

Analysis of The Main Financial Stability Indicators of Algerian Public Banks: Rating by the CAMELS Model (2013-2024)

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Abstract

This article discusses the evolution of the Algerian banking sector, emphasizing the effectiveness of the CAMELS model for risk management and decision-making in the face of sector vulnerabilities during times of crisis. The study proposes a comparative analysis of the main financial solidity indicators of the six Algerian public banks, chosen for their robustness in the local financial market. The methodology adopted is both descriptive and analytical, based on the examination of the financial achievements of these banks from 2013 to 2024. The results indicate that the CAMELS model proves to be an effective tool for evaluating quantitative financial performance. However, some components of the model pertain to qualitative elements subject to subjective assessments, particularly regarding management, making their evaluation difficult.

Keywords: *Financial Indicators, Rating, CAMELS Model, Algerian Public Banks, Financial Soundness.*

Jel Classification: G17, G21, G24, L25.

INTRODUCTION

The COVID-19 pandemic is a calamity (HAMDI, 2022) that caused a severe contraction and led to an unprecedented global economic crisis, affecting all sectors of activity, including the financial sector. Algeria, like many other countries, was severely affected by the pandemic. In a context of financial instability linked to various shocks (fall in oil revenues, decrease in foreign exchange reserves, and restrictions due to the health crisis).

According to (GADI & DEBECH, 2021), this health crisis had negative repercussions on the oil market, which finances the majority of Algerian economic activity. Indeed, the price of oil reached 20 dollars in April 2020, whereas it nearly touched 80 dollars in 2018. This drop adds to the one in 2014, when the price of oil fell to 35 dollars. All these problems caused by the health shock have become explosive for the Algerian banking system. Moreover, the lockdown, travel restrictions, and the decline in overall demand (SNOUSSI, 2020) have led to a sharp contraction in economic and social activity (BELOUTI & AIT MOKHTAR, 2020).

The Algerian banking sector, already facing structural challenges such as a heavy dependence on hydrocarbons and low economic diversification, had to deal with increased pressures. Indeed, Algerian banks, as key financial intermediaries, have faced major challenges (SMAILI, 2021), such as a lack of liquidity, deterioration in asset quality, declining profitability, and increased credit risk. The resilience of the banking sector, that is, its ability to absorb shocks and continue to operate efficiently, has therefore become a central concern for regulatory authorities and market players.

In order to address the issues of liquidity shortages and to enable financial institutions to carry out their operations. The Bank of Algeria is once again taking action to exempt banks from the obligation to maintain security reserves. The central bank has just renewed measures to ease certain prudential provisions applicable to banks and financial institutions. These measures aim to help national companies facing the repercussions of the health crisis (TAHRI, DOUAH, & MESSAOUDI, 2021).

Mandatory reserves remain one of the monetary policies to be activated by the Bank of Algeria to restore market equilibrium in times of crisis (TOUIL, 2015). Indeed, it lowered the reserve requirement rate to try to regulate bank liquidity from 10% to 8% in March, then from 8% to 6% in April, and finally to 3% in September. The pressure on liquidity felt in the money market was reflected in the volume of open market operations with the Bank of Algeria, knowing that according to (DERDER & BENAMMAR, 2022), the liquidity circulating in the informal market is between 1500 and 2000 billion dinars.

As a result, the Bank of Algeria extended for the second time until March 31, 2021, the easing measures of certain prudential provisions applicable to banks and to the financial institutions contained in instruction n° 05 of April 2020. Since September, banks are no longer subject to the requirement to hold reserves. The required reserve ratio (RRR) had dropped from 12% to 0% between the end of 2019 and the end of 2020, indicating an accelerated erosion of bank liquidity, which had fallen from 1,100.8 billion dinars at the end of 2019 to 916.7 billion dinars by the end of May 2020, according to the Bank of Algeria's indications.

During the same period, while the Central Bank was working to ease the pressure on certain institutions that were unable to build reserves even at the 6% rate, the key rate was also lowered by 25 basis points (0.25%) to 3.25. From then on, the notion of financial performance for a bank, which implies its financial health in terms of profitability and solvency and, consequently, its ability to meet its commitments, becomes more than necessary (BENABDALLAH, 2019).

These decisions were intended to free up additional liquidity margins for the banking system and thus provide banks and financial institutions with additional means to support the financing of the national economy at a reasonable cost, and this was decided by the banking authority. Other measures have been taken; these include the deferral of payment for credit installments that have reached maturity or the rescheduling of debts for clients affected by the situation induced by Covid-19, particularly SMEs/SMIs, which represent 90% of the fabric of Algerian companies and contribute 90% of the non-hydrocarbon GDP (HASSAINE & BADRI, 2021).

