

How to Cite:

Abdelatif, T., Bachir, B. amor M., Fateh, S., & Khalida, A. (2024). Performance evaluation of banks using the CAMELS Model: A case study of the national bank of Algeria (2022–2023). *International Journal of Economic Perspectives*, 18(11), 2680–2698. Retrieved from <https://ijeponline.org/index.php/journal/article/view/747>

Performance evaluation of banks using the CAMELS Model: A case study of the national bank of Algeria (2022–2023)

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Abstract---This article addresses one of the most important topics in evaluating bank performance, focusing on the discussion of bank performance assessment using the CAMELS method. This method is considered one of the most advanced and modern tools employed by developed banks to predict and evaluate financial risks. It utilizes a set of indicators, criteria, and model-based approaches to prevent financial crises and mitigate their occurrence in the future. Additionally, it is regarded as an effective approach that ensures a conducive environment for banks to operate within the framework of transparency and oversight currently in use.

Keywords---Performance, Performance Evaluation, CAMELS Model, National Bank of Algeria.

Introduction

Banks, in their various forms and types, especially in developed and developing countries, are often exposed to crises and disruptions that can lead to their

collapse. These institutions represent one of the primary sectors of great significance in the economic and social life of these countries. It is therefore essential to subject this sector to regulatory oversight to maintain the financial stability of banks.

The Algerian Agricultural and Rural Development Bank (BADR) is one of the key successful institutions within this vital and sensitive sector, particularly in the national economy. Effective regulation of banks requires adopting various criteria to measure their performance stability. This study focuses on using a specific framework that assesses bank performance, classifies institutions, and detects financial imbalances at an early stage to prevent unexpected financial crises or collapses. This framework is known as the Early Warning System, or the **CAMELS model**.

From this perspective, the following primary research question is posed: **How can the performance of the National Bank of Algeria be evaluated using the CAMELS model?**

From this main question, the following sub-questions arise:

- What does performance evaluation mean?
- What is the CAMELS model, and what are its indicators?
- Can the CAMELS model be applied to the National Bank of Algeria?

Hypotheses

To answer these questions, the following initial hypotheses are proposed:

- Performance evaluation refers, in summary, to measuring efficiency and effectiveness.
- The CAMELS model is a set of indicators used to determine a bank's financial position and classification.
- The National Bank of Algeria can implement the CAMELS model.

Research Significance

The importance of this research can be summarized as follows:

- To define and highlight the significance of evaluating bank performance.
- To clarify the concept and importance of the CAMELS model.
- To demonstrate how the CAMELS model can be utilized in the National Bank of Algeria.

Research Objectives

The researchers aim to achieve the following objectives:

- Understand how banks, in general, and the National Bank of Algeria, in particular, evaluate performance.
- Identify the key methods and indicators used in performance evaluation, focusing on the CAMELS model.
- Explain how this model functions within the National Bank of Algeria.

Research Structure

To address the above issues, the researchers divided the study into the following sections:

- The nature of performance evaluation.

- Concepts related to the CAMELS model.
- An applied study on the National Bank of Algeria during the period 2022–2023.

To analyze this research problem, the study has been divided into several main sections:

1. The Nature of Performance Evaluation

This section discusses several key points, including the following:

1.1 Concept of Performance Evaluation

The researchers aim to present the most relevant definitions of performance evaluation, including the following:

- It is the process of measuring actual performance, comparing achieved results to pre-established standards derived from expected objectives, identifying deviations, and developing plans to improve performance (1).
- A post-decision-making process that focuses on the financial and economic position of financial institutions at a specific point in time, as seen in the use of financial analysis and managerial audits (2).
- A periodic process involving direct supervisors and their subordinates to review and evaluate achieved results while discussing individual functional development for the jobholder (3).
- The measurement, calculation, and judgment of results. Thus, performance can be understood through qualitative outcomes of specific activities, serving as an indicator of efficiency and effectiveness (4).

