%	24.71%	15.78%
Bank's investment	maximum 60%	25.15%	25.59%	23.79%	24.02%	19.85%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.30%	1.00%	0.70%	1.00%	0.90%	0.91%
Rate of return on equity	no value is prescribed	12.50%	10.10%	7.90%	13.70%	14.40%	6.24%
Net interest margin	no value is prescribed	3.30%	2.87%	2.92%	2.85%	3.08%	3.25%

The bank's regulatory capital recorded constant growth in the observed period. By 2022, the value of regulatory capital was below the industry average, and in 2023, it exceeded it. The capital adequacy in the period from 2019 to 2022 was in a noticeable decline, but many times over the prescribed value of 8%. The fall in capital adequacy in 2020 was caused by the growth of risk-weighted assets by 35% compared to 2019, with this trend continuing in the following years of the observed period. However, in 2023, the value of the basic capital will increase by 25%, which leads to an increase in capital adequacy. As with other banks, the liquidity indicator is 2.5 - 3 times higher than the prescribed minimum. The bank strives to minimize exposure to risk by maintaining indicators many times below the legal maximum. Chart 6 is presented below, which shows the movement of the total capital adequacy indicator in the observed period due to the increase in risk-weighted assets.

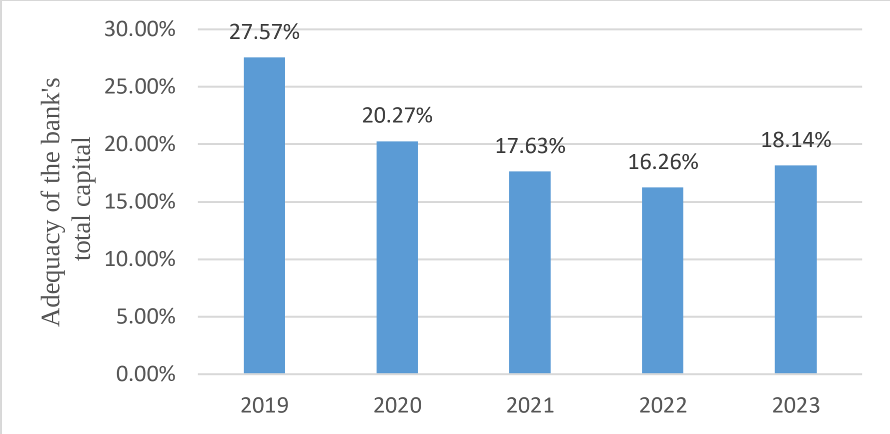

Chart 6: Indicator of total capital adequacy "Banka Poštanska Štedionica" 2019-2023

AGROINDUSTRIJSKA KOMERCIJALNA BANKA AIK BANKA A.D. BEOGRAD

„*Agroindustrijska komercijalna banka a.d. Beograd"* is the seventh bank in terms of net balance sheet assets in the Republic of Serbia with its headquarters in Belgrade. It was founded in 1976 as an internal bank of "*Agroindustrijski Kombinat Niš*". Since 2015, it has been owned by "*MK Group*". Table 8 is presented below, which shows the financial performance of " *AIK Bank* " in the period from 2019 to 2023.

Table 8: Financial performance of "AIK Banka a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 349,000,000.00	€ 317,000,000.00	€ 314,000,000.00	€ 482,000,000.00	€ 530,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	22.21%	22.13%	20.22%	19.04%	20.28%	27.24%
Basic capital adequacy	minimum 6%	22.21%	22.13%	20.22%	19.04%	20.28%	27.27%
Total capital adequacy	minimum 8%	23.72%	22.29%	20.37%	19.81%	21.17%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.16	2.90	2.44	3.42	3.13	3.05
Narrow liquidity indicator	minimum 0.5	1.89	2.74	2.22	2.83	2.05	2.50
Liquid assets coverage indicator	minimum 1.0	1.57	1.94	1.97	1.63	1.65	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	4.18%	3.42%	3.34%	1.13%	0.43%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	20.50%	19.64%	30.02%	18.06%	18%	15.78%
Bank's investment	maximum 60%	31.94%	31.52%	23.11%	10.03%	9.27%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	3.68%	14.17%	2.31%	6.34%	1.78%	0.91%
Rate of return on equity	no value is prescribed	14.35%	18.46%	10.79%	33.82%	8.52%	6.24%
Net interest margin	no value is prescribed	2.94%	2.76%	2.38%	1.78%	3.17%	3.25%

The bank maintains regulatory capital at a very high level (34.9 times higher value than prescribed in 2019, 53 times higher value than prescribed in 2023). Over a period of 5 years, the regulatory capital grew at a compound annual rate of 8.72% in the observed period, with a decline in value during the epidemic in 2020 and 2021. Capital adequacy decreased slightly during the epidemic, but started to increase in 2023. *"AIK Banka"* is highly liquid, in the observed period it recorded a constant growth of the liquidity indicator and the narrow liquidity indicator, while the indicator of coverage with liquid assets decreased by 17.25% in 2022 and 2023. In the observed period, the bank tried to keep the risk exposure indicators within the legally prescribed limits. The deviation occurred only in 2021, when the indicator of the bank's exposure to one person or a group of related persons amounted to 30.02%, while the prescribed maximum is 25%. Profitability indicators were variable, there were noticeable oscillations caused by sudden changes in the size of profits and assets. The rate of return on assets in 2020 was 14.17%, while in 2021 it was only 2.31%. Only the net interest margin did not fluctuate significantly, except between 2022 and 2023. Chart 7 is shown below, which refers to the movement of the value of the net interest margin in the observed period.

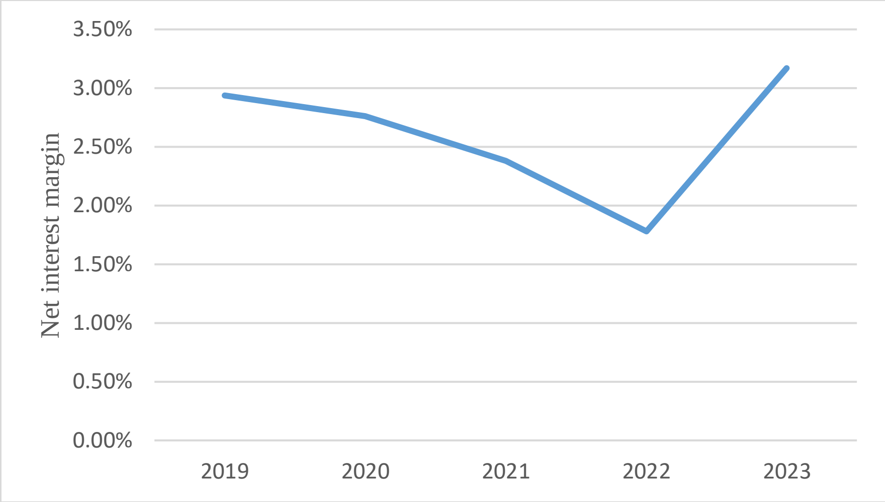

Chart 7: Net interest margin of "AIK Banka" 2019 - 2023

ERSTE BANK A.D. NOVI SAD

„*Erste Bank a.d. Novi Sad*“ is the eighth bank in terms of net assets in the Republic of Serbia, where it has been operating since 2005. It entered the Serbian market with the acquisition of "*Novosadska banka*", the oldest financial institution in the country. It has more than 1.200 employees and 87 branches in 50 cities. Below is Table 9, which refers to the financial performance of "*Erste Bank a.d. Beograd"*.

Table 9: Financial performance of "Erste Bank a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVEI PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 282,000,000.00	€ 288,000,000.00	€ 311,000,000.00	€ 378,000,000.00	€ 404,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	19.03%	17.44%	16.92%	17.32%	17.51%	27.24%
Basic capital adequacy	minimum 6%	19.03%	17.44%	16.92%	17.32%	17.51%	27.27%
Total capital adequacy	minimum 8%	21.40%	19.49%	18.72%	20.58%	21.36%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	1.49	1.73	1.30	2.11	2.10	3.05
Narrow liquidity indicator	minimum 0.5	1.38	1.69	1.18	1.98	1.70	2.50
Liquid assets coverage indicator	minimum 1.0	1.92	1.98	1.7	1.57	1.48	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	0.11%	0.83%	1.40%	3.38%	0.67%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	13.02%	15.50%	19.61%	16.75%	20%	15.78%
Bank's investment	maximum 60%	9.04%	9.10%	8.45%	6.98%	7.15%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.16%	0.46%	0.75%	0.66%	1.46%	0.91%
Rate of return on equity	no value is prescribed	8.42%	4.05%	6.46%	5.53%	11.50%	6.24%
Net interest margin	no value is prescribed	3.16%	2.84%	2.80%	2.90%	3.86%	3.25%

The value of regulatory capital grew at a compound annual rate of 7.45% and is constantly at a level many times higher than prescribed. As with other banks, capital adequacy experienced a slight decline during 2020 and 2021, but in 2023 it returned to the value from 2019. The bank is slightly less liquid compared to better-ranked banks, the liquidity indicator and narrower liquidity indicator are 2-2.5 times higher than the prescribed minimum, while the liquid asset coverage indicator has been declining since 2020. In no year has the bank exceeded the prescribed limits of the bank's risk exposure indicators.

The rate of return on assets was significantly lower compared to the previously analysed banks. In 2020, this phenomenon was caused by a drop in profit by 50% (in 2019, the value of profit was 2.679.766.000,00 dinars, while in 2020 it was 1.333.262.000,00 dinars), and in 2022, profit fell by 21%. while the value of assets increased slightly. The rate of return on equity also fluctuated for the same reasons. Only the net interest margin was maintained at a stable level with insignificant changes. Graph 8 is presented below, which shows the movement of the rate of return on the assets of "*Erste Bank*" in the observed period, which was significantly lower than the previously analysed banks.

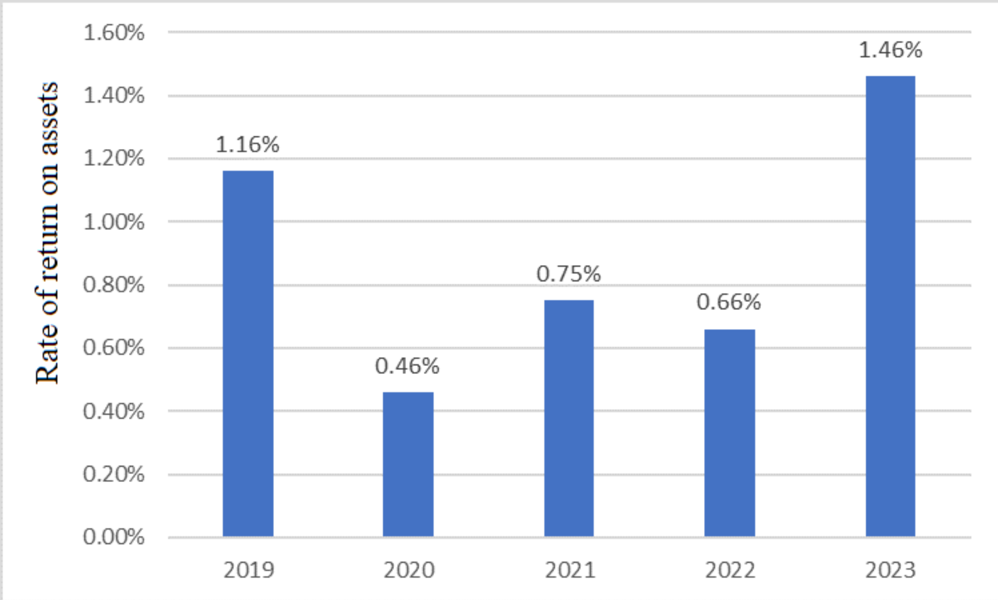

Chart 8: Rate of return on assets "Erste Bank" 2019 - 2023

EUROBANK DIREKTNA A.D. BEOGRAD

„*Eurobank Direktna A.D. Beograd"* is the ninth bank in terms of net balance sheet assets in the Republic of Serbia. It was created by the merger of "*Eurobanka*" and "*Direktna banka*" in 2021. It has 92 branches and 5 operating centers. According to data from the bank's official website, it occupies about 6% of the market share in the Republic of Serbia. Below is Table 10, which refers to the financial performance of "*Eurobank Direktna a.d. Belgrade"* in the observed period.

Table 10: Financial performance of "Eurobank Direktna a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 449,000,000.00	€ 454,000,000.00	€ 318,000,000.00	€ 323,000,000.00	€ 335,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	n/a	24.44%	16.09%	14.91%	15.79%	27.24%
Basic capital adequacy	minimum 6%	n/a	24.44%	16.09%	14.91%	15.79%	27.27%
Total capital adequacy	minimum 8%	n/a	24.44%	20.23%	18.72%	19.55%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	n/a	1.58	1.71	2.06	2.51	3.05
Narrow liquidity indicator	minimum 0.5	n/a	1.21	1.23	1.41	1.44	2.50
Liquid assets coverage indicator	minimum 1.0	n/a	2.19	1.48	2.59	4.25	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	n/a	0.85%	0.68%	3.07%	0.90%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	19.61%	17.24%	17.29%	17%	15.78%
Bank's investment	maximum 60%	n/a	15.18%	19.25%	17.92%	16.30%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.17%	0.37%	0.14%	0.11%	0.54%	0.91%
Rate of return on equity	no value is prescribed	0.58%	1.35%	1.11%	0.87%	4.38%	6.24%
Net interest margin	no value is prescribed	3.74%	3.12%	2.09%	2.83%	3.66%	3.25%

The bank's regulatory capital tends to decrease in the observed period, its value decreased at a rate of -5.59% in the past five years.

Capital adequacy was between 2.5 and 3 times higher than the prescribed minimum, but still below the average capital adequacy of all banks on the market. Unlike the previously analysed banks, "Eurobank Direktna" bank records growing liquidity in the observed period, with a peak in 2023 with a value of the liquidity indicator of 2.51, narrow liquidity indicator of 1.44 and liquid asset coverage indicator of 4.25. In no year has the bank exceeded the prescribed maximum of risk exposure indicators.