This measure is taken as part of the continuation of support for national companies in order to reduce the repercussions of the health crisis on their operations. The financial solidity of a banking system is reflected in the efficiency of the banks' balance sheet management. Indeed, the various banks ensure compliance with banking and prudential regulations to address liquidity and solvency risks. (BHADRAPPA & AITHAL, 2021) These two regulations require the continuous monitoring of a set of ratios calculated based on well-defined methods.

In order to ensure optimal banking governance, the CAMELS standard reinforces the conventional control steps established by Algerian banks. CAMEL is primarily a ratio-based model used to assess the performance of banks across various criteria (THAKUR & PATANI, 2023).

The research problem

To what extent are Algerian banks resilient in the face of their accumulated structural weaknesses, which have been exacerbated by the COVID-19 health crisis?

The importance of the study

The calculation and analytical of the rating of the mains financial stability indicators of the public banks in Algeria witch is very important because it will allow us to know the level of risk management and it can be used to compare it with those of crisis times, like the pandemic of COVID-19.

The research Objective

The objective of posing such a question is, first of all, to be able to:

- measure the resilience of Algerian banks for the period 2013-2024;
- identify and pinpoint the factors of resilience;
- highlight the involvement of authorities and decision-making powers in this resilience.

The adopted methodology

This study is original due to the combination of a quantitative study based on real data, drawn from the activity reports of various commercial banks and those of the Bank of Algeria. Moreover, a meticulous reading and institutional analysis were conducted on all Algerian public banks during and after COVID-19 thru various calculated financial solidity indicators, in order to highlight the resilience of these banks, while seeking the factors that enabled them to overcome the health crisis and resume their usual functions following the COVID-19 pandemic.

The work plan

Our work is organized, as follows:

- overview of Banking Resilience;
- the legal and regulatory framework for banking supervision in Algeria;
- evaluation of the financial solidity of Algerian public banks according to the CAMELS model;
- calculation of the notation of the Algerian public banks from 2013 to 2024.

1) Overview of Banking Resilience

Banking solidity is the ability of banks to absorb systemic shocks (financial crises, pandemics...) while maintaining their critical functions. Since the 2008 crisis, this concept has become central to financial regulation (MISHRA & KUMAR ASPAL, 2012).

One of the lessons to be drawn from the 2008 financial crisis regarding financial stability and the development of the banking sector in Algeria is that banking resilience is not limited to deploying the best technological and financial means. It is built on the ability to anticipate unforeseen events, manage the crisis, and above all, bounce back after each incident, as new risks appear each time. It is important to believe that crisis are inevitable (ÇELIK & TUNAY, 2020).

2) The legal and regulatory framework for banking supervision in Algeria

Ordinance n° 03-11 of August 26, 2003, on Currency and Credit, as amended and supplemented, grants the Bank of Algeria (BA, 2026) in particular (IGUERGAZIZ, 2017), the responsibility to ensure the safety and soundness of the banking system. (art.35). This same ordinance imposes on banks the adherence to certain management standards and thus establishes a banking commission as the banking supervisory authority. The main role of the banking commission is to verify the solvency of banks and monitor major risks.

In 1991, the solvency ratio, known as Basel I, was adopted, followed by the standard approach of Basel II in 2014. The main objective of these two solvency ratios is to uphold three pillars, namely the capital requirement, prudential supervision, and ensuring financial communication. The banking commission must verify three categories of risks: credit risk, market risk, and operational risk (MATHIRAJ & RAMYA, 2014).

The latter has set a series of coefficients to ensure good control, namely a minimum solvency coefficient of 9.5%, a core capital coefficient of 7%, and a safety cushion of 2.5%. The banking commission also ensures the establishment of a system related to large risks and participations, as well as the classification of non-current receivables with specific provisioning levels.

The year 2011 was marked by the implementation of a liquidity ratio represented by the calculation of a liquidity coefficient, which is determined by the ratio between liquid assets (weighted according to their liquidity) and due liabilities (weighted according to their due dates) and which must be greater than 100%.

In 2004, a transformation or long-term liquidity ratio, which represents the ratio between equity and similar funds and resources for more than 5 years and assets for more than 5 years, must not be less than 60%. In 2011, the banking commission established an internal control system. This system ensures the definition of banking risks to which banks and financial institutions are exposed, as well as the governance bodies.

The banking commission ensures compliance with the requirements of an internal control system: that is, a system for controlling operations and internal procedures, particularly in terms of compliance and the prevention and fight against money laundering and the financing of terrorism.

Also, an accounting organization and information processing, as well as systems for measuring risks and results, systems for monitoring and controlling risks (RAHI, SHAKIR ABD, & EL MORSHEDI, 2018), and a documentation and archiving system. Finally, the implementation of a draft regulation on governance and internal control.