2.1. Importance of Performance Evaluation

Performance evaluation plays a crucial role in banks, whether in the public or private sector, as it serves as an alternative to intrinsic motivation that drives private activities and supports management in achieving its objectives. As a core component of oversight, performance evaluation relies on comparing actual performance across activities. It is an essential managerial process since it reflects the outcomes of various activities and provides insights into their results. The importance of performance evaluation can be summarized as follows (5):

- **Measuring Success:** Performance evaluation provides a measure of the bank's success in continuing its operations and achieving its goals. It also offers essential information for planning, monitoring, and decision-making at various levels based on practical evidence.
- **Identifying Key Areas:** It helps financial institutions direct senior management toward areas of responsibility that require closer supervision.
- **Guiding Decision-Making:** Assists department heads in making decisions to achieve objectives by steering measurable and evaluative activities.
- **Assessing Financial Health:** It evaluates liquidity and profitability levels in the context of investment and financing decisions, associated risks, and dividends. This supports efforts to maximize the institution's present value while maintaining liquidity and preventing bankruptcy, achieving appropriate returns on investments (1).

- **Evaluating Employees:** It aids in selecting employees by assessing their academic and technical levels and integration into the work environment. It also helps judge the success or failure of recruitment policies in providing suitable human resources (2).

3.1. Types and Areas of Performance Evaluation

Performance evaluation involves various types and areas, which include the following:

1.3.1. Types of Performance Evaluation

There are several types of performance evaluation, including (3):

- I. **Planned Performance Evaluation:**
This type of evaluation measures how well planned objectives are met by comparing the planned indicators and policies with actual results over specific time periods. These periods may be monthly, quarterly, annually, or medium-term (three to five years). This approach assesses the evolution of actual performance across activities.
- II. **Comprehensive Performance Evaluation:**
This evaluation considers all aspects and activities, using planned, actual, and standard indicators for measurement. Weights are assigned to activities, reflecting the level of importance deemed suitable by senior management. By combining these weights with planned, actual, and standard indicators, a comprehensive performance score is determined.
- III. **Actual Performance Evaluation:**
This type of evaluation examines the actual utilization of all available resources—both material and human. It compares actual figures to identify discrepancies and measure resource utilization in the production process. This involves analyzing the actual indicators for a specific fiscal year and comparing them with those of previous years within the same bank.
- IV. **Standard or Benchmark Performance Evaluation:**
This evaluation compares actual results with benchmark results. It involves two types of comparisons:
 - Comparing achieved results (e.g., profits, added value) with benchmarks set as reference points.
 - Comparing efficiency ratios or rates with their standard benchmarks, which are based on predefined conditions, such as capabilities and resources.

1.3.2. Areas of Performance Evaluation

Performance evaluation can be categorized into three primary areas (4):

- I. **Evaluating Business Results Against Targets:**
- II. This area involves assessing the results of execution to ensure that the economic impacts and developments align with planned objectives. It also helps identify and address weaknesses.
- III. **Monitoring and Following Up on Plans:**
After establishing plans, the bank must track their progress by comparing actual achievements against scheduled objectives. This entails frequent comparisons of actual results with planned goals to monitor execution closely and address discrepancies promptly.

1. **Monitoring Individuals:**

2. The bank ensures that all aspects of its activities and objectives are executed with the highest efficiency. This involves overseeing and evaluating individual performance and working on improvements to enhance overall effectiveness.

The following figure illustrates the areas of performance evaluation:

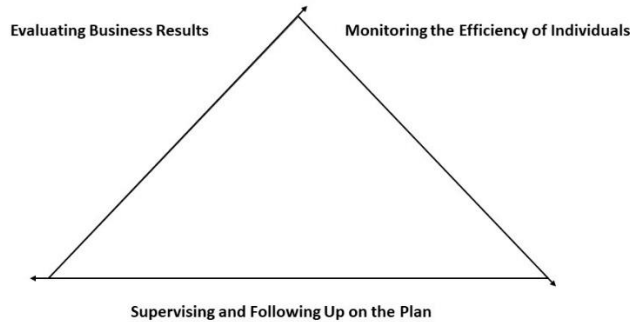


Figure 1: *Areas of Performance Evaluation*

Source: Mansour Hamid Al-Mahmoud and Thanaa Atiyah Faraj, same reference as above, p. 76.