The bank's profitability indicators were lower than the market average in the observed period. It should be noted that the rates of return on assets and capital experienced a significant decline in 2021, i.e., in the second year of the Kovid-19 virus epidemic, when "*Eurobanka*" and "*Direktna Banka*" merged. The cause of this decline is a drop in profit by 57%, as well as an increase in assets by 47.9%. Chart 9 is shown below, which shows the movement of the rate of return on the assets of "*EuroBank Direktna*" in the observed period, which had the largest percentage drop in 2021 and 2022 compared to other indicators.

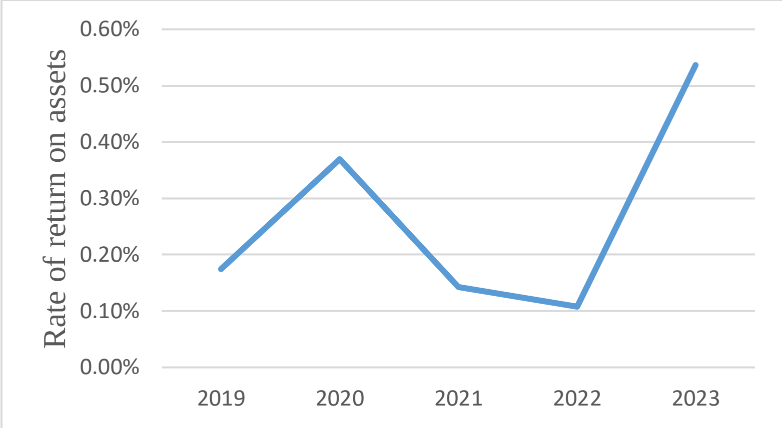

Chart 9: Rate of return on assets of "EuroBank Direktna" 2019-2023

PROCREDIT BANK A.D. BEOGRAD

„*Procredit Bank a.d. Beograd"* is the tenth bank in terms of net balance sheet assets in the Republic of Serbia. It belongs to the large German "*Procredit*" banking group, which operates in Southeast Europe. There are 16 branches in Serbia. Below is Table 11, which refers to the financial performance of “*Procredit Bank a.d. Beograd"* in the observed period.

Table 11: Financial performance of “Procredit Bank a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 145,000,000.00	€ 142,000,000.00	€ 139,000,000.00	€ 145,000,000.00	€ 145,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	16.09%	15.41%	15.46%	19.06%	18.63%	27.24%
Basic capital adequacy	minimum 6%	16.09%	15.41%	15.46%	19.06%	18.63%	27.27%
Total capital adequacy	minimum 8%	17.89%	16.85%	16.53%	19.06%	18.63%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.65	2.33	2.35	2.81	3.55	3.05
Narrow liquidity indicator	minimum 0.5	2.35	2.14	2.1	2.63	3.31	2.50
Liquid assets coverage indicator	minimum 1.0	1.91	1.65	1.71	2.56	5.13	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	3.55%	2.47%	1.19%	2.56%	2.52%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	6.22%	13.88%	12.23%	15.74%	10.57%	15.78%
Bank's investment	maximum 60%	14.52%	13.14%	12.81%	12.71%	13.88%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.53%	0.46%	0.30%	0.83%	1.43%	0.91%
Rate of return on equity	no value is prescribed	4.11%	3.98%	2.65%	6.59%	11.90%	6.24%
Net interest margin	no value is prescribed	2.07%	1.97%	2.07%	2.64%	3.50%	3.25%

The bank maintains regulatory capital at a constant level of EUR 145.000.000,00, with a slight decrease in 2020. and in 2021 to EUR 142.000.000,00 and EUR 139.000.000,00. The capital adequacy is also maintained at a stable level ranging from 16.53% in 2021 to 19.06% in 2022. The bank maintains liquidity at a high level. The minimum value of the liquidity indicator was in 2020 and was 2.33, while this indicator reached its maximum value in 2023 and was 3.55, which is 16.4% more than the average value on the market. The narrow liquidity indicator reached its minimum value in 2021, which was 2.1, while it reached its maximum value in 2023, amounting to 3.31, which is 31% more than the market average. At no time during the observed period did the bank exceed the maximum allowed value of the risk exposure indicator. Like other banks, "*Procredit Bank*" experienced a drop in profitability during the epidemic of the Kovid-19 virus, the consequences of which it managed to repair by 2022 and reach values that are even higher than those of 2019. Chart 10 is shown below, which represents the movement of the capital adequacy indicators of "*Procredit Bank*" in the observed period.

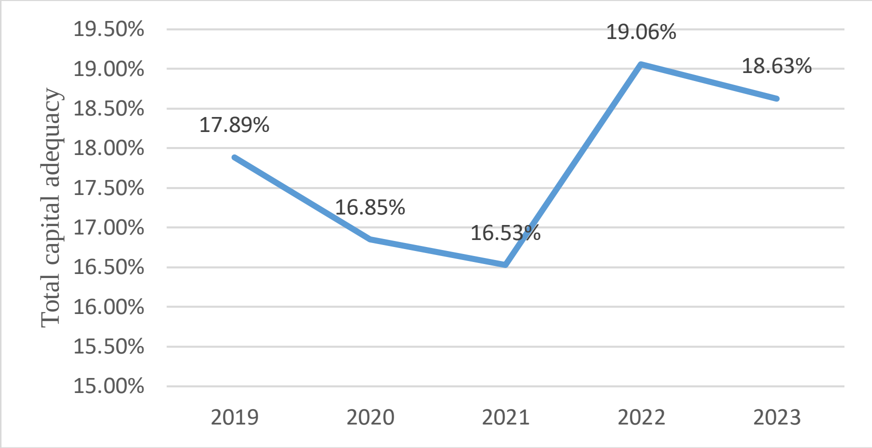

Chart 10: Capital adequacy of "Procredit Bank" 2019-2023

HALKBANK A.D. BEOGRAD

„*Halkbank a.d. Beograd“* is the eleventh bank in terms of net assets in the Republic of Serbia, where it has been operating since 1956. It belongs to the Turkish "*Halkbank*" group founded in 1933, which is majority-owned by the Republic of Turkey. There are 44 branches in the territory of the Republic of Serbia. Below is Table 12, which refers to the financial performance of "Halkbank a.d. Belgrade" from 2019 to 2023.

Table 12: Financial performance of "Halkbank a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 95,000,000.00	€ 91,000,000.00	€ 122,000,000.00	€ 163,000,000.00	€ 183,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	21.63%	18.82%	21.66%	28.23%	25.47%	27.24%
Basic capital adequacy	minimum 6%	24.22%	21.17%	23.64%	29.98%	26.98%	27.27%
Total capital adequacy	minimum 8%	24.22%	21.18%	23.64%	29.99%	26.98%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.12	1.89	1.93	1.95	2.07	3.05
Narrow liquidity indicator	minimum 0.5	1.87	1.68	1.66	1.70	1.43	2.50
Liquid assets coverage indicator	minimum 1.0	2.10	2.3	1.49	1.47	1.54	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	3.35%	0.83%	0.73%	0.80%	3.8%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	13.28%	14.86%	12.34%	12.65%	15.34%	15.78%
Bank's investment	maximum 60%	12.98%	13.90%	11.20%	8.42%	10.19%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.75%	0.70%	0.97%	1.26%	1.87%	0.91%
Rate of return on equity	no value is prescribed	4.10%	4.30%	5.87%	7.82%	9.17%	6.24%
Net interest margin	no value is prescribed	4.33%	3.66%	3.39%	3.68%	5.43%	3.25%

"Halkbank" adequately manages its capital. It maintains the regulatory capital at a stable level and has a tendency to increase it, so it managed to double its capital from 2020 to 2023. Unlike some larger banks, "*Halkbank*" strives to increase the adequacy of its capital after the evident decline of this value during 2020. This indicator reached a value of 29.99% in 2022 and represents the maximum value among the first 11 banks in the Republic of Serbia. The liquidity indicator experienced a 10% drop during the problematic years of 2020 and 2021, which already reached the value of 2019 in 2023. The liquid asset coverage indicator tends to fall from 2021 and is at a value 55% lower than the average on the market in the observed period. The bank maintains risk exposure indicators at a level that is significantly lower than the maximum allowed. The rate of return on assets and the rate of return on equity have an increasing trend over the past five years, caused by the growth of profits at a compound annual growth rate of 34.89%. The net interest margin fluctuated slightly in the past period, but managed to reach a peak of 5.43% in 2023. Graph 11, which represents the liquidity indicators of "Halkbank a.d. Belgrade" from 2019 to 2023, is shown below.

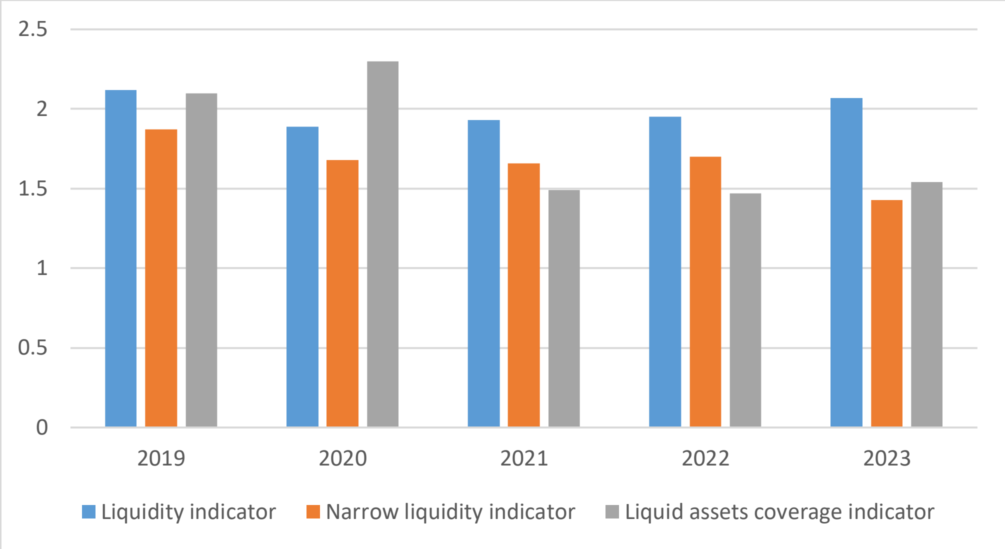

Chart 11: Liquidity indicators of "Halkbank a.d. Belgrade" from 2019 to 2023

ADDIKO BANK A.D. BEOGRAD

„*Addiko Bank a.d. Beograd"* is the twelfth bank in terms of net balance sheet assets in the Republic of Serbia. It belongs to the Austrian "*Addiko*" group, which specializes in working with the population, of small and medium-sized enterprises in Central and Southeastern Europe, where it has 197 branches. Below is Table 13, which refers to the financial performance of "*Addiko Bank a.d. Belgrade"* from 2019 to 2023.

Table 13: Financial performance of "Addiko Bank a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 176,000,000.00	€ 177,000,000.00	€ 175,000,000.00	€ 168,000,000.00	€ 176,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	26.30%	26.10%	26.40%	28.01%	27.53%	27.24%
Basic capital adequacy	minimum 6%	26.30%	26.10%	26.40%	28.01%	27.53%	27.27%
Total capital adequacy	minimum 8%	27.05%	26.10%	26.40%	28.01%	27.53%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	1.87	1.67	1.69	2.45	2.90	3.05
Narrow liquidity indicator	minimum 0.5	1.54	1.36	1.31	1.96	2.22	2.50
Liquid assets coverage indicator	minimum 1.0	1.67	1.43	1.5	1.78	2.45	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	1.92%	2.99%	0.16%	1.20%	3.92%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	10.83%	7.27%	0.22%	0.00%	0.00%	15.78%
Bank's investment	maximum 60%	4.89%	5.14%	4.99%	3.83%	4.48%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	1.17%	0.54%	0.78%	0.57%	0.60%	0.91%
Rate of return on equity	no value is prescribed	4.95%	2.39%	3.43%	2.55%	2.74%	6.24%
Net interest margin	no value is prescribed	3.78%	3.60%	3.67%	3.89%	4.42%	3.25%

The bank maintains regulatory capital at a stable level ranging from EUR 168.000.000,00 to EUR 177.000.000,00. Unlike most analysed banks, "*Addiko Bank*" maintains capital adequacy at a stable level that ranges from a minimum of 26.1% in 2020 to a maximum of 28.01% in 2022. The bank adequately manages its liquidity, which can be seen through the liquidity indicators, which have an increasing trend over the past five years and which experienced the lowest percentage drop in comparison to the indicators of other banks (about 10%) during 2020 and 2021. "*Addiko Bank*" tended to reduce its exposure to risk in the observed period, which can be seen through its indicators of risk exposure, which were several times lower than the permitted maximum. The indicator of the bank's exposure to a single person or a group of related persons, which tended to be zero in 2022 and 2023, should be emphasized. The profitability of the bank was not at an enviable level, it was significantly below the market average. The value of the indicators had ups and downs in the observed period, due to significant growth and decline in profits in different years. Below is Graph 12, which shows the movement of indicators of exposure of "*Addiko bank*" to one person or group of related persons in the period from 2019 to 2023.

