

The Reality of the Development of Algerian Banking Performance Indicators in the Context of Global Crises -An Analytical Study for the Period 2007–2022-

واقع تطور مؤشرات الأداء المصرفي الجزائري في ظل الأزمات العالمية

– دراسة تحليلية للفترة 2007–2022

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Received: 15/01/2026

Accepted: 31/03/2026

Published: 31/03/2026

Abstract:

This study aims to analyze the reality of the development of Algerian banking performance indicators during global crises, through the analysis of banking sector data for the period 2007–2022. The focus was on three major crises: the 2008 global financial crisis, the 2014 oil price crisis, and the 2020 global health crisis. The study relied on the analysis of key performance indicators such as profitability indicators, asset quality, solvency, as well as liquidity ratios. The study concluded several results, the most important of which is that banking performance indicators develop in varying ways depending on the nature of the crises. The 2014 oil crisis was the most impactful due to the heavy reliance on public financing, the study recommends the necessity of diversifying the sources of financing of the economy to reduce dependence on changes in oil prices, and establishing early warning tools to enhance the ability to forecast crises.

Keywords: Algerian banking sector; banking performance; global crises; performance indicators.

JEL Classification Codes: G01, G21, G28.

ملخص:

تتلخص هذه الدراسة في تحليل واقع أداء مؤشرات الأداء المصرفي الجزائري خلال الأزمات العالمية، وذلك من خلال تحليل بيانات القطاع المصرفي للفترة 2007–2022. تم التركيز على ثلاث أزمات رئيسية: الأزمة المالية العالمية 2008، أزمة أسعار النفط 2014، والأزمة الصحية العالمية 2020، اعتمدت الدراسة على تحليل مؤشرات الأداء الرئيسية مثل مؤشرات الربحية، جودة الأصول، الملاءة وكذا نسب السيولة. ولقد توصلت الدراسة إلى جملة من النتائج أهمها أن مؤشرات الأداء المصرفي تتطور بطريقة متباينة باختلاف الأزمات، حيث كانت الأزمة النفطية 2014 أكثر تأثيراً بسبب الاعتماد الكبير على التمويل العمومي وعدم انفتاحه على الأسواق العالمية، وفي ظل ذلك توصي الدراسة بضرورة تنويع مصادر تمويل الاقتصاد لتخفيف التبعية لتغير أسعار النفط، واستحداث أدوات الإنذار المبكر لتعزيز القدرة على التنبؤ بالأزمات. كلمات مفتاحية: القطاع المصرفي الجزائري، الأداء المصرفي، الأزمات العالمية، مؤشرات الأداء.

تصنيفات JEL: G01, G21, G28.

INTRODUCTION:

The Algerian banking system constitutes a fundamental pillar of the national economic structure, as it plays a central role in mobilizing savings, financing investments, and supporting economic activity. This sector is characterized by unique features represented in the dominance of public banks over banking activity and the limited integration into international financial markets, which gives it a distinctive character in its interaction with global and local economic variables.

To assess the performance of this system and its ability to withstand challenges, banking performance indicators are considered an essential scientific tool that makes it possible to measure banks' ability to generate profits (profitability), meet their short-term obligations (liquidity), control risk levels (solvency), and achieve optimal use of resources (assets quality). Monitoring these indicators represents a scientific entry point for understanding the dynamics of the banking sector and diagnosing its strengths and weaknesses.

However, global crises constitute one of the most important economic phenomena that leave a profound impact on the stability of banking systems, as they represent fundamental disturbances that affect, in a comprehensive or limited manner, all financial variables, including the volume of issuances, the prices of financial securities such as stocks and bonds, total borrowing and bank deposits, and the exchange rate. The repercussions of these crises usually manifest through shrinking liquidity, declining profitability rates, rising credit risks, and a decrease in the level of operational efficiency of banking institutions, which makes studying their impact on the Algerian banking system of great importance in understanding its ability to confront economic pressures.