In 2009, a new regulation came into effect, titled:

- bank account plan and accounting rules applicable to banks and financial institutions (inspired by IFRS standards);
- rules for the valuation and accounting of financial instruments by banks and financial institutions (categories of financial assets and liabilities and the method of valuation and classification/reclassification);
- establishment and publication of financial statements of banks and financial institutions (format, conditions for the establishment and publication of financial statements).

Supervisory actions revolve around the following aspects:

- collect, examine, and analyze the accounting and prudential statements of banks and financial institutions to verify their reliability and consistency;
- ensure compliance with prudential standards;
- ensure the adequacy of internal control and risk monitoring systems deployed by banks and financial institutions;
- conduct close and forward-looking supervision of the banks and financial institutions subject to specific risk profiles;
- evaluate the quality of the measures deployed by banks and financial institutions in the context of combating money laundering and the financing of terrorism;
- analyze the reports of the Statutory Auditors and gather the opinion of the external auditor;
- report to the Banking Commission any proven element likely to jeopardize the situation of a bank or a financial institution.
- assess the conditions for granting authorization for the entry into operation of banks and/or financial institutions or for modifying their shareholder structure;
- assess the applications for approval of executive management and authorization and implementation of new products, and examine customer requests (FERROUHI, 2014).

A proactive control process (risk profiling of regulated entities) is a precise assessment of individual financial solidity and the quality of their governance, then channels control resources toward identifying activities generating significant risks and institutions with high-risk profiles (LAVANYA & SRINIVAS, 2018). This objective is achieved thru:

- the determination of the risk profile of the obligated entities;
- the anticipation of individual and systemic difficulties;
- the rational allocation of control resources to areas and/or institutions presenting or expected to present the highest real or potential risks.

In 2013, the adoption of the so-called "CAMELS" banking rating system took place (LOKESHWARI, 2024). It involves the implementation of risk-based supervision and the definition of supervisory actions according to the risk profile, based on the rating assigned to it. The evaluation of six (06) key factors: capital adequacy (C), asset quality (A), management (M), earnings (E), liquidity (L), and sensitivity to market risk (S); the rating assigned by on-site inspection and based on an analysis of quantitative data and a qualitative assessment; the assignment of a composite score on a scale of 1 to 5 based on guides or rating matrices (JOTHR, ABED HAMEED, & ALI MOHAISEN, 2021); and a control guide detailing the risk assessment methodology.

In 2015, the application of Stress Testing was implemented, in other words; the adoption of an application called Financial Projection Model "FPM" (GAOUAL & GERYVILLE, 2021); periodic exercises carried out individually and at the level of the banking system (with or without contagion thru interbank links); 3 scenarios can be presented, namely: (Baseline, moderate, and severe) (BASTAN, MAZRAEH, & AHMADVAND, 2016), determined based on simple statistical methods; evaluation of the individual resilience of banks and financial

institutions and the system as a whole to crisis scenarios; the results of stress testing contribute to the institution's rating, and may lead to additional requirements in capital and liquidity; calculating the total cost of bank and institution rescue (ELA) during a systemic crisis (ROSTAMI, 2015).

Table 01: presentation of the CAMELS model

| Acronym | Variable | Mesure used |
|---------|--------------------|-----------------------------------|
| C | Capital adequacy | Total equity to total asset ratio |
| A | Asset quality | Non-performing loans/Total loans |
| M | Management quality | Total loans/total deposits |
| E | Earning ability | Net interest income/Total assets |
| L | Liquidity | Liquid assets/Total assets |
| S | Sensitivity | Loan outstanding/Equity |

Source: (MAGOMA, MBWAMBO, SALLWA, & MWASHA, 2022)

3) Evaluation of the financial solidity of Algerian public banks according to the CAMELS model

The following empirical study concerns the six Algerian public banks, namely: National Bank of Algeria (NBA) (NBA, 2026), External Bank of Algeria (EBA) (EBA, 2026), Bank of Agriculture and Rural Development (BARD) (BARD, 2026), Local Development Bank (LDB) (LDB, 2026), Popular Credit of Algeria (PCA) (PCA, 2026), and the National Savings and Provident Fund Bank (NSPFB) (NSPFB, 2026).

This choice is justified by the significant role of these banks in financing the Algerian economy. The period spans from 2013 to 2024. We have utilized the various activity reports of the aforementioned banks. The main ratios we used and their weights are listed in the table below:

Table 02: Mains weighing of the ratios

| Variables | Measure used | Weighing |
|-----------------------|--------------------------------|----------|
| Capitalization | Equity Capital/ Total loan | 25% |
| Profitability | Net result /Total active | 8,33% |
| Liquidity | Customer deposit/ Total Active | 25% |
| Asset Quality | A+ : No risk | 1 |
| | A : Low risk | 2 à 3 |
| | B+ : Medium risk | 4 à 5 |
| | B : High risk | 6 à 7 |
| | C : Major risk | 8 à 10 |

Source: Author.