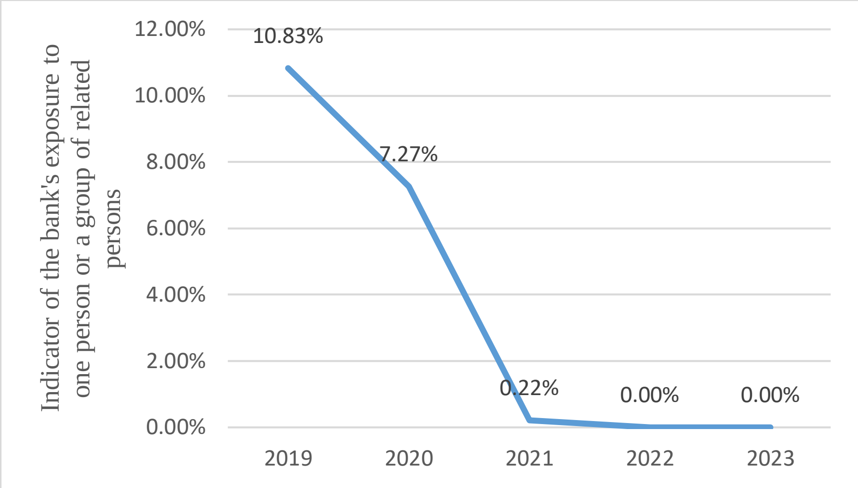

Chart 12: Indicator of exposure of "Addiko" bank to one person or a group of related persons 2019 - 2023

ALTA BANKA A.D. BEOGRAD

„*Alta Banka a.d. Beograd"* is the thirteenth bank in terms of net balance sheet assets in the Republic of Serbia. It was created in 1998 from the former "*JUBMES Bank*", founded in 1979 in Belgrade. It provides commercial and investment banking services. There are 8 branches in the territory of the Republic of Serbia. Table 14 is presented below, which shows the financial performance of "*Alta Bank*" in the period from 2019 to 2023.

Table 14: Financial performance of "Alta Banka a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 32,000,000.00	€ 34,000,000.00	€ 34,000,000.00	€ 33,000,000.00	€ 51,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	26.44%	27.33%	19.27%	17.23%	18.33%	27.24%
Basic capital adequacy	minimum 6%	26.44%	27.33%	19.27%	17.23%	18.33%	27.27%
Total capital adequacy	minimum 8%	26.44%	27.33%	19.27%	17.23%	18.33%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	1.67	2.57	3.40	3.77	3.61	3.05
Narrow liquidity indicator	minimum 0.5	1.21	2.35	2.21	3.14	2.80	2.50
Liquid assets coverage indicator	minimum 1.0	1.32	1.87	1.44	1.91	2.03	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	3.44%	8.63%	16.89%	16.37%	16.55%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	n/a	n/a	15.78%
Bank's investment	maximum 60%	41.17%	40.51%	40.14%	42.23%	30.18%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.93%	0.05%	0.03%	0.09%	1.39%	0.91%
Rate of return on equity	no value is prescribed	4.55%	0.30%	0.29%	1.24%	17.09%	6.24%
Net interest margin	no value is prescribed	3.11%	2.90%	1.84%	2.07%	2.88%	3.25%

In the period from 2019 to 2022, "*Alta Bank*" maintained regulatory capital at a level ranging from EUR 32.000.000,00 to EUR 34.000.00000, while in 2023 this value reached EUR 51.000.000,00, which is significantly less than better ranked banks. The adequacy of the total capital was variable in the past five years and it should be noted that it reached its maximum value of 27.33% in 2020, while it reached its lowest value in 2022, which was not recorded in any previously analysed bank. The bank maintained the indicators of risk exposure within the prescribed limits, but at values significantly higher than the average market values in the observed period, which indicates that the management of this bank is more prone to risk than the management of other banks.

However, "*Alta Banka*" had serious problems with profitability in the period from 2020 to 2022. The rate of return on assets was even 10 times lower than the average market value, while the rate of return on capital in 2020 and 2021 was 20 times lower than the average value. The bank managed to multiply its profitability in 2023, it recorded a profit growth of 2110% compared to 2022. Chart 13 is shown below, which represents the movement of "*Alta Banka*" investment indicators in the period from 2019 to 2023.

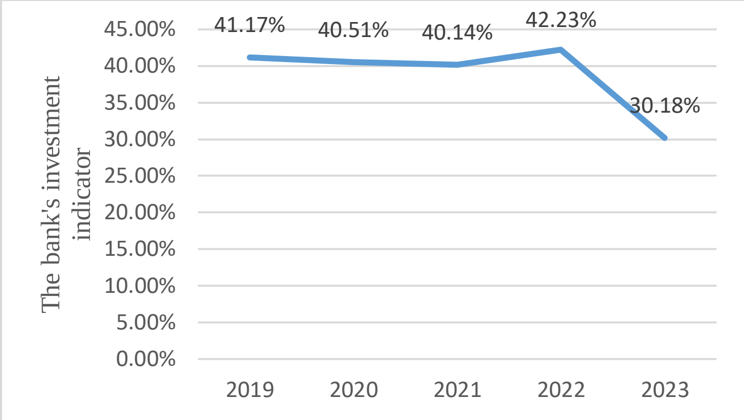

Chart 13: Investment indicator of "Alta Banka" 2019 - 2023

SRPSKA BANKA A.D. BEOGRAD

„*Srpska Banka a.d. Beograd"* is the fourteenth bank in terms of net balance sheet assets in the Republic of Serbia. It was founded in 1950 and has been operating under its current name since 2003. It is majority-owned by the Republic of Serbia. The bank conducts business with natural persons through its office located in Belgrade and also conducts electronic business activities. Table 15 is presented below, which shows the financial performance of "*Srpske Banke*" in the period from 2019 to 2023.

Table 15: Financial performance of "Srpska Banka a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 25,000,000.00	€ 25,000,000.00	€ 24,000,000.00	€ 23,000,000.00	€ 25,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	43.76%	40.99%	31.90%	30.61%	30.59%	27.24%
Basic capital adequacy	minimum 6%	43.76%	40.99%	31.90%	30.61%	30.59%	27.27%
Total capital adequacy	minimum 8%	43.76%	40.99%	31.90%	30.61%	30.59%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.53	4.15	4.27	3.89	3.49	3.05
Narrow liquidity indicator	minimum 0.5	н/а	н/а	н/а	н/а	н/а	2.50
Liquid assets coverage indicator	minimum 1.0	1.93	2.2	1.95	2.30	2.09	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	8.80%	9.04%	4.87%	1.78%	2.80%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	18.78%	18.85%	22.73%	22.84%	24.49%	15.78%
Bank's investment	maximum 60%	60.73%	61.59%	68.12%	70.71%	68.82%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.44%	0.17%	0.098%	1.16%	0.89%	0.91%
Rate of return on equity	no value is prescribed	1.82%	0.84%	0.71%	1.25%	11.20%	6.24%
Net interest margin	no value is prescribed	1.74%	1.28%	1.72%	1.52%	2.56%	3.25%

The bank maintains regulatory capital at a stable level ranging from EUR 23.000.000,00 to EUR 25.000.000,00 in the observed period. This value is even 10 times lower than the average value of regulatory capital on the Serbian market but is also expected for a smaller bank like this one. "*Srpska Banka*" records an exceptional value of the total capital adequacy indicator, which was above the average value in each of the five observed years, with the fact that from 2019 to 2023, a large drop in this indicator can be seen (from 43.76% in 2019 to 30.59 % in 2023). The bank records high values of liquidity indicators, which are 3 to 5 times higher than the minimum prescribed value. It should be noted that during the epidemic of the COVID-19 virus, the bank reached the maximum value of the liquidity indicator in the amount of 4.14 and 4.27 in 2021 and 2022, respectively. Such high values of this indicator compared to other banks may indicate inadequate management of liquid assets. "*Srpska Banka*" recorded high values of the bank's investment risk indicators that exceed the prescribed legal maximum, which may endanger its operations. The indicator of exposure to one person or a group of related persons is within the legal limit, but close to the maximum allowed value. In 2023, this indicator had a value of 24.49%, while the maximum allowed value was 25%. If corrective measures are not taken, this indicator may increase in the next fiscal year. The rate of return on assets and the rate of return on equity in 2020 and 2021 decreased, as with other banks, but already in 2022, they returned to their previous values. Chart 14 is shown below, which represents the trend of investment indicators of "*Srpska Banka*" in the observed period, which was above the allowed maximum.

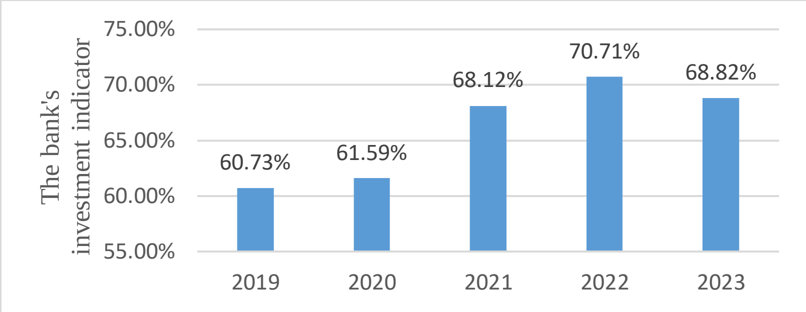

Chart 14: "Srpska Banka" investment indicator 2019 - 2023

BANK OF CHINA SRBIJA A.D. BEOGRAD

„*Bank of China Srbija a.d. Beograd*“ is the fifteenth bank according to the size of net balance sheet assets in the Republic of Serbia. It was opened in 2017 in Belgrade and is the first bank operating with Chinese capital in the Balkans. Below is Table 16, which refers to the financial performance of "*Bank of China Serbia a.d. Belgrade*" in the period from 2019 to 2023.

Table 16: Financial performance of „Bank of China Srbija a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 16,000,000.00	€ 16,000,000.00	€ 14,700,000.00	€ 15,500,000.00	€ 15,500,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	90.17%	78.35%	37.48%	22.28%	42.85%	27.24%
Basic capital adequacy	minimum 6%	90.17%	78.35%	37.48%	22.28%	42.85%	27.27%
Total capital adequacy	minimum 8%	90.17%	78.35%	37.48%	22.28%	42.85%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	6.07	5.66	4.71	3.62	3.82	3.05
Narrow liquidity indicator	minimum 0.5	n/a	n/a	n/a	n/a	n/a	2.50
Liquid assets coverage indicator	minimum 1.0	3.27	3.42	2.95	2.40	2.85	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	0.99%	1.01%	2.37%	0.96%	3.19%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	14.49%	2.09%	2.70%	0.42%	1.32%	15.78%
Bank's investment	maximum 60%	16.32%	18.44%	14.97%	10.75%	8.50%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.33%	-1.35%	0.342%	1.22%	3.94%	0.91%
Rate of return on equity	no value is prescribed	1.74%	-9.89%	4.46%	26.32%	34.29%	6.24%
Net interest margin	no value is prescribed	1.41%	0.18%	0.05%	0.63%	2.71%	3.25%

The bank maintains regulatory capital at a stable level in the range of EUR 14.700.000,00 to EUR 16.000.000,00 in the observed period. Further, the bank records extremely high capital adequacy, which in 2019 reached a value of as much as 90.17%, but after that, it started to decline and tended towards the average value on the market. In 2019, the liquidity indicator and liquid asset coverage indicator had high values of 6.07 and 3.27, respectively. These values decreased in the period from 2020 to 2022, only to start increasing again in 2023. The bank constantly kept the risk exposure indicators within the expected limits. The rate of return on assets and the rate of return on equity had a negative value in 2020 due to the realization of a negative financial result in the amount of RSD 174.350.000,00. However, since 2021, the bank has managed to achieve a positive financial result, and in 2023 it will reach the values of these rates, which are above the average values on the market. Chart 15 is shown below, which represents the movement of the total capital adequacy indicator of "*Bank of China*" in the observed period, which in 2019 reached a value higher than the value of all other banks on the Serbian market.

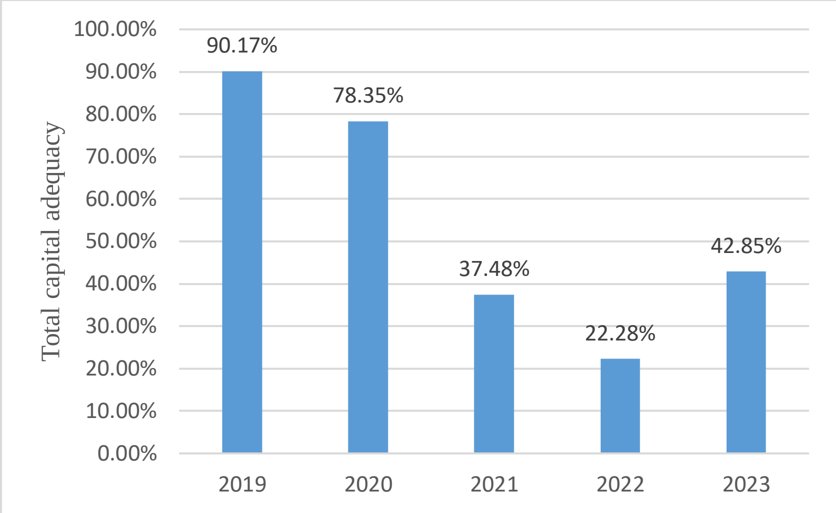

Chart 15: Adequacy of the total capital of "*Bank of China*" 2019 - 2023

MOBI BANKA A.D. BEOGRAD

“*Mobi Banka a.d. Beograd*“ is the sixteenth bank according to the size of net assets in the Republic of Serbia. It was founded in 2014 as "*Telenor Bank*", by the mobile operator "*Telenor Serbia*". The bank does not have branches, but operates entirely through mobile banking. Below is Table 17, which refers to the financial performance of "*Mobi Bank*" from 2019 to 2023.