1.4. Components and Stages of Performance Evaluation

Performance evaluation in banks is characterized by various elements and stages that contribute to its effectiveness. These include:

1.4.1. Components of Performance Evaluation

Successful performance evaluation involves several key components (1):

- I. **Economic Performance Evaluation:**
This component focuses on utilizing all resources at the lowest possible cost while ensuring appropriate quality and standards aligned with predetermined objectives.
- II. **Efficiency Evaluation:**
Efficiency refers to the output per unit of input. Thus, efficiency evaluation is defined as the ratio or physical measurement of outputs (goods and services) resulting from operational activities relative to the cost of these activities or programs.
- III. **Evaluation Procedures:**
This involves specific procedures, most notably conducting interviews with employees to provide them with relevant information that can help improve their future performance. Such interviews are referred to as evaluation interviews (2).
- IV. **Effectiveness Evaluation:**
Effectiveness evaluation seeks to establish a connection between the product and its objectives. It involves assessing how well the unit achieves

its goals while maximizing benefits at lower costs, ensuring that set objectives are met as planned.

V. **Timing and Duration of Evaluation:**

Determining the appropriate timing and duration for performance evaluation can be challenging. However, leveraging insights from personnel management consultants can help. Employees are provided with feedback about evaluation results, weaknesses are identified, and guidance is offered to modify behavior and improve efficiency and effectiveness (1).

VI. **Environmental Evaluation:**

This component focuses on preserving the environment and geographic areas. It evaluates the extent to which the bank contributes positively to its surrounding environment and identifies potential negative impacts and barriers affecting it.

1.4.2. Stages of Performance Evaluation

Performance evaluation requires a series of stages, as outlined below (2):

I. **Identifying the Activity to Be Evaluated:**

Senior and executive management must determine the results achieved, activities performed, and actual implementation of programs, policies, strategies, and plans. The focus should be on measurable activities, especially those deemed most critical.

II. **Planning:**

This stage involves preparing all estimated lists and budgets, identifying methods, tools, and criteria for evaluation, and specifying responsible centers and anticipated future objectives.

III. **Setting Performance Standards:**

Performance standards serve as benchmarks set by management to evaluate performance. These standards detail strategic objectives and assess the extent of their achievement. They allow for tolerance of deviations within acceptable limits.

IV. **Measuring Performance:**

This involves collecting data that represent the actual performance of activities or individuals. Actual performance measurement should encompass both quantitative and qualitative aspects. Metrics can include units such as hours, meters, reports, errors, or the number of qualified employees, helping identify deviations in operations or design specifications.

V. **Taking Corrective Actions:**

This is the final stage, where banks address discrepancies by:

- Ensuring actual performance matches planned performance.
- Addressing deviations from planned performance by diagnosing their causes and implementing solutions. This involves comprehensive diagnosis, identifying underlying issues, and setting realistic future objectives. Banks may also adjust goals and eliminate causes of deviations.

2. Concepts of the CAMELS Model

The CAMELS model is a key indicator used to measure and evaluate the performance of modern banks. This section explores its origin, development, definition, and major components.

2.1. Origin and Development of the CAMELS Model

There are varying opinions among scholars and economists regarding the origin and development of the CAMELS model. The United States is considered one of the first countries to adopt this model, following banking collapses in 1933, during which over 4,000 local banks declared bankruptcy. This crisis led to the establishment of the Federal Deposit Insurance Corporation (FDIC), as the banking system experienced a loss of public trust and a rush of deposit withdrawals. A similar collapse occurred in 1988, resulting in the failure of 221 banks (1).