Table 03: weightings of ratios CAMELS model

| A= Asset Quality | |
|--------------------------------------|--------|
| Mega capitalization > 40% | 1 à 2 |
| strong capitalization > 25% et < 40% | 3 à 4 |
| Medium capitalization > 07% et < 25% | 5 à 6 |
| Small capitalization > 05% et < 07% | 7 à 8 |
| Low capitalization < 05% | 9 à 10 |
| E= Earning (ROA) | |
| Excellent profitability > 11% | 1 à 3 |
| Moyenne profitability > 08% et < 11% | 3 à 5 |
| Faible profitability > 04% et < 08% | 5 à 7 |

| | |
|---|--------|
| Médiocre < 04% | 7 à 10 |
| E= Earning (ROE) | |
| Excellente profitabilité > 02% | 1 à 3 |
| Acceptable profitabilité > 0,80 % et < 02 % | 4 à 7 |
| Poor profitabilité < 0,80 % | 8 à 10 |
| L= Liquidity | |
| Very liquid > 40% | 1 à 2 |
| Moderately liquid > 20% et < 40% | 3 à 6 |
| Illiquid < 20% | 7 à 10 |
| C = capital ratio adequacy | |
| M= Management Quality | |
| S= Sensitivity to Market Risk | |

Source: Author.

The results, Analysis & discussion (with R=rate & Q=quotation)

Table 04: Capital adequacy ratio

| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BARD | R | 13,80 | 11,34 | 11,50 | 14,81 | 14,23 | 14,58 | 11,92 | 14,48 | 15,88 | 18,32 | 20,32 | 21,78 |
| | Q | 5,62 | 5,76 | 5,75 | 5,57 | 5,6 | 5,58 | 5,73 | 5,66 | 5,51 | 5,37 | 5,26 | 5,18 |
| LDB | R | 9,33 | 7,35 | 12,84 | 14,19 | 12,65 | 11,48 | 10,53 | 10,37 | 11,12 | 12,83 | 11,57 | 12,27 |
| | Q | 5,87 | 5,98 | 5,68 | 5,6 | 5,69 | 5,75 | 5,8 | 5,81 | 5,77 | 5,68 | 5,75 | 5,71 |
| EBA | R | 29,27 | 27,06 | 27,14 | 22,63 | 21,27 | 19,78 | 21,80 | 23,52 | 26,69 | 29,67 | 36,99 | 30,28 |
| | Q | 3,72 | 3,86 | 3,86 | 5,13 | 5,21 | 5,29 | 5,18 | 5,08 | 3,89 | 3,69 | 3,2 | 3,65 |
| NBA | R | 24,87 | 11,59 | 22,29 | 24,39 | 28,06 | 26,73 | 23,39 | 24,46 | 32,52 | 25,82 | 24,52 | 27,35 |
| | Q | 5,01 | 5,75 | 5,15 | 5,03 | 3,8 | 3,88 | 5,09 | 5,03 | 3,5 | 3,95 | 5,03 | 3,84 |
| NSPFB | R | 10,90 | 8,13 | 14,18 | 13,60 | 13,79 | 13,75 | 12,66 | 13,96 | 15,02 | 15,23 | 19,18 | 16,96 |
| | Q | 5,78 | 5,94 | 5,6 | 5,63 | 5,62 | 5,63 | 5,69 | 5,61 | 5,55 | 5,54 | 5,32 | 5,45 |
| PCA | R | 18,02 | 12,60 | 13,79 | 14,30 | 15,43 | 15,10 | 14,96 | 15,21 | 17,96 | 18,57 | 19,18 | 22,56 |
| | Q | 5,39 | 5,69 | 5,62 | 5,59 | 5,53 | 5,55 | 5,56 | 5,54 | 5,39 | 5,36 | 5,32 | 5,14 |

Source: Author's compilation.

Result 1: Capitalization

To calculate capitalization, we first measured the equity/total loans ratio, then weighted it by 25%. The results show that EBA and NBA are highly capitalized, followed by PCA and BARD, then NSPFB, and finally LDB. This capitalization is mainly due to the increase in the capital of the banks.