Problem Statement:

This study seeks to answer the following main question:

- **What is the reality of the development of Algerian banking performance indicators in the context of global crises during the period 2007–2022?**

Study Hypotheses:

Based on the study problem, the following two hypotheses can be proposed:

- Algerian banking performance indicators develop in the same manner in the face of the various global crises during the period of the study.
- The 2014 oil crisis is the most influential on banking performance indicators during the period of the study.

Study Objectives:

The objectives of the study are represented in the following points:

- Presenting theoretical concepts of banking systems and global crises.
- Analyzing the development of banking performance indicators in Algeria during the three crises (the 2008 financial crisis, the 2014 oil price collapse crisis, and the 2020 global health crisis).
- Highlighting the strengths and weaknesses of the Algerian banking system during the three crisis periods.
- A comparative study of the development of banking performance indicators during the three crises.

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Methodology:

To answer the research problem, the study relied on a descriptive–analytical approach to the data of the Algerian banking sector, based on reports from the Bank of Algeria, the Ministry of Finance, and the International Monetary Fund for the period extending between 2007 and 2021, with a focus on the main performance indicators represented in profitability indicators, asset quality, solvency, as well as liquidity ratios.

Study Structure:

This study was divided into:

- A. The development of the Algerian banking sector and its characteristics.
- B. Banking performance indicators.
- C. An analytical study of the development of Algerian banking performance indicators during global crises and their comparison.

1-The Development of the Algerian Banking Sector and Its Characteristics

1-1 The Development of the Algerian Banking Sector

Since independence, the Algerian banking sector has witnessed many changes that kept pace with local and global economic developments. The banking sector underwent real reforms with the issuance of Law No. 90-10² relating to money and credit, which is considered an important milestone in the path of financial and economic reform. This law came in conjunction with the 1988 Basel Agreement and granted independence to monetary and credit institutions, which led to the liberalization of the banking sector and opened the way for private and foreign investment. As a result, the number of private banks rose to about ten by 1999. Moreover, economic and banking developments in Algeria since 2001 were linked to the accumulated financial surpluses generated by revenues from the oil sector (Hamid, 2024, p. 180).

Following the bankruptcy of the Khalifa Bank and the Industrial and Commercial Bank and the resulting losses borne by the state treasury—where the bankruptcy of Khalifa Bank alone cost the state treasury 1.3 billion dollars, while the bankruptcy of the Industrial and Commercial Bank cost about 200 million dollars—the public authorities reconsidered banking legislation, especially the mechanisms intended to regulate banking activity and prevent the recurrence of financial distress cases (Azzi & others, 2021, p. 308). This required amending the Money and Credit Law by Order No. 11-03 issued on 26 August 2003³, which modified the composition of the Board of Directors of the Bank of Algeria, the Monetary and Credit Council, and the Banking Commission with the aim of achieving three main tasks (Habbar, 2011, pp. 38-41), namely strengthening the powers of the Bank of Algeria, reinforcing its role in the field of financial governance, and ensuring the protection of depositors' funds by banks. Amendments to the Money and Credit Law continued whenever necessary. Regulation No. 01-14 was enacted, dated 16 Rabi' al-Thani 1435, corresponding to 16 February 2014, which

²- Law No. 90-10 dated 14 April 1990 relating to money and credit is considered the first legal text that frames the Bank of Algeria and the Algerian banking system and provides them with a comprehensive definition. For more information, see the Official Gazette of Algeria, Issue No. 16, 18 April 1990: <https://www.joradp.dz/FTP/Jo-Francais/1990/F1990016.pdf>

³- Order No. 03-11 dated 26 August 2003 concerning money and credit, intended to repeal Law No. 90-10 dated 14 April 1990. For more information, see the Official Gazette of the Algerian Republic, Issue No. 43: https://www.mf.gov.dz/images/pdf/reglementation/A2023043_montaire_et_bancaire_AR_1.pdf