An analysis conducted by the Federal Reserve Bank raised questions about the credibility of traditional methods for assessing banks' financial stability. Economists found that the CAMELS model was more effective in identifying deficiencies in banks and assessing their financial health than traditional statistical methods. Studies also demonstrated the model's ability to detect risk levels within banks before they became evident through market mechanisms and pricing. Consequently, researchers and analysts advocated for making the CAMELS analysis results publicly available. They also recommended including CAMELS findings in the annual financial statements disclosed by banks, emphasizing its role as a cornerstone of the Basel II regulatory framework for banking supervision (2).

2.2. Definitions of the CAMELS Model Below are some of the key definitions of the CAMELS model:

The CAMELS model relies on analyzing annual financial returns submitted by banks to the central bank. It then evaluates and ranks these returns based on four of the six CAMELS components: capital adequacy, asset quality, profitability, and liquidity. However, it does not include management quality and sensitivity to market risk (3).

- **CAMELS Methodology:**

The CAMELS methodology uses a set of indicators to analyze a bank's financial status and determine its rating. It is one of the direct supervisory methods conducted through on-site inspections. U.S. regulatory authorities have utilized and relied on CAMELS results for decision-making purposes (4).

- **CAMELS Indicator Definition:**

The CAMELS indicator is a quick tool to grasp the financial position of any bank and determine its classification. It is also a direct supervisory method conducted through field inspections (5).

2.3. Key CAMELS Components

Financial institutions seek to evaluate their performance by applying several criteria. These criteria rely on specific steps and methods to assess their

performance before disruptions or crises occur. The main components are summarized as follows (6):

2.3.1. Capital Adequacy:

Capital adequacy indicators assess the resilience of financial institutions to shocks affecting balance sheet items. Their importance lies in accounting for critical financial risks faced by institutions. Examples of these indicators include:

- Risk-weighted aggregate capital ratios.
- Frequency distribution of capital adequacy rates.

2.3.2. Asset Quality Indicators:

The credibility of capital adequacy rates depends on the reliability of asset quality indicators. Insolvency risks in financial institutions often arise from the nature and manageability of their assets. Thus, monitoring asset quality indicators is essential.

2.3.3. Management Soundness Indicators:

Management soundness is crucial for financial institutions' performance. While most management indicators are qualitative rather than quantitative, they are primarily applied at the company level. Some quantitative indicators include:

- Spending ratios.
- Revenue per employee.
- Expansion in the number of financial institutions.

2.3.4 Revenue and Profitability Indicators:

Low profitability ratios may indicate financial difficulties, while very high ratios could reflect risky investment policies. Profitability assessment ratios include:

- Return on assets (ROA).
- Return on equity (ROE).
- Income-to-expense ratios.
- Structural indicators.

2.3.5 Liquidity Indicators:

Inadequate liquidity management often leads to financial insolvency. Monitoring liquidity indicators is crucial and should address mismatches in asset-liability maturities across the financial sector or within large financial institutions. Relevant indicators include:

- Central bank facilities provided to commercial banks.
- Fragmentation in interbank lending rates.
- Deposit-to-money supply ratios.
- Deposit-to-loan ratios.
- Asset-liability maturity structures.
- Secondary market liquidity.

2.3.6 Sensitivity to Market Risk Indicators:

This component primarily pertains to the investment portfolios of banking institutions, which include various financial instruments such as equities, government and corporate bonds, foreign securities, and derivatives. Each instrument has its own risk measures, but the unified statistical measure for

assessing these risks is Value at Risk (VAR). This metric estimates the maximum expected loss in an investment portfolio over a specific time horizon (3).