Table 17: Financial performance of “Mobi Banka a.d. Beograd”

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 20,500,000.00	€ 17,000,000.00	€ 15,500,000.00	€ 20,000,000.00	€ 27,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	35.09%	28.35%	20.20%	19.32%	19.37%	27.24%
Basic capital adequacy	minimum 6%	35.09%	28.35%	20.20%	19.32%	19.37%	27.27%
Total capital adequacy	minimum 8%	35.09%	28.35%	20.20%	19.32%	19.37%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	6.86	4.30	3.29	3.40	3.63	3.05
Narrow liquidity indicator	minimum 0.5	5.87	4.19	3.14	3.29	2.59	2.50
Liquid assets coverage indicator	minimum 1.0	10.46	21.12	26.86	20.75	21.07	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	3.31%	0.06%	1.23%	1.59%	1.71%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	n/a	n/a	15.78%
Bank's investment	maximum 60%	20.35%	20.20%	18.81%	16.47%	16.36%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	-2.46%	-2.43%	-1.68%	0.11%	0.23%	0.91%
Rate of return on equity	no value is prescribed	-10.37%	-14.12%	-11.35%	0.80%	2.00%	6.24%
Net interest margin	no value is prescribed	3.07%	2.79%	4.29%	4.75%	4.87%	3.25%

The bank's regulatory capital ranged from a low of EUR 15.500.000,00 in 2021 to a high of EUR 27.000.000,00 in 2023. Capital adequacy is decreasing from 2020 at a compound annual rate of -11.2%, but it records values that are 2.5 to 3 times higher than the prescribed minimum. The liquidity indicator and the narrow liquidity indicator are also in decline in the same period, but the recorded values are higher than the prescribed minimum and the market average. The liquidity indicator in 2023 reaches a value of 3.63, while the narrow liquidity indicator reaches a value of 2.59. In contrast to these indicators, the indicator of liquid asset coverage increased from a value of 10.46 in 2019 to a value of 21.07 in 2023. The bank maintained risk exposure indicators far below the prescribed level. Profitability was a big problem for this bank in the period from 2019 to 2021, when the bank operated at a loss. In the same period of time, the bank recorded an increase in the net interest margin. Chart 16 is shown below, which refers to the change in the rate of return on equity capital of "*Mobi Bank*" in the period from 2019 to 2023.

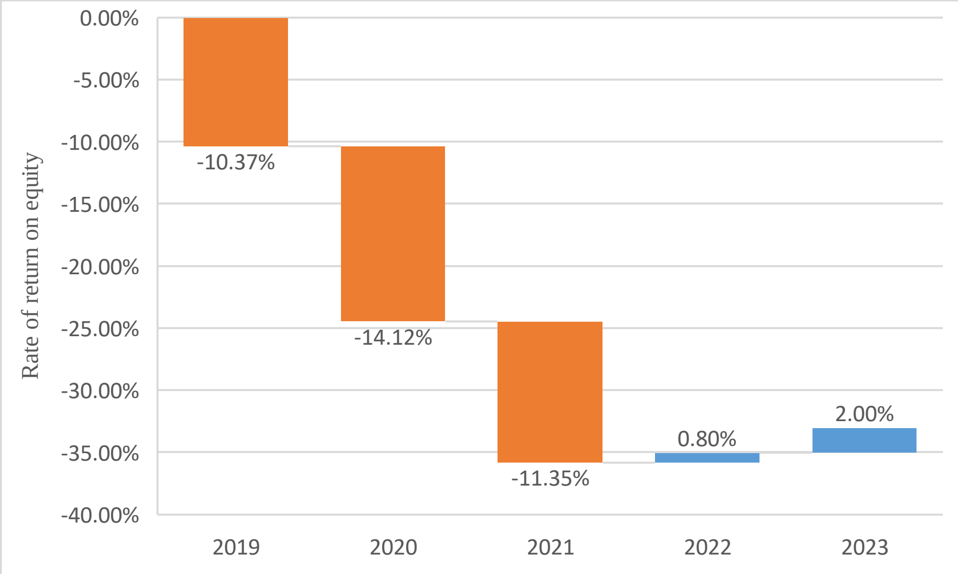

Chart 16: Rate of return on equity of "Mobi Bank" 2019 - 2023

BANKA A.D. NOVI SAD

"3 *Banka a.d. Novi Sad*" is the seventeenth bank according to the size of net balance sheet assets in the Republic of Serbia. It was created in 2007 in Novi Sad, through the transformation of "Opportunity Savings Bank", opened in 2002. Today, "*3 Banka*" has 4 branches, 37 offices and more than 500 employees throughout the Republic of Serbia. Below is Table 18, which refers to the financial performance of "*3 Banks*" in the period from 2019 to 2023.

Table 18: Financial performance of "3 Banka a.d. Novi Sad"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 33,000,000.00	€ 35,000,000.00	€ 36,000,000.00	€ 38,000,000.00	€ 44,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	19.72%	21.08%	21.09%	19.88%	19.21%	27.24%
Basic capital adequacy	minimum 6%	19.72%	21.08%	21.09%	19.88%	19.21%	27.27%
Total capital adequacy	minimum 8%	26.60%	26.65%	25.48%	22.91%	23.01%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	4.61	5.83	3.60	4.82	4.46	3.05
Narrow liquidity indicator	minimum 0.5	3.55	5.21	3.1	4.26	3.82	2.50
Liquid assets coverage indicator	minimum 1.0	5.87	3.23	5.01	4.63	3.1	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	0.76%	0.10%	0.88%	1.08%	1.23%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	n/a	n/a	15.78%
Bank's investment	maximum 60%	13.03%	12.61%	12.67%	14.87%	14.68%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	3.14%	1.38%	2.14%	2.38%	2.22%	0.91%
Rate of return on equity	no value is prescribed	13.64%	7.40%	11.60%	12.95%	13.03%	6.24%
Net interest margin	no value is prescribed	12.15%	9.39%	11.38%	10.84%	11.04%	3.25%

The bank maintains regulatory capital at a stable level ranging from EUR 33.000.000,00 in 2019 to EUR 44.000.000,00 in 2023. The adequacy of the total capital decreased slightly in the period from 2020 to 2023 (from 26.65% to 23.01%). The bank maintained all liquidity indicators at a relatively stable level. The liquidity indicator reached the minimum value of 3.1 in 2021, while it reached the maximum value of 5.83 in 2020, in contrast to other banks whose liquidity declined considerably this year. The reason for this value of the indicator may be the risk aversion of the management during the epidemic of the COVID-19 virus that led to the "accumulation" of a large amount of liquid assets. The bank kept the risk exposure indicators within the prescribed limits throughout the period. Although profitability indicators declined in 2020, the bank did not operate at a loss and managed to ensure the growth of these indicators already from 2021. Chart 17 is shown below, which refers to the movement of the net interest margin of "3 Banka" in the period from 2019 to 2023.

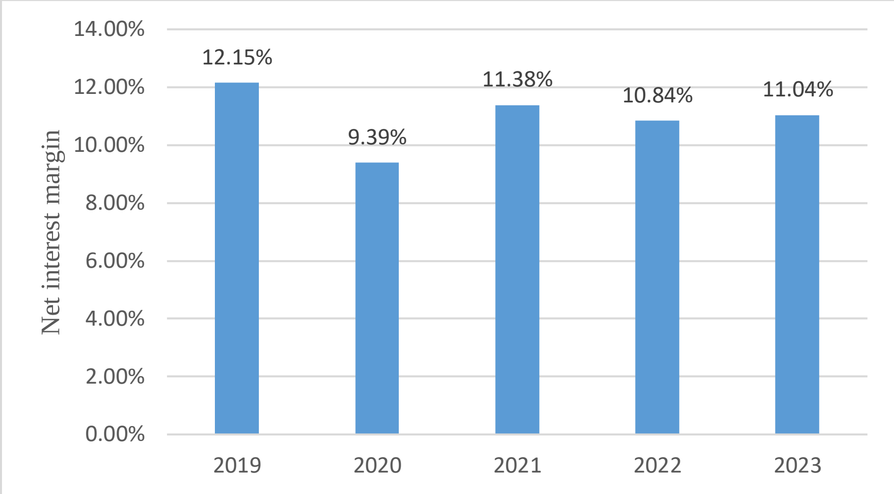

Chart 17: Net interest margin of "3 Banka" 2019 - 2023

ADRIATIC BANK A.D. BEOGRAD

“*Adriatic Bank a.d. Beograd*“ is the eighteenth bank according to the size of the net balance sheet assets in the Republic of Serbia. It was founded in 1990 as "*Centrobanka a.d. Beograd*", during the following years it changed its name and owner several times, and in 2013 it became "*Adriatic Bank a.d. Beograd*". It has five branches in the territory of the Republic of Serbia. Below is Table 19, which refers to the financial performance of “*Adriatic Bank a.d. Beograd*" from 2019 to 2023.

Table 19: Financial performance of “Adriatic Bank a.d. Beograd“

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 30,000,000.00	€ 28,000,000.00	€ 27,000,000.00	€ 26,000,000.00	€ 27,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	37.00%	32.88%	32.79%	37.95%	34.57%	27.24%
Basic capital adequacy	minimum 6%	37.00%	32.88%	32.79%	37.95%	34.57%	27.27%
Total capital adequacy	minimum 8%	37.00%	32.88%	32.79%	37.95%	34.57%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	2.25	2.10	2.98	3.65	4.45	3.05
Narrow liquidity indicator	minimum 0.5	2.16	2.02	2.86	3.41	3.14	2.50
Liquid assets coverage indicator	minimum 1.0	2.75	1.66	2.15	3.83	5.96	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	1.98%	2.55%	15.16%	10.74%	8.25%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	n/a	n/a	15.78%
Bank's investment	maximum 60%	18.96%	21.72%	19.32%	20.98%	35.63%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	-1.68%	-1.58%	0.176%	0.12%	2.69%	0.91%
Rate of return on equity	no value is prescribed	-7.03%	-7.42%	0.87%	0.64%	17.27%	6.24%
Net interest margin	no value is prescribed	3.14%	2.49%	2.38%	2.73%	2.59%	3.25%

In 2019, the bank's regulatory capital amounted to EUR 30.000.000,00, which gradually decreased to reach the value of EUR 27.000.000,00 in 2023. Capital adequacy recorded alternating growth and decline in the observed period, the minimum value of this indicator was reached in 2020, when it amounted to 32.88%, while the maximum value was reached in 2022, when it amounted to 37.95%. In the observed period, liquidity indicators recorded values that were 2.5-3 times higher than the prescribed minimum, while they reached the maximum value in 2022 and 2023. The bank maintained the risk exposure indicators at a level that is many times lower than the prescribed maximum and was not exceeded at any time. In 2019 and 2020, the bank recorded negative values of the rate of return on assets and the rate of return on equity. This phenomenon occurred due to the realization of a negative business result in the amount of – 266.316.000,00 dinars and – 257.135.000,00 dinars, respectively. Despite these difficulties, the bank managed to reach values of the rate of return on assets and the rate of return on equity in 2023, which are several times higher than the average on the market. Below is the Chart 18 , which represents the movement of the rate of return on assets of "*Adriatic Bank*" in the observed period.

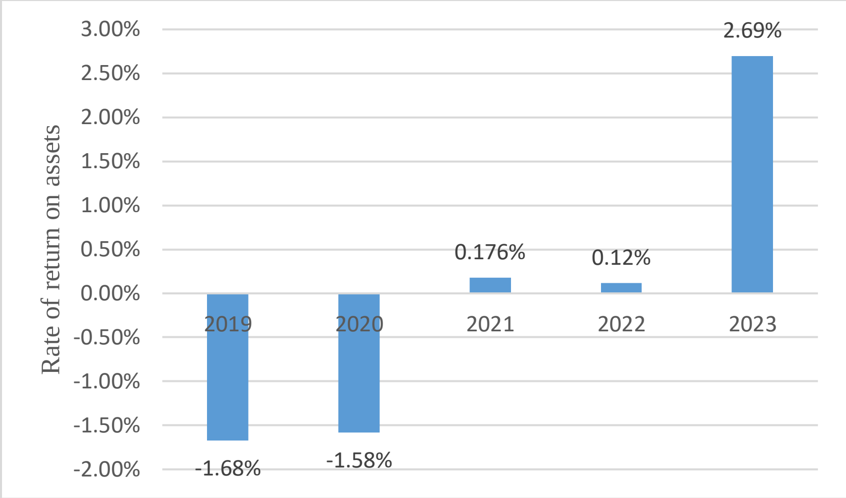

Chart 18: Rate of return on assets "*Adriatic Bank*" 2019 - 2023

API BANK A.D. BEOGRAD

"*API Banka a.d., Belgrade*" is the second smallest bank in the Republic of Serbia in terms of net balance sheet assets. The bank was founded in 2008 in Belgrade and is fully owned by the company "*AZRS INVEST d.o.o.*". It has 4 branches in the territory of the Republic of Serbia. Below is Table 20, which refers to the financial performance of "*API Bank*" in the period from 2019 to 2023.

Table 20: Financial performances of "API Banka a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 12,000,000.00	€ 16,500,000.00	€ 14,800,000.00	€ 14,500,000.00	€ 16,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	22.55%	29.14%	21.14%	27.28%	30.19%	27.24%
Basic capital adequacy	minimum 6%	22.55%	29.14%	21.14%	27.28%	30.19%	27.27%
Total capital adequacy	minimum 8%	24.33%	30.60%	21.68%	27.67%	30.19%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	4.31	5.08	3.80	3.32	2.60	3.05
Narrow liquidity indicator	minimum 0.5	3.99	4.56	3.8	2.49	1.47	2.50
Liquid assets coverage indicator	minimum 1.0	4.32	6.73	2.12	6.37	9.36	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	2.74%	1.33%	21.68%	6.82%	5.85%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	23.88%	17.85%	24.93%	23.77%	23.63%	15.78%
Bank's investment	maximum 60%	11.03%	17.17%	14.65%	13.89%	9.02%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	-2.55%	-3.99%	-1.61%	1.91%	5.17%	0.91%
Rate of return on equity	no value is prescribed	-17.04%	-21.17%	-11.43%	13.22%	31.85%	6.24%
Net interest margin	no value is prescribed	1.99%	1.37%	1.64%	2.07%	2.86%	3.25%

The bank maintains regulatory capital at a level above the legal minimum, which ranged from a minimum of EUR 12.000.000,00 in 2019 to a maximum of EUR 16.000.000,00 in 2020, in 2023 the regulatory capital was EUR 16.000.000,00. Capital adequacy alternately rose and fell in the observed period, reaching a maximum of 30.6% in 2020, while in 2023 this indicator was 30.19%. The liquidity indicator, as well as the narrow liquidity indicator since 2020, recorded a significant decline at compound annual rates of -15.42% and -24.65%, respectively. The value of the liquid asset coverage indicator alternately increased and decreased in the observed period, while it reached a maximum of 9.36 in 2023. The bank maintained the risk exposure indicators within the prescribed range, with the bank's exposure indicator to one person or a group of related persons constantly being close to the maximum prescribed limit. In the period between 2019 and 2020, the bank recorded negative rates of return on assets and equity, due to the realization of a financial loss. Despite these negative values, the bank managed to achieve rates of return several times higher than market rates in 2022 and 2023. The net interest margin recorded a growth trend since 2020 and by the end of the observed period had not reached the average market value. Chart 19 is shown below, which refers to the movement of the rate of return on equity capital of "*API Bank*" in the observed period from 2019 to 2023.