Table 05: Asset Quality

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BARD | 17,37 | 14,09 | 15,73 | 15,77 | 18,39 | 20,51 | 22,95 | 25,51 | 30,26 | 28,30 | 28,33 | 28,58 |
| LDB | 15,75 | 14,63 | 16,12 | 20,04 | 21,99 | 25,97 | 28,87 | 30,92 | 32,98 | 36,09 | 37,46 | 35,70 |
| EBA | 18,06 | 15,63 | 13,00 | 12,64 | 13,50 | 12,92 | 17,84 | 17,85 | 22,19 | 23,43 | 23,56 | 26,40 |
| NBA | 9,84 | 7,12 | 9,58 | 15,31 | 15,48 | 15,43 | 15,46 | 18,92 | 27,70 | 27,15 | 25,82 | 26,22 |
| NSPFB | 10,06 | 9,50 | 8,22 | 11,11 | 11,34 | 12,46 | 13,28 | 15,83 | 21,54 | 23,53 | 27,11 | 20,90 |
| PCA | 9,93 | 9,05 | 7,44 | 9,48 | 11,11 | 10,81 | 13,24 | 16,38 | 19,11 | 19,53 | 27,11 | 31,02 |

Source: auteur par compilation des rapports d'activités des banques publiques.

Result 2: Asset Quality

Regarding the asset quality indicator, this ratio exceeds 30% by the LDB and the PCA in 2024. In second place come EBA and NBA, and in last place, we find BARD and NSPFB. The good quality of assets at LDB and PCA is justified by the efforts made by these two banks for

the introduction of their capital on the stock exchange. The other banks are also making considerable efforts to improve their assets.

Table 06: profitability (ROA & ROE)

| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| BARD | ROA | 1,61 | 0,55 | 0,77 | 1,35 | 1,11 | 1,13 | 0,03 | 0,60 | 0,72 | 0,75 | 1,70 | 1,32 |
| | Q | 4,98 | 8,63 | 8,08 | 5,63 | 6,23 | 6,18 | 9,93 | 8,5 | 8,2 | 8,13 | 4,75 | 5,7 |
| | ROE | 31,61 | 11,31 | 15,05 | 22,47 | 13,36 | 13,18 | 0,36 | 10,07 | 8,85 | 9,99 | 103,9 | 75,79 |
| | Q | 2,54 | 2,99 | 2,91 | 2,74 | 2,95 | 2,95 | 9,73 | 3,62 | 4,43 | 3,67 | 0,91 | 1,54 |
| LDB | ROA | 1,34 | 0,56 | 1,39 | 2,22 | 1,35 | 0,72 | 0,34 | 0,01 | 0,26 | 0,40 | 1,17 | 1,36 |
| | Q | 5,65 | 8,6 | 5,53 | 3 | 5,63 | 8,2 | 9,15 | 9,98 | 9,35 | 9 | 6,08 | 5,6 |
| | ROE | 25,43 | 12,37 | 20,78 | 27,02 | 14,45 | 7,74 | 3,59 | 0,10 | 3,27 | 5,39 | 15,61 | 17,51 |
| | Q | 2,68 | 2,97 | 2,78 | 2,64 | 2,92 | 5,13 | 7,31 | 9,93 | 7,55 | 6,31 | 2,9 | 2,85 |
| EBA | ROA | 1,33 | 1,60 | 1,49 | 1,37 | 2,32 | 0,41 | 1,89 | 2,24 | 1,74 | 0,94 | 0,50 | 0,83 |
| | Q | 5,68 | 5 | 5,28 | 5,58 | 2,99 | 8,98 | 4,28 | 3 | 4,65 | 6,65 | 8,75 | 6,93 |
| | ROE | 13,77 | 20,87 | 26,74 | 14,72 | 22,98 | 4,13 | 15,60 | 16,81 | 14,35 | 9,28 | 4,97 | 8,27 |
| | Q | 2,94 | 2,78 | 2,65 | 2,92 | 2,73 | 6,94 | 2,9 | 2,87 | 2,92 | 4,15 | 6,52 | 4,82 |
| NBA | ROA | 2,73 | 1,86 | 1,93 | 0,97 | 1,37 | 1,42 | 0,91 | 0,60 | 0,28 | 1,16 | 0,99 | 0,82 |
| | Q | 2,99 | 4,35 | 4,18 | 6,58 | 5,58 | 5,45 | 6,73 | 8,5 | 9,3 | 6,1 | 6,53 | 6,95 |
| | ROE | 31,02 | 21,69 | 19,54 | 8,47 | 12,14 | 11,55 | 7,94 | 5,17 | 2,63 | 13,91 | 13,39 | 10,51 |
| | Q | 2,55 | 2,76 | 2,81 | 4,69 | 2,97 | 2,99 | 5,03 | 6,42 | 8,03 | 2,93 | 2,95 | 3,33 |
| NSPFB | ROA | 0,11 | 0,44 | 0,20 | 0,42 | 0,75 | 0,84 | 0,31 | 0,33 | 0,12 | 0,49 | 1,04 | 1,13 |
| | Q | 9,73 | 8,9 | 9,5 | 8,95 | 8,13 | 6,9 | 9,23 | 9,18 | 9,7 | 8,78 | 6,4 | 6,18 |
| | ROE | 3,58 | 14,75 | 5,26 | 7,13 | 12,07 | 12,79 | 4,58 | 4,65 | 1,81 | 7,93 | 11,87 | 17,38 |
| | Q | 7,32 | 2,92 | 6,37 | 5,44 | 2,98 | 2,96 | 6,71 | 6,68 | 8,64 | 5,04 | 2,98 | 2,86 |
| PCA | ROA | 1,97 | 1,78 | 2,21 | 2,23 | 2,23 | 2,25 | 0,83 | 0,92 | 0,65 | 1,13 | 1,04 | 1,02 |
| | Q | 4,08 | 4,55 | 3 | 3 | 3 | 2,99 | 6,93 | 6,7 | 8,38 | 6,18 | 6,4 | 6,45 |
| | ROE | 25,99 | 25,31 | 27,09 | 24,44 | 21,84 | 21,68 | 9,15 | 9,86 | 7,27 | 13,67 | 11,87 | 11,52 |
| | Q | 2,66 | 2,68 | 2,64 | 2,7 | 2,76 | 2,76 | 4,23 | 3,76 | 4,55 | 2,94 | 2,98 | 2,99 |