3. Applied Study on the National Bank of Algeria (BNA)

3.1. Concept of the National Bank of Algeria:

The National Bank of Algeria (BNA) is a joint-stock company (SPA) established following the nationalization of Algeria's banking system under Decree No. 66/178, issued on June 13, 1966. It is considered the first commercial bank established in Algeria after independence, with an initial capital of 20 million Algerian dinars. During the colonial era, foreign banks operated in Algeria, including:

- **Algerian-Tunisian Real Estate Credit:** Merged on July 1, 1966, with 133 branches.
- **Industrial and Commercial Credit:** Merged on July 1, 1967, with three branches.
- **National Bank of Commerce and Industry in Africa:** Merged on January 1, 1968, with six branches.
- **Bank of Paris and the Netherlands:** Merged in May 1968, with one branch.
- **Mascara Discount Office:** Merged in June 1968, with one branch.

3.2. Requirements of the CAMELS Model for Bank Performance Evaluation:

The CAMELS model has been refined to enhance its efficiency in bank oversight by providing a framework for internal evaluation and classification. It assesses performance levels based on the six key components previously mentioned. Banks are rated on a scale of 1 to 5, with 1 representing the highest rating (best performance) and 5 representing the lowest (weakest performance). The average rating of the six components determines the bank's overall classification, as shown in Table 1.

Table 1: *Bank Classification According to the CAMELS Model*

Overall Ratio	Rating	Bank Status	Supervisory Action
1 - 1.4	1 - Strong	Sound in all aspects	No action required
1.5 - 2.4	2 - Satisfactory	Relatively sound with some deficiencies	Address shortcomings
2.5 - 3.4	3 - Fair	Displays strengths and weaknesses	Close monitoring and supervision
3.5 - 4.4	4 - Marginal	Risk of failure	Remedial program and field follow-up
4.5 - 5	5 - Unsatisfactory	Very critical	Permanent supervision

Source: Abdelkader Zitouni, previous reference, 2009, p. 11.

3.3. Evaluation of the National Bank of Algeria's Performance for 2021 and 2022 According to the CAMELS Model

In this section, the researchers calculated the six indicators of the CAMELS model for the National Bank of Algeria for the years 2021 and 2022. Based on these calculations, the bank's performance and classification are evaluated according to the criteria outlined in the model. The findings are analyzed to assess the bank's overall performance as follows:

3.3.1. Evaluation of the Capital Adequacy Indicator

Table 2 below illustrates the capital adequacy ratio for the National Bank of Algeria during the two years under study. According to Article 03 of Instruction 74–94, the minimum capital adequacy ratio is 8%. The capital adequacy ratio is calculated as:

$$\text{Capital Adequacy} = \text{Core Capital} / \text{Total Assets}$$

Table 2: Capital Adequacy Ratio and Classification of the National Bank of Algeria

Details	Years 2021	2022
Capital Adequacy Ratio	3.35%	2.66%
Partial Rating	3	3
Average Rating	$(3+3)/2 = 3$	
Final CAMELS Rating	3	

Source: Prepared by the researchers based on bank documents:

<https://www.bna.dz>

From **Table 2**, it is evident that the capital adequacy ratios for both years are below the 8% minimum requirement outlined in Article 3 of Instruction 74–94. Consequently, the bank's capital adequacy was classified as "Fair" (CAMELS rating 3). This indicates that the bank's capital adequacy is in a reasonable state, requiring the identification of strengths and weaknesses and the implementation of close monitoring and supervisory actions to mitigate risks associated with its assets.

3.3.2. Evaluation of the Asset Quality Indicator

The components of this indicator can be summarized briefly. Asset quality is evaluated using the following ratios:

- **Earning Assets to Total Assets Ratio:** This is calculated as **Earning Assets / Total Assets**. The ratio should not fall below 80%, reflecting the bank's focus on acquiring revenue-generating assets.
- **Weighted Classification Ratio (WCR):** This is calculated as **Provisions / (Equity + Provisions)**. It measures the proportion of provisions relative to equity and provisions. The classification for WCR is illustrated in **Table 3** below:

Table 3: Weighted Classification Ratios (WCR)

Rating	WCR (%)
1	WCR < 5%
2	5% < WCR < 15%
3	15% < WCR < 35%
4	35% < WCR < 60%
5	WCR > 60%

This classification highlights the quality of assets and provides insights into the bank's financial health. Further analysis of WCR results can help assess the sustainability of the bank's asset management strategies.