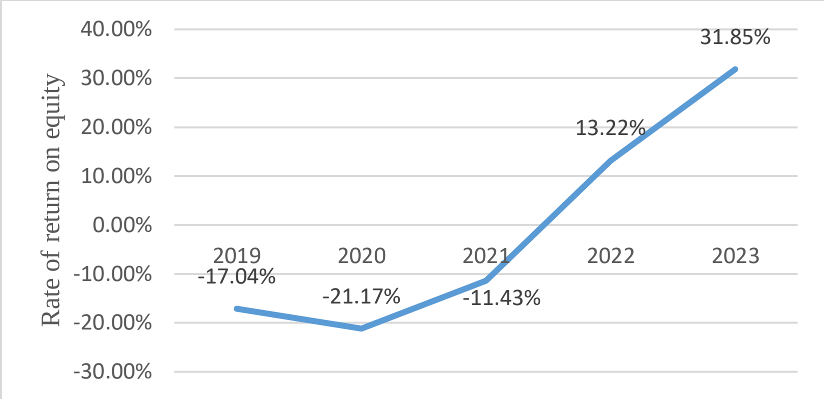

Chart 19: Rate of return on equity of *"API Bank"* 2019 - 2023

MIRA BANK A.D. BEOGRAD

„*Mira Bank a.d. Beograd*" is the smallest bank according to the size of net assets in the Republic of Serbia. It comes from the United Arab Emirates. It was opened in Belgrade in 2015. Below is Table 21, which refers to the financial performance of "Mira Bank" in the observed period from 2019 to 2023.

Table 21: Financial performance of "Mira Bank a.d. Beograd"

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE IN THE OBSERVED PERIOD
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 24,500,000.00	€ 23,000,000.00	€ 15,000,000.00	€ 20,000,000.00	€ 19,000,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	80.49%	92.80%	66.69%	79.96%	68.18%	27.24%
Basic capital adequacy	minimum 6%	80.49%	92.80%	66.69%	79.96%	68.18%	27.27%
Total capital adequacy	minimum 8%	80.49%	92.80%	66.69%	79.96%	68.18%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	7.69	7.29	7.70	3.57	3.33	3.05
Narrow liquidity indicator	minimum 0.5	6.83	6.33	7.03	3.36	2.63	2.50
Liquid assets coverage indicator	minimum 1.0	3.06	3.6	3.73	1.48	2.16	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	0.23%	0.73%	1.78%	0.22%	5.97%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	n/a	n/a	n/a	17.54%	18.26%	15.78%
Bank's investment	maximum 60%	n/a	n/a	n/a	1.47%	7.51%	33.63%
PROFITABILITY							
Rate of return on assets	no value is prescribed	-3.95%	-3.36%	-3.25%	-3.45%	-1.93%	0.91%
Rate of return on equity	no value is prescribed	-13.08%	-12.27%	-9.97%	-8.36%	-4.96%	6.24%
Net interest margin	no value is prescribed	2.22%	2.28%	1.81%	2.79%	3.85%	3.25%

The bank's regulatory capital varied during the observed period. The minimum value of EUR 15.000.000,00 was realized in 2021, while the maximum value of EUR 24.500.000,00 was realized in 2019. In 2023, regulatory capital had a value of EUR 19.000.000,00. The adequacy of the total capital alternately increased and decreased, the maximum value was reached in 2020 and was 92.8%, while the minimum value was reached in 2021 and was 66.69%. In the observed period, the bank's liquidity indicators were many times higher than the minimum prescribed values, but they also recorded a constant decline from year to year. In 2023, the bank recorded a liquidity indicator value of 3.33, a narrow liquidity indicator value of 2.63 and a liquid asset coverage indicator value of 2.16. The bank kept the risk exposure indicators within the legally prescribed range during the entire observed period. Profitability represents the biggest problem of this bank. Namely, "Mira Bank a.d. Belgrade" operated at a loss during the entire observed period, which is shown by negative rates of return on assets and capital. Chart 20 is shown below, which refers to the movement of the rate of return on equity of "Mira Bank a.d. Belgrade" from 2019 to 2023.

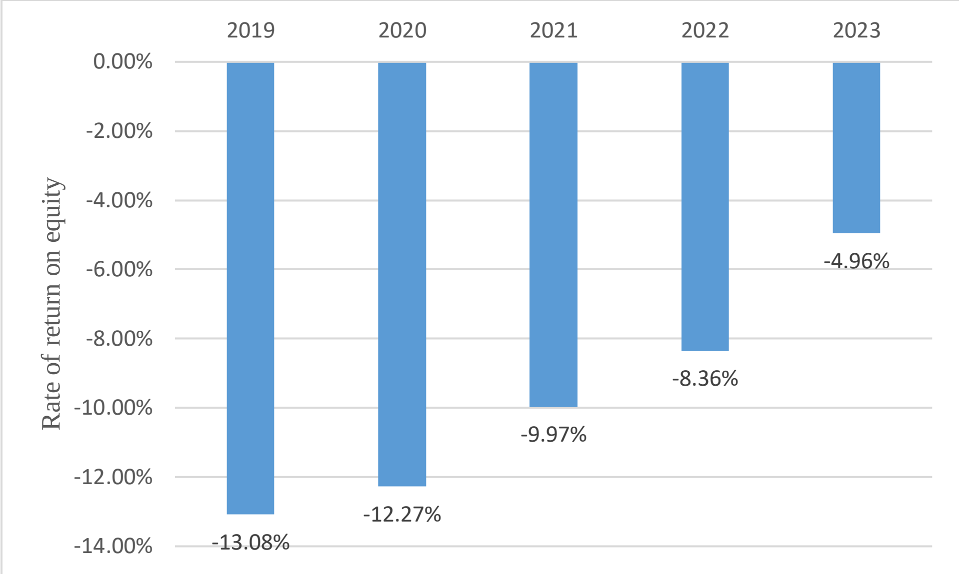

Chart 20: Rate of return on equity of "*Mira Bank*" 2019 – 2023

DISPLAY OF THE OVERALL FINANCIAL PERFORMANCE OF THE COMMERCIAL BANKS' SYSTEM AND CONCLUSION OF THE ANALYSIS

In this research, 20 commercial banks operating in the territory of the Republic of Serbia were analysed. During the analysis, indicators of capital, liquidity, exposure of the bank to risk, as well as profitability in the period from 2019 to 2023 were used. Some indicators are prescribed by law, while some are the result of the independent work of the author. The following table shows the average results of these indicators for all analysed banks in each year. Below is Table 22, which refers to the average values of the financial performance of the system of commercial banks in the period from 2019 to 2023.

Table 22: Average financial performance values of the system of commercial banks in the period from 2019 to 2023

INDICATOR	PRESCRIBED VALUE	2019	2020	2021	2022	2023	INDUSTRY AVERAGE
CAPITAL							
Regulatory capital	€ 10,000,000.00	€ 230,600,000.00	€ 233,475,000.00	€ 244,350,000.00	€ 270,500,000.00	€ 292,675,000.00	€ 254,320,000.00
Basic share capital adequacy	minimum 4.5%	31.42%	30.24%	24.58%	24.61%	25.32%	27.24%
Basic capital adequacy	minimum 6%	31.57%	30.33%	24.56%	24.60%	25.29%	27.27%
Total capital adequacy	minimum 8%	32.56%	30.87%	25.16%	25.33%	26.20%	28.02%
LIQUIDITY							
Liquidity indicator	minimum 0.8	3.18	3.15	2.95	2.89	3.06	3.05
Narrow liquidity indicator	minimum 0.5	2.62	2.68	2.45	2.44	2.29	2.50
Liquid assets coverage indicator	minimum 1.0	2.91	3.47	3.52	3.30	4.02	3.45
BANK'S RISK EXPOSURE							
Exchange risk indicator	maximum 20%	2.92%	2.72%	4.21%	3.27%	3.37%	3.30%
Bank's exposure to one person or a group of related persons	maximum 25%	15.37%	15.94%	16.80%	15.54%	15.26%	15.78%
Bank's investment	maximum 60%	19.52%	21.30%	19.43%	18.36%	17.51%	19.23%
PROFITABILITY							
Rate of return on assets	no value is prescribed	0.66%	0.59%	0.38%	1.11%	1.81%	0.91%
Rate of return on equity	no value is prescribed	4.26%	1.04%	3.03%	8.86%	14.00%	6.24%
Net interest margin	no value is prescribed	3.38%	2.89%	2.88%	3.08%	4.04%	3.25%

Analysis of capital indicators

The regulatory capital of the analysed banks grew at a compound annual rate of 4.88% during the observed period. The minimum average value of this indicator was achieved in 2019 and amounted to EUR 230.600.000,00, while the maximum average value was achieved in 2023 and amounted to EUR 292.675.000,00. The highest value of this indicator was achieved by "OTP Bank" in 2023 and amounted to EUR 885.000.000,00, while the lowest value was achieved by "API Bank" in 2019, which amounted to EUR 12.000.000,00. Below is Table 23, which contains data on the value of banks' regulatory capital in the period from 2019 to 2023.

Table 23: Values of the banks' regulatory capital 2019 - 2023

		REGULATORY CAPITAL				
Ord.No	BANK'S BUSINESS NAME	2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	€ 695,000,000.00	€ 692,000,000.00	€ 693,000,000.00	€ 693,000,000.00	€ 689,000,000.00
2	OTP Banka Srbija a.d. Novi Sad	€ 428,000,000.00	€ 484,000,000.00	€ 822,000,000.00	€ 876,000,000.00	€ 885,000,000.00
3	Raiffeisen banka a.d. Beograd	€ 411,000,000.00	€ 408,000,000.00	€ 404,000,000.00	€ 519,000,000.00	€ 648,000,000.00
4	Unicredit Bank Srbija a.d. Beograd	€ 648,000,000.00	€ 646,000,000.00	€ 648,000,000.00	€ 638,000,000.00	€ 649,000,000.00
5	NLB Komercijalna banka AD Beograd	€ 549,000,000.00	€ 585,000,000.00	€ 553,000,000.00	€ 617,000,000.00	€ 713,000,000.00
6	Banka Poštanska štedionica a.d. Beograd	€ 192,000,000.00	€ 191,000,000.00	€ 207,000,000.00	€ 218,000,000.00	€ 272,000,000.00
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	€ 349,000,000.00	€ 317,000,000.00	€ 314,000,000.00	€ 482,000,000.00	€ 530,000,000.00
8	Erste Bank a.d. Novi Sad	€ 282,000,000.00	€ 288,000,000.00	€ 311,000,000.00	€ 378,000,000.00	€ 404,000,000.00
9	Eurobank Direktna akcionarsko društvo Beograd	€ 449,000,000.00	€ 454,000,000.00	€ 318,000,000.00	€ 323,000,000.00	€ 335,000,000.00
10	ProCredit Bank a.d. Beograd	€ 145,000,000.00	€ 142,000,000.00	€ 139,000,000.00	€ 145,000,000.00	€ 145,000,000.00
11	Halkbank a.d. Beograd	€ 95,000,000.00	€ 91,000,000.00	€ 122,000,000.00	€ 163,000,000.00	€ 183,000,000.00
12	Addiko Bank a.d. Beograd	€ 176,000,000.00	€ 177,000,000.00	€ 175,000,000.00	€ 168,000,000.00	€ 176,000,000.00
13	ALTA banka a.d. Beograd	€ 32,000,000.00	€ 34,000,000.00	€ 34,000,000.00	€ 33,000,000.00	€ 51,000,000.00
14	Srpska banka a.d. Beograd	€ 25,000,000.00	€ 25,000,000.00	€ 24,000,000.00	€ 23,000,000.00	€ 25,000,000.00
15	Bank of China Srbija a.d. Beograd	€ 16,000,000.00	€ 16,000,000.00	€ 14,700,000.00	€ 15,500,000.00	€ 15,500,000.00
16	Mobi Banka a.d. Beograd	€ 20,500,000.00	€ 17,000,000.00	€ 15,500,000.00	€ 20,000,000.00	€ 27,000,000.00
17	3 BANKA a.d. Novi Sad	€ 33,000,000.00	€ 35,000,000.00	€ 36,000,000.00	€ 38,000,000.00	€ 44,000,000.00
18	Adriatic Bank akcionarsko društvo Beograd	€ 30,000,000.00	€ 28,000,000.00	€ 27,000,000.00	€ 26,000,000.00	€ 27,000,000.00
19	API Bank a.d. Beograd	€ 12,000,000.00	€ 16,500,000.00	€ 14,800,000.00	€ 14,500,000.00	€ 16,000,000.00
20	MIRABANK a.d. Beograd	€ 24,500,000.00	€ 23,000,000.00	€ 15,000,000.00	€ 20,000,000.00	€ 19,000,000.00
	AVERAGE VALUE	€ 230,600,000.00	€ 233,475,000.00	€ 244,350,000.00	€ 270,500,000.00	€ 292,675,000.00

Chart 21, which refers to the average value of the regulatory capital of commercial banks in the period from 2019 to 2023, is shown below.