Source: Author's calculation & compilation.

Table 07: Profitability

| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| BARD | R | 16,61 | 5,93 | 7,91 | 11,91 | 7,24 | 7,15 | 0,19 | 5,33 | 4,78 | 5,37 | 52,80 | 38,56 |
| | Q | 3,76 | 5,81 | 5,49 | 4,18 | 4,59 | 4,56 | 9,83 | 6,06 | 6,31 | 5,9 | 2,83 | 3,62 |
| LDB | R | 13,38 | 6,47 | 11,08 | 14,62 | 7,90 | 4,23 | 1,96 | 0,06 | 1,77 | 2,90 | 8,39 | 9,43 |
| | Q | 4,16 | 5,78 | 4,15 | 2,82 | 4,28 | 6,66 | 8,23 | 9,96 | 8,45 | 7,65 | 4,49 | 4,23 |
| EBA | R | 7,55 | 11,24 | 14,11 | 8,04 | 12,65 | 2,27 | 8,75 | 9,52 | 8,05 | 5,11 | 2,74 | 4,55 |
| | Q | 4,31 | 3,89 | 3,97 | 4,25 | 2,86 | 7,96 | 3,59 | 2,94 | 3,79 | 5,4 | 7,64 | 5,88 |
| NBA | R | 16,88 | 11,78 | 10,74 | 4,72 | 6,76 | 6,49 | 4,43 | 2,89 | 1,46 | 7,54 | 7,19 | 5,67 |
| | Q | 2,77 | 3,55 | 3,49 | 5,63 | 4,28 | 4,22 | 5,88 | 7,46 | 8,66 | 4,51 | 4,74 | 5,14 |
| NSPFB | R | 1,85 | 7,60 | 2,73 | 3,78 | 6,41 | 6,82 | 2,45 | 2,49 | 0,97 | 4,21 | 6,46 | 9,26 |
| | Q | 8,52 | 5,91 | 7,94 | 7,2 | 5,56 | 4,93 | 7,97 | 7,93 | 9,17 | 6,91 | 4,69 | 4,52 |
| PCA | R | 13,98 | 13,55 | 14,65 | 13,34 | 12,04 | 11,97 | 4,99 | 5,39 | 3,96 | 7,40 | 6,46 | 6,27 |
| | Q | 3,37 | 3,62 | 2,82 | 2,85 | 2,88 | 2,87 | 5,58 | 5,23 | 6,47 | 4,56 | 4,69 | 4,72 |

Source: Author's calculation & compilation.

Result 3: Profitability

Profitability is represented in Table 04 by the ROA (return on assets) ratio, which indicates the bank's economic profitability. According to the results above, the six public banks show a very low ROA of less than 4%. These results are justified by the fact that these banks have a significant amount of their assets. Regarding financial profitability, represented by the ROE (Return on Equity) ratio, it exceeds 10% for all public banks; that said, their financial profitability is quite high except for the EBA, which records 8%.