3.3.2.1. Analysis of the Asset Quality Indicator for the National Bank of Algeria

Based on **Table 3**, the profitability of the National Bank of Algeria for the years 2021 and 2022 is analyzed and classified as shown in the table below:

Table 4: Asset Quality Ratio and Classification for the National Bank of Algeria

Details	Years	2021	2022
Earning Assets to Total Assets Ratio		2.11%	1.50%
Partial Classification		2	2
Average Classification		$(2 + 2) / 2 = 2$	
Overall Classification		2	
Weighted Classification Ratio (WCR)		1.91%	0.92%
Partial Classification		1	1
Average Classification		$(1 + 1) / 2 = 1$	
Overall Classification		1	
Average Ratio Classification		$(1 + 2) / 2 = 1.5$	
Final Bank Classification According to CAMELS		2	

Source: Prepared by the researchers based on bank documents:
<https://www.bna.dz>

From **Table 4**, it is evident that the ratios of earning assets to total assets are weak for both years. Consequently, the asset quality of the National Bank of Algeria is classified as **Category 2**, indicating a satisfactory rating. This suggests that the bank's position is relatively sound, albeit with some deficiencies, necessitating supervisory actions to address these shortcomings. Implementing these measures would ensure increased profitability and sustainability.

Regarding the **Weighted Classification Ratio (WCR)**, the bank's ratios for both years are below 5% (as shown in **Table 3**), leading to an overall **Category 1 rating** for 2021 and 2022. This final classification reflects satisfactory asset quality. It indicates that the bank has managed to control and reduce the volume of non-performing loans, ensuring the regular collection of installments and accrued interest.

However, the bank must take corrective supervisory measures to address asset-related issues. A notable reduction in WCR ratios occurred after the government decided to reschedule debts for certain institutions, defer payments, and have the public treasury cover the interest payments.

3.3.3. Evaluation of the Management Quality Indicator for the National Bank of Algeria (2021–2022)

This component includes the analysis of five qualitative indicators used to assess the quality of bank management:

- **Governance:**
The performance of the Board of Directors is evaluated based on the diversity of technical expertise and its ability to make decisions independently of management, effectively and flexibly.
- **Human Resources:**
This criterion assesses whether the Human Resources (HR) department provides clear advice and guidance and influences employees through recruitment, training standards, worker incentives, and performance evaluation systems.
- **Monitoring and Auditing:**
The effectiveness of core operational processes in managing organizational risks is evaluated through assessments of internal controls, and the quality of both internal and external audits.
- **Information Systems:**
The efficiency and effectiveness of the information system are assessed based on its ability to produce accurate and timely annual reports.
- **Strategic Planning:**
This evaluates whether the institution has developed an integrated approach to short- and long-term financial forecasting and whether its development plan has been updated.

3.3.4 Evaluation of the Profitability Indicator for the National Bank of Algeria (2021–2022)

In the absence of legal benchmarks for evaluating the profitability of Algerian banks—including reference ratios or standards for comparison—this study analyzes the profitability of the National Bank of Algeria using the following two ratios:

1. **Return on Equity (ROE):** Calculated as **Net Profit / Shareholder Equity**.
2. **Return on Assets (ROA):** Calculated as **Net Profit / Total Assets**.