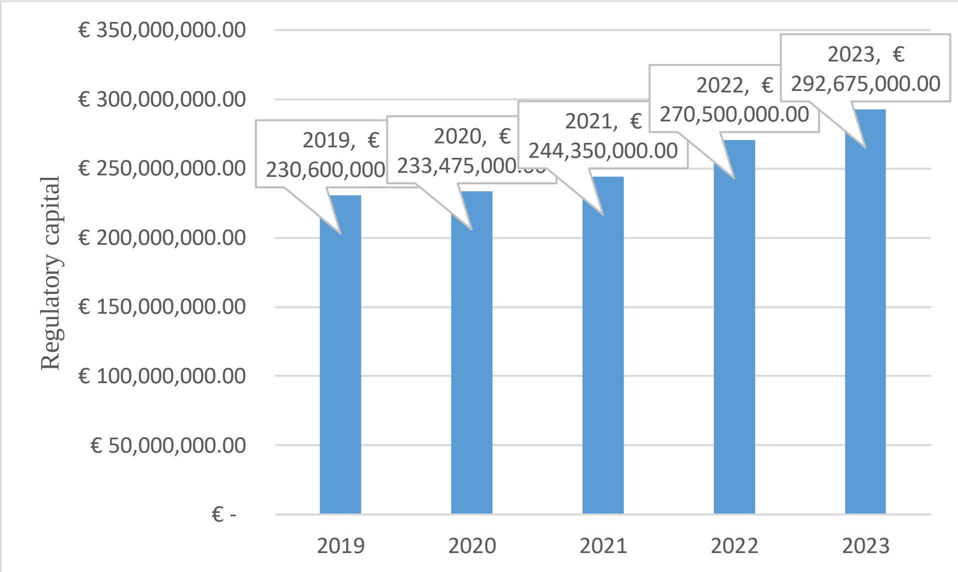

Chart 21: Average value of the regulatory capital 2019 – 2023

The total capital adequacy indicator had the highest average value in 2019 and was 32.56%, while the lowest average value was achieved in 2021 and was 25.16%. The lowest value of this indicator was achieved by "Raiffeisen Bank" in 2022 and was 12.92%, while the highest value was achieved by "*Bank of China*" in 2019, which was 90.17%. It should be noted that smaller banks on average recorded a higher value of capital adequacy in the observed period. This fact leads to the conclusion that larger banks were exposed to higher credit, market and operational risk, which reduce capital adequacy. This is expected information, considering the number of different clients that large banks serve, the number of jobs they enter into, as well as the size of assets they manage. Below is Table 24, which contains data on the capital adequacy of the observed banks in the period from 2019 to 2023.

Table 24: Total capital adequacy 2019 - 2023

		TOTAL CAPITAL ADEQUACY				
Ord.No	BANK'S BUSINESS NAME	2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	21.23%	19.85%	19.29%	17.30%	19.41%
2	OTP Banka Srbija a.d. Novi Sad	20.55%	16.58%	16.88%	20.19%	20.71%
3	Raiffeisen banka a.d. Beograd	20.55%	19.66%	17.48%	12.92%	16.52%
4	Unicredit Bank Srbija a.d. Beograd	23.40%	23.90%	22.00%	21.30%	19.72%
5	NLB Komercijalna banka AD Beograd	27.23%	28.82%	28.55%	24.62%	27.09%
6	Banka Poštanska štedionica a.d. Beograd	27.57%	20.27%	17.63%	16.26%	18.14%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	23.72%	22.29%	20.37%	19.81%	21.17%
8	Erste Bank a.d. Novi Sad	21.40%	19.49%	18.72%	20.58%	21.36%
9	Eurobank Direktna akcionarsko društvo Beograd	n/a	24.44%	20.23%	18.72%	19.55%
10	ProCredit Bank a.d. Beograd	17.89%	16.85%	16.53%	19.06%	18.63%
11	Halkbank a.d. Beograd	24.22%	21.18%	23.64%	29.99%	26.98%
12	Addiko Bank a.d. Beograd	27.05%	26.10%	26.40%	28.01%	27.53%
13	ALTA banka a.d. Beograd	26.44%	27.33%	19.27%	17.23%	18.33%
14	Srpska banka a.d. Beograd	43.76%	40.99%	31.90%	30.61%	30.59%
15	Bank of China Srbija a.d. Beograd	90.17%	78.35%	37.48%	22.28%	42.85%
16	Mobi Banka a.d. Beograd	35.09%	28.35%	20.20%	19.32%	19.37%
17	3 BANKA a.d. Novi Sad	26.60%	26.65%	25.48%	22.91%	23.01%
18	Adriatic Bank akcionarsko društvo Beograd	37.00%	32.88%	32.79%	37.95%	34.57%
19	API Bank a.d. Beograd	24.33%	30.60%	21.68%	27.67%	30.19%
20	MIRABANK a.d. Beograd	80.49%	92.80%	66.69%	79.96%	68.18%
	AVERAGE VALUE	32.56%	30.87%	25.16%	25.33%	26.20%

Chart 22, which shows the average capital adequacy of commercial banks in the period from 2019 to 2023, is shown below.

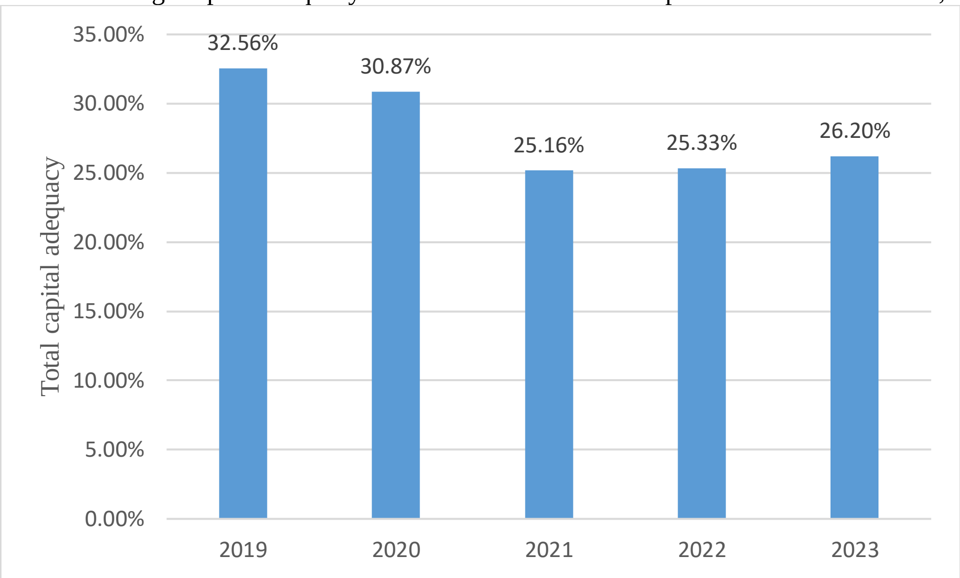

Chart 22: Average value of capital adequacy 2019 – 2023

Analysis of liquidity indicators

On average, all banks-maintained liquidity indicators at a level that was 2.5-3 times higher than the prescribed minimum. This indicates adequate management of liquid assets. The liquidity indicator and the narrow liquidity indicator experienced a decline in all analysed banks during the COVID-19 virus epidemic in 2020 and 2021. On average, these indicators started to grow only in 2023, when they achieved values close to those they had before the epidemic. In contrast to these indicators, the indicator of coverage with liquid assets grew in the observed period to reach a peak of 4.02 in 2023.

The lowest value of the liquidity indicator of 1.3 was achieved by "*Erste Banka*" in 2021, while the highest value of 7.7 was achieved by the smallest analysed bank "*Mira Bank*". Such a high value of the liquidity indicator indicates inadequate management of liquid assets and therefore missed earnings due to their insufficient allocation. Table 25, Table 26 and Table 27 are shown below, which contain data on liquidity indicators in the period from 2019 to 2023.

Table 25: Liquidity Indicator 2019 - 2023

Ord.No	BANK'S BUSINESS NAME	LIQUIDITY INDICATOR 2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	2.25	2.15	2.02	1.88	2.24
2	OTP Banka Srbija a.d. Novi Sad	1.99	1.51	1.8	1.86	2.45
3	Raiffeisen banka a.d. Beograd	1.96	2.31	2.25	2.04	2.37
4	Unicredit Bank Srbija a.d. Beograd	1.80	2.00	1.98	2.00	2.29
5	NLB Komercijalna banka AD Beograd	3.95	4.06	3.88	2.84	3.17
6	Banka Poštanska štedionica a.d. Beograd	2.20	1.97	1.80	2.32	3.05
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	2.16	2.90	2.44	3.42	3.13
8	Erste Bank a.d. Novi Sad	1.49	1.73	1.30	2.11	2.10
9	Eurobank Direktna akcionarsko društvo Beograd	n/a	1.58	1.71	2.06	2.51
10	ProCredit Bank a.d. Beograd	2.65	2.33	2.35	2.81	3.55
11	Halkbank a.d. Beograd	2.12	1.89	1.93	1.95	2.07
12	Addiko Bank a.d. Beograd	1.87	1.67	1.69	2.45	2.90
13	ALTA banka a.d. Beograd	1.67	2.57	3.40	3.77	3.61
14	Srpska banka a.d. Beograd	2.53	4.15	4.27	3.89	3.49
15	Bank of China Srbija a.d. Beograd	6.07	5.66	4.71	3.62	3.82
16	Mobi Banka a.d. Beograd	6.86	4.30	3.29	3.40	3.63
17	3 BANKA a.d. Novi Sad	4.61	5.83	3.60	4.82	4.46
18	Adriatic Bank akcionarsko društvo Beograd	2.25	2.10	2.98	3.65	4.45
19	API Bank a.d. Beograd	4.31	5.08	3.80	3.32	2.60
20	MIRABANK a.d. Beograd	7.69	7.29	7.70	3.57	3.33
	AVERAGE VALUE	3.18	3.15	2.95	2.89	3.06

Table 26: Narrow liquidity indicator 2019 - 2023

Ord.No	BANK'S BUSINESS NAME	NARROW LIQUIDITY INDICATOR 2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	1.64	1.83	1.70	1.47	1.65
2	OTP Banka Srbija a.d. Novi Sad	1.37	1.37	1.63	2.06	1.74
3	Raiffeisen banka a.d. Beograd	1.63	1.95	1.85	1.79	1.73
4	Unicredit Bank Srbija a.d. Beograd	1.54	1.68	1.73	1.27	1.70
5	NLB Komercijalna banka AD Beograd	3.70	3.94	3.65	2.71	3.01
6	Banka Poštanska štedionica a.d. Beograd	2.02	1.91	1.74	2.19	2.81
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	1.89	2.74	2.22	2.83	2.05
8	Erste Bank a.d. Novi Sad	1.38	1.69	1.18	1.98	1.70
9	Eurobank Direktna akcionarsko društvo Beograd	n/a	1.21	1.23	1.41	1.44
10	ProCredit Bank a.d. Beograd	2.35	2.14	2.1	2.63	3.31
11	Halkbank a.d. Beograd	1.87	1.68	1.66	1.70	1.43
12	Addiko Bank a.d. Beograd	1.54	1.36	1.31	1.96	2.22
13	ALTA banka a.d. Beograd	1.21	2.35	2.21	3.14	2.80
14	Srpska banka a.d. Beograd	n/a	n/a	n/a	n/a	n/a
15	Bank of China Srbija a.d. Beograd	n/a	n/a	n/a	n/a	n/a
16	Mobi Banka a.d. Beograd	5.87	4.19	3.14	3.29	2.59
17	3 BANKA a.d. Novi Sad	3.55	5.21	3.1	4.26	3.82
18	Adriatic Bank akcionarsko društvo Beograd	2.16	2.02	2.86	3.41	3.14
19	API Bank a.d. Beograd	3.99	4.56	3.8	2.49	1.47
20	MIRABANK a.d. Beograd	6.83	6.33	7.03	3.36	2.63
	AVERAGE VALUE	2.62	2.68	2.45	2.44	2.29

Table 27: Liquid asset coverage indicator 2019 - 2023

Ord.No	BANK'S BUSINESS NAME	LIQUID ASSETS COVERAGE INDICATOR 2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	2.39	2.74	2.71	2.22	4.11
2	OTP Banka Srbija a.d. Novi Sad	1.29	1.3	1.36	1.46	1.41
3	Raiffeisen banka a.d. Beograd	1.73	1.96	1.7	1.48	n/a
4	Unicredit Bank Srbija a.d. Beograd	1.35	1.75	1.65	1.59	1.65
5	NLB Komercijalna banka AD Beograd	4.02	4.05	4.54	2.16	2.16
6	Banka Poštanska štedionica a.d. Beograd	2.44	2.3	2.39	1.82	1.99
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	1.57	1.94	1.97	1.63	1.65
8	Erste Bank a.d. Novi Sad	1.92	1.98	1.7	1.57	1.48
9	Eurobank Direktna akcionarsko društvo Beograd	n/a	2.19	1.48	2.59	4.25
10	ProCredit Bank a.d. Beograd	1.91	1.65	1.71	2.56	5.13
11	Halkbank a.d. Beograd	2.10	2.3	1.49	1.47	1.54
12	Addiko Bank a.d. Beograd	1.67	1.43	1.5	1.78	2.45
13	ALTA banka a.d. Beograd	1.32	1.87	1.44	1.91	2.03
14	Srpska banka a.d. Beograd	1.93	2.2	1.95	2.30	2.09
15	Bank of China Srbija a.d. Beograd	3.27	3.42	2.95	2.40	2.85
16	Mobi Banka a.d. Beograd	10.46	21.12	26.86	20.75	21.07
17	3 BANKA a.d. Novi Sad	5.87	3.23	5.01	4.63	3.1
18	Adriatic Bank akcionarsko društvo Beograd	2.75	1.66	2.15	3.83	5.96
19	API Bank a.d. Beograd	4.32	6.73	2.12	6.37	9.36
20	MIRABANK a.d. Beograd	3.06	3.6	3.73	1.48	2.16
	AVERAGE VALUE	2.91	3.47	3.52	3.30	4.02

Chart 23, which refers to the average values of liquidity indicators in the period from 2019 to 2023, is presented below.