Table 08: Liquidity

| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| BARD | R | 39,12 | 41,54 | 21,88 | 18,12 | 14,41 | 15,78 | 13,65 | 6,98 | 15,87 | 23,20 | 15,66 | 21,67 |
| | Q | 3,13 | 1,97 | 5,72 | 7,28 | 7,84 | 7,63 | 7,95 | 8,95 | 7,62 | 5,52 | 7,65 | 5,75 |
| LBD | R | 19,12 | 21,78 | 21,34 | 15,36 | 8,31 | 13,49 | 9,17 | 7,44 | 21,92 | 30,32 | 28,96 | 32,19 |
| | Q | 7,13 | 5,73 | 5,8 | 7,7 | 8,75 | 7,98 | 8,62 | 8,88 | 5,71 | 4,45 | 4,66 | 4,17 |
| EBA | R | 46,28 | 52,83 | 37,10 | 25,38 | 28,71 | 20,82 | 15,25 | 13,36 | 41,67 | 49,51 | 51,44 | 38,33 |
| | Q | 1,9 | 1,79 | 3,44 | 5,19 | 4,69 | 5,88 | 7,71 | 8 | 1,97 | 1,84 | 1,81 | 3,25 |
| NBA | R | 22,00 | 14,25 | 16,81 | 35,41 | 16,43 | 19,44 | 20,26 | 12,96 | 45,38 | 48,25 | 48,84 | 55,36 |
| | Q | 5,7 | 7,86 | 7,48 | 3,69 | 7,54 | 7,08 | 5,96 | 8,06 | 1,91 | 1,86 | 1,85 | 1,74 |
| NSPFB | R | 43,11 | 38,17 | 34,36 | 27,46 | 26,04 | 23,22 | 17,60 | 12,39 | 33,83 | 41,11 | 29,15 | 45,23 |
| | Q | 1,95 | 3,27 | 3,85 | 4,88 | 5,09 | 5,52 | 7,36 | 8,14 | 3,93 | 1,98 | 4,63 | 1,91 |
| PCA | R | 40,76 | 38,89 | 23,78 | 17,24 | 24,17 | 20,45 | 11,41 | 11,20 | 25,53 | 28,44 | 29,15 | 29,87 |
| | Q | 1,99 | 3,17 | 5,43 | 7,41 | 5,37 | 5,93 | 8,29 | 8,32 | 5,17 | 4,73 | 4,63 | 4,52 |

Source: Author's calculation & compilation.

Results 4: Liquidity

This liquidity ratio informs us about the share of liquid assets in the total resources of public banks. Indeed, the NBA exceeds 50% of liquid assets on its resources. Other banks such as NSPFB, EBA, PCA, and LDB also hold a significant share of liquid assets. However, BARD comes last with 21%, and therefore has fewer liquid assets in its possession.

Table 09: Market Risk Sensitivity

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| BARD | 178,07 | 150,15 | 94,97 | 51,78 | 79,28 | 23,19 | 31,15 | 17,97 | 34,90 | 47,99 | 62,45 | 43,92 |
| LDB | -28,94 | -42,00 | -30,97 | -17,69 | -4,95 | -0,06 | -4,19 | -7,26 | -4,40 | -4,05 | -3,88 | -2,39 |
| EBA | -28,94 | -42,00 | -30,97 | -17,69 | -4,95 | -0,06 | -4,19 | -7,26 | -4,40 | -4,05 | -3,88 | -2,39 |
| NBA | 59,64 | 87,77 | 33,82 | -4,86 | -25,15 | -18,91 | -29,59 | -37,05 | -34,32 | -34,51 | -45,92 | -26,07 |
| NSPFB | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 126,68 | 0,00 |
| PCA | 210,42 | 311,12 | 177,18 | 164,99 | 146,48 | 123,03 | 94,18 | 96,77 | 94,61 | 133,92 | 126,68 | 152,74 |

Source: Author's calculation & compilation.

Results 5: Market Risk Sensitivity

This ratio represents the ratio between the net open position in foreign currencies / accounting equity. It is negative for the three public banks, namely NBA, EBA, and LDB. These values explain the impact of these three banks thru foreign currency transactions. For NSPFB, it is null because this public bank does not conduct foreign currency exchanges. Indeed, it is not sensitive to changes in foreign markets. For BARD and especially PCA, there is a very high sensitivity due to the significant ratio.

Table 10: global annotations of public banks

| | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| BARD | C | 4,17 | 4,51 | 5,65 | 5,68 | 6,01 | 5,92 | 7,84 | 6,86 | 6,48 | 5,60 | 5,25 | 4,85 |
| | N | B+ | B+ | B+ | B+ | B | B+ | B | B | B | B+ | B+ | B+ |
| LDB | C | 5,72 | 5,83 | 5,21 | 5,37 | 6,24 | 6,80 | 7,55 | 8,22 | 6,64 | 5,93 | 4,97 | 4,70 |
| | N | B+ | B+ | B+ | B+ | B | B | B | C | B | B+ | B+ | B+ |
| EBA | C | 3,31 | 3,18 | 3,76 | 4,86 | 4,25 | 6,38 | 5,49 | 5,34 | 3,22 | 3,64 | 4,22 | 4,26 |
| | N | A | A | A | B+ | B+ | B | B+ | B+ | A | A | B+ | B+ |
| NBA | C | 4,49 | 5,72 | 5,37 | 4,78 | 5,21 | 5,06 | 5,64 | 6,85 | 4,69 | 3,44 | 3,87 | 3,57 |
| | N | B+ | B | B+ | A | A | A |
| NSPFB | C | 5,42 | 5,04 | 5,80 | 5,90 | 5,42 | 5,36 | 7,01 | 7,23 | 6,22 | 4,81 | 4,88 | 3,96 |
| | N | B+ | B+ | B+ | B+ | B+ | B+ | B | B | B | B+ | B+ | A |
| PCA | C | 3,58 | 4,16 | 4,62 | 5,28 | 4,59 | 4,78 | 6,48 | 6,36 | 5,68 | 4,88 | 4,88 | 4,79 |
| | N | A | B+ | B+ | B+ | B+ | B+ | B | B | B+ | B+ | B+ | B+ |