Based on these ratios, the bank's profitability is classified as shown in **Table 5** below:

Table 5: Profitability Classification for Banks

Classification	ROE Ratio (A)	ROA Ratio (B)
1	$A \geq 0.4$	$B \geq 1\%$
2	$A < 0.2$	$0.75\% < B < 1\%$
3	$A < 0.1$	$0.5\% < B < 0.75\%$
4	$A < 0.05$	$0.25\% < B < 0.5\%$
5	$A < 0.01$	$B < 0.25\%$

3.3.4.1. Analysis of Profitability Management Indicator for the National Bank of Algeria

Based on the above table, the profitability of the National Bank of Algeria for the years 2021 and 2022 can be analyzed and classified as shown in the table below:

Table 6: Profitability Management Ratio and Classification for the National Bank of Algeria

Details	Years	2021	2022
Return on Equity Ratio (A)		17.42%	12.16%
Partial Classification		2	2
Average Classification		$(2 + 2) / 2 = 2$	
Overall Classification		2	
Return on Assets Ratio (B)		1.32%	0.83%
Partial Classification		1	2
Average Classification		$(2 + 1) / 2 = 1.5$	
Overall Classification		2	
Average Ratio Classification		$(2 + 2) / 2 = 2$	
Final Bank Classification According to CAMELS		2	

Source: Prepared by the researchers based on bank documents:

<https://www.bna.dz>

From **Table 6**, the return on equity (ROE) and return on assets (ROA) ratios for the two years can be observed. Using the classifications outlined in **Table 5**, the profitability management indicator for the National Bank of Algeria was classified as **Category 2 (Satisfactory)** under the CAMELS model. This indicates that the bank is relatively sound, with some deficiencies in profitability management.

To address these shortcomings, the bank should take corrective actions to achieve better profitability and generate sufficient income to meet reserve formation requirements, support capital growth, and distribute reasonable

dividends to shareholders. Additionally, the bank should avoid relying on exceptional income sources to achieve profitability while focusing on cost and expense control.

3.3.5. Evaluation of the Liquidity Management Indicator for the National Bank of Algeria (2021–2022)

The liquidity of the National Bank of Algeria will be analyzed using the following ratios:

- **Loans-to-Deposits Ratio:** Calculated as **Total Loans / Total Deposits**.
- **Loans-to-Total Assets Ratio:** Calculated as **Total Loans / Total Assets**.

The liquidity classifications based on these ratios are shown in **Table 7** below:

Table 7: Liquidity Classification for Banks

Classification	Loans-to-Deposits Ratio	Loans-to-Total Assets Ratio (D)
1	55% or above	D < 50%
2	66% or above	D < 60%
3	65% or above	D < 65%
4	70% or above	D < 70%
5	71% or above	D > 70%

1.5.3.3. Analysis of Liquidity Management Indicator for the National Bank of Algeria

The liquidity of the National Bank of Algeria for the years 2021 and 2022 is analyzed and classified as shown in **Table 8** below:

Table 8: Liquidity Management Ratio and Classification for the National Bank of Algeria

Details	Years	2021	2022
Loans-to-Deposits Ratio		221.20%	220.60%
Partial Classification		5	5
Average Classification		$(5 + 5) / 2 = 5$	
Overall Classification		5	
Loans-to-Total Assets Ratio (D)		9.20%	8.90%
Partial Classification		1	1
Average Classification		$(1 + 1) / 2 = 1$	
Overall Classification		1	
Average Ratio Classification		$(1 + 5) / 2 = 3$	
Final Bank Classification According to CAMELS		3	

Source: Prepared by the researchers based on bank documents:

<https://www.bna.dz>

From **Table 8**, it can be observed that the **loans-to-deposits ratios** for both years 2021 and 2022 were significantly high. Consequently, the bank's liquidity was classified as **Category 5**, based on **Table 7**, indicating that loans constitute the largest portion of the bank's assets. This poses a liquidity risk, as the bank may face difficulties in covering deposits during these years.

In contrast, the **loans-to-total assets ratios** for the same period were notably low, as shown in **Table 8**. According to the classifications in **Table 7**, the bank was rated as **Category 1** for this ratio, reflecting liquidity levels well below 50%. This suggests that the bank relies heavily on loans, making it financially dependent.

Final Liquidity Classification

The final liquidity classification of the National Bank of Algeria under the CAMELS model was **Category 3**, based on the average classification for the two years and using the classifications in **Table 1**. This implies that the bank's liquidity management demonstrates a reasonable performance, albeit with room for improvement.