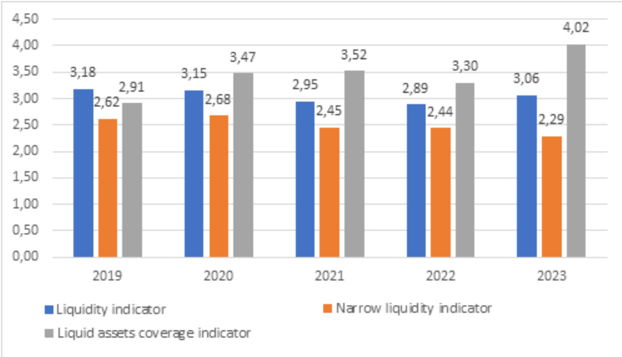

Chart 23: Average Liquidity Indicators 2019 - 2023

Analysis of bank risk exposure

On average, banks-maintained risk exposure indicators within the prescribed range every year. The lowest percentage values of the risk exposure indicator were recorded in the case of the foreign exchange risk indicator, which banks tended to minimize in the observed period. Certain banks have stated in their annual reports that they aimed to close foreign exchange positions. This indicator did not exceed the allowed maximum at any bank. Table 28 is shown below, which contains data on the indicator of foreign exchange risk of banks in the period from 2019 to 2023.

Table 28: Indicators of foreign exchange risk 2019 - 2023

		FOREIGN EXCHANGE RISK INDICATOR				
Ord.No	BANK'S BUSINESS NAME	2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	0.36%	1.46%	1.48%	0.81%	0.46%
2	OTP Banka Srbija a.d. Novi Sad	1.24%	2.48%	0.25%	2.16%	1.07%
3	Raiffeisen banka a.d. Beograd	3.07%	2.65%	3.35%	2.02%	1.88%
4	Unicredit Bank Srbija a.d. Beograd	2.09%	1.00%	3.02%	2.07%	3.78%
5	NLB Komercijalna banka AD Beograd	10.61%	10.13%	2.00%	2.63%	1.99%
6	Banka Poštanska štedionica a.d. Beograd	2.70%	1.80%	1.80%	3.92%	0.48%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	4.18%	3.42%	3.34%	1.13%	0.43%
8	Erste Bank a.d. Novi Sad	0.11%	0.83%	1.40%	3.38%	0.67%
9	Eurobank Direktna akcionarsko društvo Beograd	н/a	0.85%	0.68%	3.07%	0.90%
10	ProCredit Bank a.d. Beograd	3.55%	2.47%	1.19%	2.56%	2.52%
11	Halkbank a.d. Beograd	3.35%	0.83%	0.73%	0.80%	3.8%
12	Addiko Bank a.d. Beograd	1.92%	2.99%	0.16%	1.20%	3.92%
13	ALTA banka a.d. Beograd	3.44%	8.63%	16.89%	16.37%	16.55%
14	Srpska banka a.d. Beograd	8.80%	9.04%	4.87%	1.78%	2.80%
15	Bank of China Srbija a.d. Beograd	0.99%	1.01%	2.37%	0.96%	3.19%
16	Mobi Banka a.d. Beograd	3.31%	0.06%	1.23%	1.59%	1.71%
17	3 BANKA a.d. Novi Sad	0.76%	0.10%	0.88%	1.08%	1.23%
18	Adriatic Bank akcionarsko društvo Beograd	1.98%	2.55%	15.16%	10.74%	8.25%
19	API Bank a.d. Beograd	2.74%	1.33%	21.68%	6.82%	5.85%
20	MIRABANK a.d. Beograd	0.23%	0.73%	1.78%	0.22%	5.97%
	AVERAGE VALUE	3.02%	2.72%	4.21%	3.27%	3.37%

The indicator of the bank's exposure to a single person or group of related parties did not exceed the prescribed maximum at any time. The highest value of this indicator was achieved by "*API Banka*" in 2021, which was 24.93%, while this indicator at "*Addiko Banka*" tended to zero in 2022 and 2023. This was an indicator that banks usually did not publish. Table 29 is shown below, which contains data on banks' exposure to a single person or group of related persons in the period from 2019 to 2020.

Table 29: Exposure to a single person or group of related persons 2019 - 2023

Ord.No	BANK'S BUSINESS NAME	EXPOSURE TO ONE PERSON OR A GROUP OF RELATED PERSONS				
		2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	16.58%	20.72%	21.66%	22.24%	22.56%
2	OTP Banka Srbija a.d. Novi Sad	15.15%	24.25%	16.79%	19.16%	16.66%
3	Raiffeisen banka a.d. Beograd	16.29%	16.73%	21.16%	17.53%	14%
4	Unicredit Bank Srbija a.d. Beograd	n/a	n/a	n/a	n/a	n/a
5	NLB Komercijalna banka AD Beograd	n/a	n/a	n/a	n/a	n/a
6	Banka Poštanska štedionica a.d. Beograd	n/a	n/a	n/a	22.44%	24.71%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	20.50%	19.64%	30.02%	18.06%	18%
8	Erste Bank a.d. Novi Sad	13.02%	15.50%	19.61%	16.75%	20%
9	Eurobank Direktna akcionarsko društvo Beograd	n/a	19.61%	17.24%	17.29%	17%
10	ProCredit Bank a.d. Beograd	6.22%	13.88%	12.23%	15.74%	10.57%
11	Halkbank a.d. Beograd	13.28%	14.86%	12.34%	12.65%	15.34%
12	Addiko Bank a.d. Beograd	10.83%	7.27%	0.22%	0.00%	0.00%
13	ALTA banka a.d. Beograd	n/a	n/a	n/a	n/a	n/a
14	Srpska banka a.d. Beograd	18.78%	18.85%	22.73%	22.84%	24.49%
15	Bank of China Srbija a.d. Beograd	14.49%	2.09%	2.70%	0.42%	1.32%
16	Mobi Banka a.d. Beograd	n/a	n/a	n/a	n/a	n/a
17	3 BANKA a.d. Novi Sad	n/a	n/a	n/a	n/a	n/a
18	Adriatic Bank akcionarsko društvo Beograd	n/a	n/a	n/a	n/a	n/a
19	API Bank a.d. Beograd	23.88%	17.85%	24.93%	23.77%	23.63%
20	MIRABANK a.d. Beograd	n/a	n/a	n/a	17.54%	18.26%
	ПРОСЕЧНА ВРЕДНОСТ	15.37%	15.94%	16.80%	16.17%	16.15%

The bank's investment risk indicator was within the prescribed range for all banks, except for "*Srpska Banka*", which in the entire period had a value above the prescribed maximum value, with a maximum of 70.71% in 2020. Table 30 is shown below, which contains data from banks' investments in the period from 2019 to 2023.

Table 30: Bank investment 2019 - 2023

Ord.No	BANK'S BUSINESS NAME	BANK'S INVESTMENT				
		2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	12.20%	12.46%	12.22%	12.37%	10.70%
2	OTP Banka Srbija a.d. Novi Sad	7.12%	30.99%	12.94%	11.61%	11.86%
3	Raiffeisen banka a.d. Beograd	12.92%	12.85%	12.95%	14.36%	10.81%
4	Unicredit Bank Srbija a.d. Beograd	n/a	n/a	n/a	n/a	n/a
5	NLB Komercijalna banka AD Beograd	n/a	n/a	n/a	n/a	n/a
6	Banka Poštanska štedionica a.d. Beograd	25.15%	25.59%	23.79%	24.02%	19.85%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	31.94%	31.52%	23.11%	10.03%	9.27%
8	Erste Bank a.d. Novi Sad	9.04%	9.10%	8.45%	6.98%	7.15%
9	Eurobank Direktna akcionarsko društvo Beograd	n/a	15.18%	19.25%	17.92%	16.30%
10	ProCredit Bank a.d. Beograd	14.52%	13.14%	12.81%	12.71%	13.88%
11	Halkbank a.d. Beograd	12.98%	13.90%	11.20%	8.42%	10.19%
12	Addiko Bank a.d. Beograd	4.89%	5.14%	4.99%	3.83%	4.48%
13	ALTA banka a.d. Beograd	41.17%	40.51%	40.14%	42.23%	30.18%
14	Srpska banka a.d. Beograd	60.73%	61.59%	68.12%	70.71%	68.82%
15	Bank of China Srbija a.d. Beograd	16.32%	18.44%	14.97%	10.75%	8.50%
16	Mobi Banka a.d. Beograd	20.35%	20.20%	18.81%	16.47%	16.36%
17	3 BANKA a.d. Novi Sad	13.03%	12.61%	12.67%	14.87%	14.68%
18	Adriatic Bank akcionarsko društvo Beograd	18.96%	21.72%	19.32%	20.98%	35.63%
19	API Bank a.d. Beograd	11.03%	17.17%	14.65%	13.89%	9.02%
20	MIRABANK a.d. Beograd	n/a	n/a	n/a	1.47%	7.51%
	AVERAGE VALUE	19.52%	21.30%	19.43%	17.42%	16.96%

Chart 24 is shown below, which refers to the average values of risk exposure indicators in the period from 2019 to 2023.

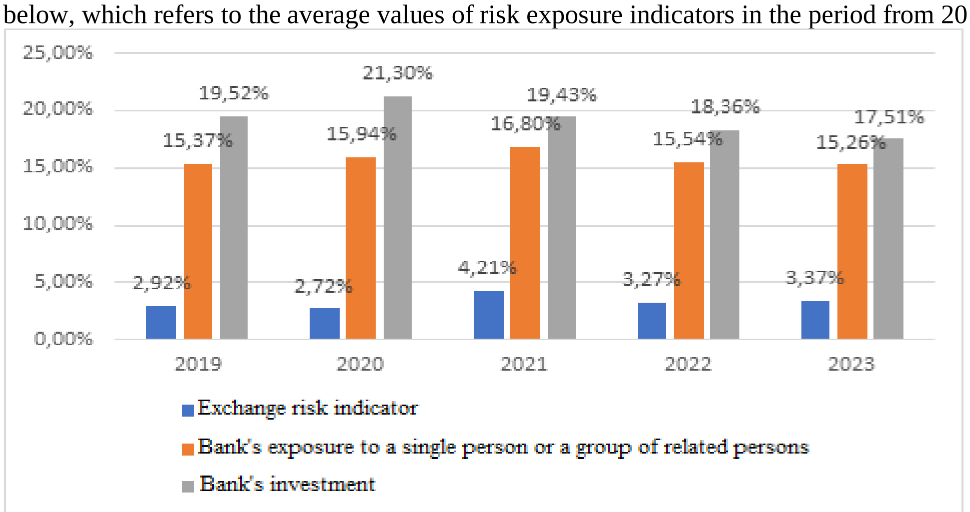

Chart 24: Average risk exposure of banks 2019 - 2023

Analysis of profitability indicators

The profitability of the entire sector of commercial banks was on average at a satisfactory level.

The rate of return on assets ranged from a minimum of 0.38% in 2021 to a maximum of 1.81% in 2023. On average, this indicator had a value of 0.91%. The rate of return on equity ranged from a minimum of 1.04% in 2020 to a maximum of 14% in 2023. The average value of this indicator was 6.24%. During the period of the COVID-19 virus epidemic, small banks achieved negative values of these indicators, due to the realization of business losses. The loss occurred due to the inability of small banks to adapt to the new situation. Below is Table 31, which contains data on the rate of return on assets in the period from 2019 to 2023.

Table 31: Rate of return on assets 2019 - 2023

		RATE OF RETURN ON ASSETS				
Ord.No	BANK'S BUSINESS NAME	2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	1.89%	1.32%	1.39%	1.54%	2.27%
2	OTP Banka Srbija a.d. Novi Sad	2.78%	0.53%	0.86%	1.46%	2.02%
3	Raiffeisen banka a.d. Beograd	1.92%	1.46%	1.58%	1.81%	3.22%
4	Unicredit Bank Srbija a.d. Beograd	1.90%	1.10%	1.10%	1.50%	2.90%
5	NLB Komercijalna banka AD Beograd	1.70%	0.80%	0.50%	1.60%	2.60%
6	Banka Poštanska štedionica a.d. Beograd	1.30%	1.00%	0.70%	1.00%	0.90%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	3.68%	14.17%	2.31%	6.34%	1.78%
8	Erste Bank a.d. Novi Sad	1.16%	0.46%	0.75%	0.66%	1.46%
9	Eurobank Direktna akcionarsko društvo Beograd	0.17%	0.37%	0.14%	0.11%	0.54%
10	ProCredit Bank a.d. Beograd	0.53%	0.46%	0.30%	0.83%	1.43%
11	Halkbank a.d. Beograd	0.75%	0.70%	0.97%	1.26%	1.87%
12	Addiko Bank a.d. Beograd	1.17%	0.54%	0.78%	0.57%	0.60%
13	ALTA banka a.d. Beograd	0.93%	0.05%	0.03%	0.09%	1.39%
14	Srpska banka a.d. Beograd	0.44%	0.17%	0.098%	1.16%	0.89%
15	Bank of China Srbija a.d. Beograd	0.33%	-1.35%	0.342%	1.22%	3.94%
16	Mobi Banka a.d. Beograd	-2.46%	-2.43%	-1.68%	0.11%	0.23%
17	3 BANKA a.d. Novi Sad	3.14%	1.38%	2.14%	2.38%	2.22%
18	Adriatic Bank akcionarsko društvo Beograd	-1.68%	-1.58%	0.176%	0.12%	2.69%
19	API Bank a.d. Beograd	-2.55%	-3.99%	-1.61%	1.91%	5.17%
20	MIRABANK a.d. Beograd	-3.95%	-3.36%	-3.25%	-3.45%	-1.93%
	AVERAGE VALUE	0.66%	0.59%	0.38%	1.11%	1.81%

Below is Table 32, which contains data on the rate of return on equity in the period from 2019 to 2023.