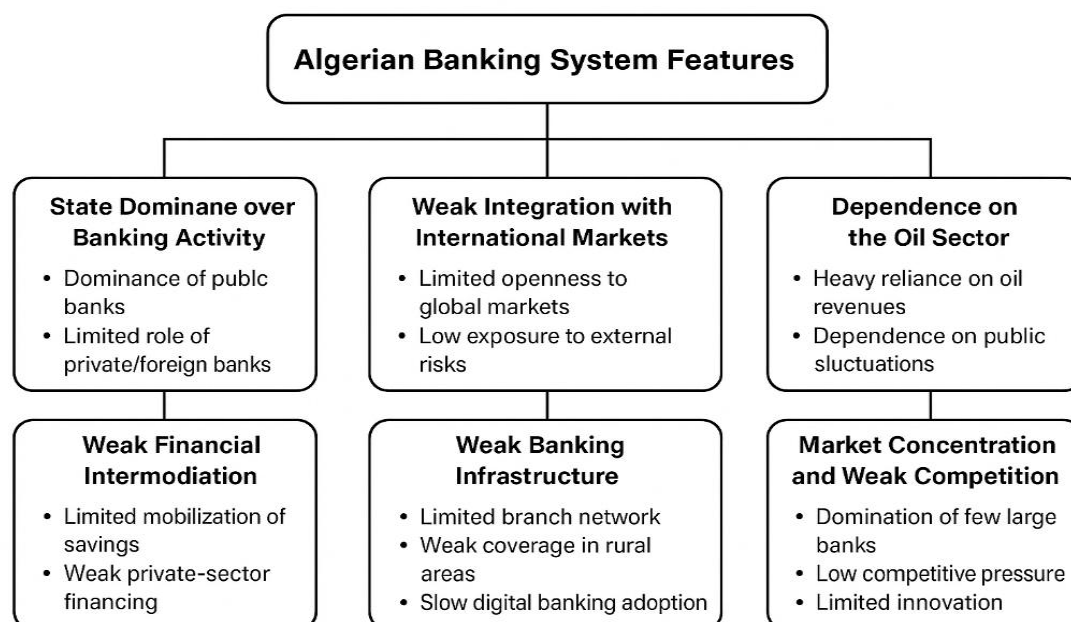
includes the solvency ratios applied to banks and financial institutions (Algerian Official Gazette, 2014, p. 21). Law No. 23-09, dated 12 June 2023, was also promulgated, which includes the new monetary and banking law (Algerian Official Gazette, 2023, p. 4). This law aims to strengthen the governance of the banking system, headed by the Bank of Algeria, and improve its transparency, while granting the Monetary and Credit Council new powers enabling it to accompany the transformations taking place in the banking environment. It also expands its powers in the accreditation of investment banks, digital banks, payment service providers, and independent intermediaries, and in licensing the opening of exchange offices, in addition to strengthening the governance and role of the Banking Commission as a supervisory authority.

By the end of 2024, the number of banks in Algeria reached 20 banks, including 7 public banks and 13 private banks, among them two Islamic banks. The banking network in Algeria consists of 1,673 branches, with a public majority estimated at 1,276 branches compared to 401 branches belonging to private banks (Bank of Algeria, 2024, p. 50).

1-2 Characteristics of the Algerian Banking Sector:

The Algerian banking sector is characterized by a set of structural features that reflect the nature of its historical development and its linkage to national economic policies. The most important of these characteristics can be summarized in the following figure: (Ammari, 2020-2021, pp. 63-67).

Fig (1): Characteristics of the Algerian Banking Sector



Source: Made by the two researchers based on the previously mentioned information.

All of these characteristics have, in one way or another, contributed to influencing banking performance indicators, whether profitability and liquidity, or the standards of asset quality and capital adequacy.

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2. Banking Performance Indicators:

Measuring banking performance is considered a strategic necessity for banks and decision-makers, as it provides tools to assess the efficiency and effectiveness of resource utilization, and the ability of the banking system to confront risks and achieve stability. The importance of these indicators becomes particularly evident during periods of crises, when structural imbalances and weaknesses in credit and liquidity policies emerge.