The classification highlights the bank's reliance on its strengths while addressing its weaknesses. To enhance liquidity management and ensure sustainability, the bank must implement ongoing supervisory measures and closely monitor deficiencies for corrective actions. This would help maintain effective liquidity management and prevent potential risks in the future.

3.3.6. Evaluation of the Sensitivity Indicator of the National Bank of Algeria to Market Risks

This section summarizes the evaluation and analysis of the National Bank of Algeria's sensitivity to market risks. Due to the lack of capital markets in Algeria, market risk is defined as the risk of losses from positions held within and outside the institution's balance sheet due to price volatility in the market. Market risks arise from instability in the following market indicators: interest rates, exchange rates, and stock market indices. They include:

- **Interest Rate Risk:** Occurs when the bank's profitability is affected by changes in interest rate levels.
- **Exchange Rate Volatility Risk:** Arises from fluctuations in exchange rates.
- **Pricing Risk:** Refers to losses incurred by the bank due to adverse market price changes, stemming from fluctuations in bond, stock, and commodity markets.

4. Final Classification of the National Bank of Algeria

After a detailed analysis of each CAMELS model criterion and assigning unified ratings for each indicator (capital adequacy, asset quality, profitability, and liquidity), the final classification of the bank is summarized in **Table 9** below:

Table 9: Final Classification of the National Bank of Algeria

Classification	Indicators	Capital Adequacy	Asset Quality	Profitability	Liquidity
Individual Indicator Ratings		3	2	2	3
Average Individual Rating		$(3 + 2 + 2 + 3) / 4 = 2.50$			
Final Classification		3			

Source: Prepared by the researchers based on previous tables.

From **Table 9**, the final classification of the National Bank of Algeria, according to the CAMELS model, is **Category 3**. This classification indicates that the bank is in a "Fair" state, reflecting a performance that is reasonable overall. The bank exhibits both strengths and weaknesses in certain indicators, necessitating supervisory guidance, corrective measures, and close monitoring of identified weaknesses.

To achieve a stronger, sounder, and more satisfactory position, the bank should implement all necessary measures and corrective actions within a reasonable timeframe.

Conclusion

This study focused on evaluating bank performance using the CAMELS model. The researchers divided the study into four key components:

1. The concept of performance evaluation.
2. Understanding the CAMELS model.
3. The practical study of the National Bank of Algeria.
4. The bank's final (overall) classification.

The study aimed to answer the central research question: *How can the performance of the National Bank of Algeria be evaluated using the CAMELS model?* From this, the following conclusions were drawn:

- **Performance Evaluation as a Core Driver:** Performance evaluation is a fundamental mechanism in banking operations, guiding the monitoring and direction of activities to align with the bank's strategy and objectives.
- **A Structured Oversight Process:** Performance evaluation is a supervisory process carried out in stages, starting with defining objectives within the scope of available resources, developing a clear plan or timeline, outlining methods to achieve the goals, and conducting follow-ups to determine efficiency at each stage.
- **CAMELS Addresses Key Banking Issues:** The CAMELS model addresses bank issues across six dimensions: capital adequacy, asset quality, management quality, profitability, liquidity, and sensitivity to market risks.
- **CAMELS as a Diagnostic and Improvement Tool:** The CAMELS model identifies strengths for enhancement and detects weaknesses for

correction and improvement. This makes it an effective tool for assessing overall bank performance.

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Appendix 1: (All amounts in billion Algerian Dinars)

Details	Years 2022	2021
Core Capital	15,000,000,000	15,000,000,000
Total Assets	5,641,638,620	4,481,253,482
Equity	38,296,234,400	33,891,162,900
Deposits	227,362,400	186,210,400
Loans	501,573,200	411,875,800
Provisions	358,980,000	660,610,000
Earning Assets	8,465,137,600	9,461,740,000

Source: Prepared by the researchers based on bank documents:
<https://www.bna.dz>.