Table 32: Rate of return on equity 2019 - 2023

		RATE OF RETURN ON EQUITY				
Ord.No	BANK'S BUSINESS NAME	2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	12.32%	8.70%	8.71%	12.97%	18.99%
2	OTP Banka Srbija a.d. Novi Sad	18.79%	3.93%	6.33%	10.82%	15.54%
3	Raiffeisen banka a.d. Beograd	10.56%	8.69%	11.73%	14.29%	24.50%
4	Unicredit Bank Srbija a.d. Beograd	10.10%	6.30%	7%	10%	20.30%
5	NLB Komercijalna banka AD Beograd	10.20%	4.90%	3.40%	10.20%	16.20%
6	Banka Poštanska štedionica a.d. Beograd	12.50%	10.10%	7.90%	13.70%	14.40%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	14.35%	18.46%	10.79%	33.82%	8.52%
8	Erste Bank a.d. Novi Sad	8.42%	4.05%	6.46%	5.53%	11.50%
9	Eurobank Direktna akcionarsko društvo Beograd	0.58%	1.35%	1.11%	0.87%	4.38%
10	ProCredit Bank a.d. Beograd	4.11%	3.98%	2.65%	6.59%	11.90%
11	Halkbank a.d. Beograd	4.10%	4.30%	5.87%	7.82%	9.17%
12	Addiko Bank a.d. Beograd	4.95%	2.39%	3.43%	2.55%	2.74%
13	ALTA banka a.d. Beograd	4.55%	0.30%	0.29%	1.24%	17.09%
14	Srpska banka a.d. Beograd	1.82%	0.84%	0.71%	1.25%	11.20%
15	Bank of China Srbija a.d. Beograd	1.74%	-9.89%	4.46%	26.32%	34.29%
16	Mobi Banka a.d. Beograd	-10.37%	-14.12%	-11.35%	0.80%	2.00%
17	3 BANKA a.d. Novi Sad	13.64%	7.40%	11.60%	12.95%	13.03%
18	Adriatic Bank akcionarsko društvo Beograd	-7.03%	-7.42%	0.87%	0.64%	17.27%
19	API Bank a.d. Beograd	-17.04%	-21.17%	-11.43%	13.22%	31.85%
20	MIRABANK a.d. Beograd	-13.08%	-12.27%	-9.97%	-8.36%	-4.96%
	AVERAGE VALUE	4.26%	1.04%	3.03%	8.86%	14.00%

The net interest margin indicator had both ups and downs during the observed period. The minimum average value of 2.88% was realized during 2021, while the maximum average value of 4.04% was realized during 2023. The value of this indicator did not show significant differences between banks of different sizes, because interest rates are formed in relation to the reference interest rate on the market, which is the same for all banks. Below is Table 33, which refers to the net interest margin in the period from 2019 to 2023.

Table 33: Net Interest Margin 2019 - 2023

		NET INTEREST MARGIN				
Ord.No	BANK'S BUSINESS NAME	2019	2020	2021	2022	2023
1	Banca Intesa a.d. Beograd	3.12%	2.90%	2.86%	2.94%	4.09%
2	OTP Banka Srbija a.d. Novi Sad	2.74%	3.09%	2.31%	2.84%	3.58%
3	Raiffeisen banka a.d. Beograd	3.17%	2.56%	2.27%	2.32%	4.30%
4	Unicredit Bank Srbija a.d. Beograd	3.12%	2.68%	2.41%	2.61%	3.83%
5	NLB Komercijalna banka AD Beograd	3.38%	3.18%	3.26%	2.95%	4.41%
6	Banka Poštanska štedionica a.d. Beograd	3.30%	2.87%	2.92%	2.85%	3.08%
7	Agroindustrijsko komercijalna banka AIK banka a.d. Beograd	2.94%	2.76%	2.38%	1.78%	3.17%
8	Erste Bank a.d. Novi Sad	3.16%	2.84%	2.80%	2.90%	3.86%
9	Eurobank Direktna akcionarsko društvo Beograd	3.74%	3.12%	2.09%	2.83%	3.66%
10	ProCredit Bank a.d. Beograd	2.07%	1.97%	2.07%	2.64%	3.50%
11	Halkbank a.d. Beograd	4.33%	3.66%	3.39%	3.68%	5.43%
12	Addiko Bank a.d. Beograd	3.78%	3.60%	3.67%	3.89%	4.42%
13	ALTA banka a.d. Beograd	3.11%	2.90%	1.84%	2.07%	2.88%
14	Srpska banka a.d. Beograd	1.74%	1.28%	1.72%	1.52%	2.56%
15	Bank of China Srbija a.d. Beograd	1.41%	0.18%	0.05%	0.63%	2.71%
16	Mobi Banka a.d. Beograd	3.07%	2.79%	4.29%	4.75%	4.87%
17	3 BANKA a.d. Novi Sad	12.15%	9.39%	11.38%	10.84%	11.04%
18	Adriatic Bank akcionarsko društvo Beograd	3.14%	2.49%	2.38%	2.73%	2.59%
19	API Bank a.d. Beograd	1.99%	1.37%	1.64%	2.07%	2.86%
20	MIRABANK a.d. Beograd	2.22%	2.28%	1.81%	2.79%	3.85%
	AVERAGE VALUE	3.38%	2.89%	2.88%	3.08%	4.04%

Chart 25 is shown below, which refers to the average value of profitability indicators in the period from 2019 to 2023.

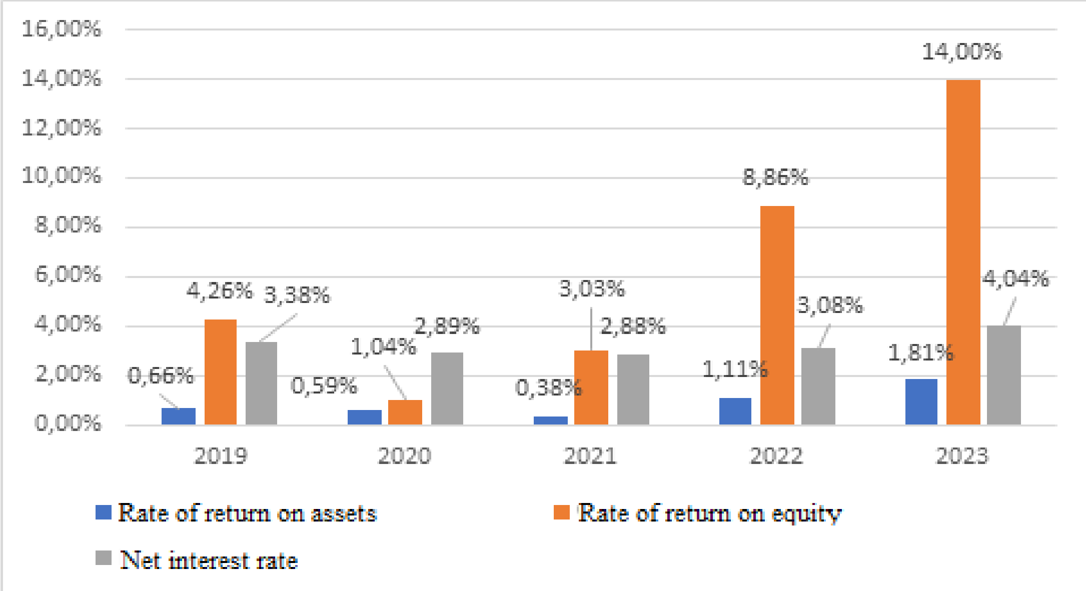

Chart 25: Profitability Indicators 2019 – 2023

5. Conclusion

The purpose of this paper, entitled "Analysis of Financial Performance of commercial banks", was to show the concept and importance of a bank as a financial institution, to define the concept of financial performance, to present instruments for calculating financial performance and to choose those that are adequate for evaluating the financial performance of commercial banks.

The theoretical part of the paper presents the bank as a financial institution, the concept of financial performance, financial analysis, its importance and instruments were presented, and then adequate indicators were chosen that can be effectively applied when analysing the financial performance of commercial banks.

In the practical part of the paper, the specific application of the selected indicators for the analysis of the financial performance of commercial banks in the territory of the Republic of Serbia is shown. Twenty commercial banks were analysed, each one individually, and then a comprehensive analysis of the complete system of commercial banks in the Republic of Serbia was given.

Based on the presented theoretical considerations, it can be said that commercial banks are the key institutions of the financial system of every country. Commercial banks, through their primary function of collecting and allocating free funds, enable the normal functioning of the entire economic system. Due to the banks, the surplus funds of both individuals and legal entities are directed towards business entities that need the funds, thus ensuring continuous development and prosperity. During the performance of their basic activities, banks encounter numerous risks that can threaten their operations and which they must effectively manage in order to ensure their safety, and therefore the safety of their clients and the economic system as a whole. By managing these risks, banks must measure certain performances, which are a measure of the achieved success of their business. Owing to the measurement and analysis of performance, banks gain insight into the state of their business system and the ability to react on time in order to improve performance or eliminate the difficulties that have arisen. The timely reaction of the bank and the undertaking of adequate measures and procedures, in addition to enabling its smooth operations and the realization of its primary function of increasing the owner's capital, also ensure the stability of the financial system as a whole. Financially healthy and stable banks, which are effectively and efficiently managed, instil confidence in their clients and ensure the smooth functioning of the economy of each country.

Based on the practical part of this paper, we can say that there are clear differences in the financial performance of small and large banks operating in the Republic of Serbia. While large banks increased their regulatory capital, small banks maintained it at a relatively stable level. The capital adequacy of smaller banks was relatively higher compared to the capital of large banks, which indicates a lower exposure to operational and credit risk, which is an expected consequence of the smaller number of clients and the volume of funds they manage. It should be pointed out that the majority of smaller banks had higher liquidity indicators than large banks, which indicates inadequate allocation of funds and management's aversion to risk. The biggest problem of small banks in the observed period was profitability, which for the majority was unfavourable in 2020 and 2021, due to the inability to adapt to the changes caused by the epidemic of the COVID-19 virus.

Finally, we can conclude that the system of commercial banks in the Republic of Serbia is healthy and stable. All analysed banks in the observed period from 2019 to 2023 recorded indicators of financial performance that were at a satisfactory level and within the prescribed framework.

It is recommended that additional indicators, other than those prescribed by law, which were used in this paper, are included in the analysis during further investigations of financial performance. In order to obtain the most accurate results, it is desirable to analyse the internal indicators of the banks' financial performance, which will give an insight into their real state.

References

Andrijanić I. & Klasić K. (2003) Tehnike osiguranja i reosiguranja. Ekonomski fakultet u Zagrebu, Zagreb.

Bogojević-Arsić, V. (2004). Tržište hartija od vrednosti. Fakultet organizacionih nauka, Beograd.

Dabić S., Vasiljević B., Barjaktarović Rakočević S., Milošević N. (2013). Bankarski menadžment (skripta). Fakultet organizacionih nauka, Beograd.

dictionary.cambridge.org [https://dictionary.cambridge.org/dictionary/english/performance/ Access date 26.06.2024.]

dizionari.corriere.it [https://dizionari.corriere.it/dizionario_italiano/P/prestazione.shtml Access date: 26.06.2024.]

Franceschini, F., Galetto, M., & Maisano, D. (2007). Management by measurement: Designing key indicators and performance measurement systems. Springer Science & Business Media.

Jasienė, M., Martinavičius, J., Jasevičienė, F., & Krivkienė, G. (2012). Bank liquidity risk: Analysis and estimates. Business, management and education, 10(2), 186-204.

Knežević S. (2019). Finansijsko izveštavanje. Samostalno izdanje autora, Beograd.

Knežević S., Mitrović A., Vujić M., Grgur A. (2019) Analiza finansijskih izveštaja. Samostalno izdanje autora, Beograd.

Knežević, S., Mitrović, A., & Ilić, Z. (2016). Pogled na izveštavanje o tokovima gotovine iz različitih perspektiva. HiT menadžment, 4(2), 36-47.

larousse.fr [https://www.larousse.fr/dictionnaires/francais/performance/ Access date: 26.06.2024.]

Milosavljević M., Obradović T., Dmitrović V., Rakić N., Barjaktarović Rakočević S. (2022). Evaluacija finansijskih performansi. Fakultet organizacionih nauka, Beograd.

nbs.rs (2024) [https://www.nbs.rs/sr/finansijske-institucije/banke/upravljanje-rizicima/ Access date: 25.06.2024.]

nbs.rs (2024) [https://www.nbs.rs/sr/finansijske-institucije/banke/upr-rizikom-likvidnost/index.html Access date: 27.06.2024.]

tvojnovac.nbs.rs (2024) [https://tvojnovac.nbs.rs/cirilica/finansijski-proizvodi/krediti/, Access date: 24.06.2024.]

Vuković Perduv, V. (2024). Finansijsko izvještavanje u funkciji korporativnog upravljanja privrednim društvom. REVIZOR - Časopis za upravljanje organizacijama, finansije i reviziju, *27*(105), 105–112. https://doi.org/10.56362/Rev24105105V

Žarkić Joksimović, N., Bogojević Arsić, V., Dmitrović, V. (2020). Računovodstvo, Fakultet organizacionih nauka, Beograd

Žarkić-Joksimović, N., Benković, S., & Milosavljević, M. (2013). Finansijski menadžment. Fakultet organizacionih nauka, Beograd.