| | | | | | | | | | | | | |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| Cote finale pondérée | 4,45 | 4,74 | 5,07 | 5,31 | 4,52 | 5,72 | 6,67 | 6,81 | 5,49 | 4,72 | 4,68 | 4,36 |
| public Bank Notation | B+ | B+ | B+ | B+ | B+ | B+ | B | B | B+ | B+ | B+ | B+ |

Source: Author's calculation & compilation.

Results 6: global annotations of public banks

We then proceeded to apply weights to the ratings of all six public banks. Next, we calculated the ratings of the different banks for the period from 2013 to 2024. The results are summarized in the table above.

We found that the final rating of the six public banks comes out as B+ after weighting the ratios over the entire period from 2013 to 2024, except for the two years, 2019 and 2020. This is mainly due to the cessation of activities of public banks following the restrictions imposed by the Algerian authorities due to the spread of the virus caused by the crisis.

A system of compensating one indicator against another reduces the gap between them. All public banks with a B+ rating incur a medium risk that should be closely and continuously monitored.

During certain periods, NBA, NSPFB, and EBA received an "A" rating. The latter achieved better results than in other periods. These banks sometimes resort to lower risks compared to other public banks.

The LDB, for its part, was rated "C" in 2020. The latter was greatly impacted by the immediate halt of its activities due to the COVID-19 health crisis. However, this bank immediately took action to improve its rating and thereby overcome the difficulties encountered.

CONCLUSION

This research work reflects the analysis of the performance of the main financial indicators of Algerian public banks based on data collected from them. Some results are derived based on the available qualitative data, and therefore, we have not calculated all the metrics like the CAMELS model. (Management). The CAMELS model remains a very reliable model for calculating financial performance indicators, among the highest-rated in finance.

For better economic stability and in light of the imperative of economic and health crises, the Algerian banking system must pay attention to the preventive and curative management of risks. A good action plan must be drawn up after identifying risks at the internal and external levels. Thus, the main objective of this study is to analyze the key financial performance indicators of public banks according to the CAMELS model, and then to compare this performance among the six banks in question.

It appears that after analyzing capitalization, asset quality, profitability, and liquidity, these factors differ from one bank to another during the period from 2013 to 2024. This difference first arises from the decisions made by the Bank of Algeria for the capital increase of certain banks, and then from internal decisions within each bank through its management system, its choices, and its strategic orientations.

The clear conclusion in this study is the final rating of each bank, which comes out as (B+) for the six public banks despite the differences in the partial performance indicators produced by each bank. This situation clearly explains that a system of compensation between

indicators is activated to maintain the level of competition among the banks. The (B+) rating implies that public banks incur a medium risk, which requires more vigilance in managing potential and medium risks. This is not possible without the implementation of a permanent strategy for controlling the various parameters.

Thru this study, we were able to collect data, determine financial performance indicators for the period 2013-2024, calculate and classify the indicators according to the CAMELS model, assign weights to the calculated indicators, then calculate the specific ratings for each public bank, and finally, compare these ratings.

The analysis of the obtained data confirms that a good financial performance indicator interprets the financial health of a public bank and thus informs us about the degree of financial resilience in crisis situations. On the contrary, a poor financial performance indicator implies the poor financial health of a public bank and reflects its fragility in times of crisis.

Also, we confirm that quantitative indicators are the most indicative of the best performance of public banks, but qualitative indicators, such as management quality which reflects the bank's internal and external strategy, should not be overlooked. From there, the final rating of Algerian public banks also emerges, which sometimes implies low levels. Like the C for the LDB or the bank that has experienced potential risks during crisis periods. Nevertheless, considerable efforts have been made to remedy this situation and rectify the risk mapping.

This study remains a personal contribution that highlights the financial performance indicators of public banks, their rating according to the CAMELS system, their weights, and finally, the rating of these six public banks. It informs us about the financial health of these banks over the period from 2013 to 2024 with a comparative analysis that undoubtedly highlights the importance of risk monitoring and the implementation of a good corrective management strategy, particularly to address various crises.

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