2-1 Definition of Banking Performance Indicators:

Banking performance indicators are considered quantitative and qualitative measurement tools used to evaluate the efficiency and effectiveness of banking institutions in achieving their financial and operational objectives. They include a set of financial ratios and measures that reflect banks' ability to generate profits (profitability), meet their short-term obligations (liquidity), control risk levels (financial solvency), and ensuring the quality of its assets (non-performing loans)

These indicators are of great importance to the banking system, as they enable supervisory authorities and management to detect weaknesses and financial imbalances at an early stage, and help in making sound strategic decisions to enhance financial stability and protect depositors' funds. They also allow investors and analysts to evaluate banks' performance and compare them with their counterparts in the market. Moreover, these indicators contribute to strengthening transparency and banking governance, and constitute a fundamental reference for measuring the ability of the banking system to withstand economic shocks and financial crises, which is positively reflected in the stability of the national economy as a whole.

2-2 Types of Banking Performance Indicators:

Banking performance indicators include four main dimensions: profitability (Profitability), asset quality (Asset Quality), liquidity (Liquidity), and solvency or capital adequacy (Solvency). These dimensions represent an analytical approach for studying the impact of crises on banks' ability to continue operations and achieve their objectives.

2-2-1 Profitability Indicators

Profitability is considered the most important measure of banking performance due to the risks inherent in banking activity, as it reflects the bank's ability to generate returns from its operating activities. Among the most prominent indicators used are (Mahsol & Musu, 2019, p. 124):

a. Return on Assets (ROA):

This indicator expresses the extent to which a bank efficiently uses its assets to generate profits. It is considered a classic measure for evaluating banking performance by measuring the bank's ability to achieve the best possible investment of its available resources. This indicator shows the amount of net income generated by each monetary unit invested in the bank's average assets over a specific period. It is calculated according to the following formula:

$$\text{Return on Assets Ratio} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

b. Return on Equity (ROE):

This indicator evaluates the return achieved from investing shareholders' (owners') funds and constitutes a comprehensive measure of the bank's overall performance, including operational and financial activities. It is also used as a fundamental criterion for measuring the extent to which the bank succeeds in achieving its objective of maximizing shareholders' wealth, as banks seek to improve this rate in line with an acceptable level of risk. It is calculated using the following formula:

$$\text{Return on Equity Ratio} = \frac{\text{Net Profit}}{\text{Total Equity}}$$

2-2-2 Asset Quality:

Asset quality measures the level of risk associated with the loan and investment portfolio. The most prominent indicator here is (Ben Omar & Fayash, 2023, p. 160):

•Non-Performing Loans Ratio (NPLs):

This indicator reflects customers' ability to meet their obligations. An increase in this ratio means higher credit risk and weaker asset quality. It is calculated as follows:

$$\text{Non – Performing Loans Ratio} = \frac{\text{Non – Performing Loans}}{\text{Total Loans}}$$

2-2-3 Liquidity Indicators:

Liquidity ratios show the bank's ability to provide liquidity to meet its various obligations toward customers, most importantly deposit withdrawal requests and the granting of different types of loans. They also indicate the bank's ability to meet short-term obligations from its cash or other assets that can be quickly converted into cash. Among the most important short-term obligations are demand deposits. As for assets that can be quickly converted into cash, the most prominent are deposits with other banks, the surplus of the legal reserve deposited with the central bank, and the secondary reserve represented by short-term securities that can be immediately converted into cash without losses. Liquidity ratios are measured through a set of indicators, the most important of which are (Mahsol & Musu, 2019, pp. 125-126):

$$\text{Liquid Assets to Total Assets Ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}}$$

$$\text{Liquid Assets to Short – Term Liabilities Ratio} = \frac{\text{Liquid Assets}}{\text{Short – Term Liabilities}}$$

During crises, liquidity risks increase due to loss of confidence and depositors' rush to withdraw funds. Basel III agreements recommend adopting more stringent indicators, such as the liquidity coverage ratio, to ensure resilience.

2-2-4 Solvency or Capital Adequacy Indicators

Owners' invested capital in a bank plays an important role in ensuring the safety of depositors' funds. The capital adequacy ratio is concerned with determining the extent to

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which the bank relies on equity as one of the sources of financing, and the ability to repay the value of deposits when requested from the owners' funds.

Most banks have relied on the Basel Committee's standards regarding capital adequacy, as these standards emphasized the importance of linking capital to the risks of banking assets. In addition, off-balance-sheet items such as guarantees and credits were included, and capital was divided into core capital and supplementary capital. Assets and off-balance-sheet items were also divided into categories in order to assign each category a degree/ratio of risk. The minimum capital adequacy ratio was set at 8% of risk-weighted assets (Al-shabib, 2012, p. 113). The most important indicators are:

$$\text{Total solvency ratio} = \frac{\text{Regulatory capital}}{\text{Risk – weighted assets}}$$

$$\text{Core solvency ratio} = \frac{\text{Core capital}}{\text{Risk – weighted assets}}$$

The analysis of banking performance indicators represents a fundamental tool for understanding the dynamics of the banking sector under financial crises, as these indicators make it possible to diagnose the impact of economic shocks and determine the extent of the sector's fragility or resilience. In the third axis, these indicators will be applied to the Algerian case during the period 2007–2022 in order to measure the impact of three major crises: the 2008 global financial crisis, the 2014 oil price crisis, and the 2020 global health crisis.

3- An Analytical Study of the Development of Algerian Banking Performance Indicators during Global Crises and Their Comparison:

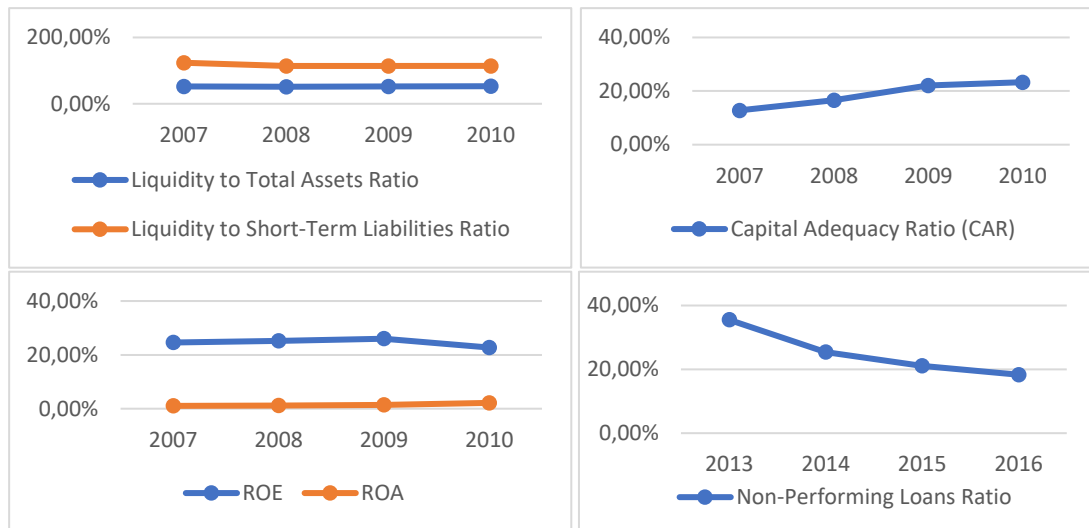
This axis aims to study the applied aspect of the topic of the impact of financial crises on banking performance indicators in Algeria, based on the analysis of data related to the Algerian banking sector issued by the Bank of Algeria and international reports. The study focuses on three major crises that had a direct or indirect impact on the Algerian banking sector: the 2008 global financial crisis, the 2014 oil price crisis, and the global health crisis in 2020.

The Algerian banking system represents a special case compared to many banking systems in the world, as it is characterized by weak integration into global financial markets and the dominance of public banks over more than 86% of banking activity (Bank Of Algeria, 2020, p. 92). This particularity made the impact of financial crises vary from one shock to another, sometimes appearing indirectly through macroeconomic channels, and at other times directly affecting liquidity and profitability. These crises will be addressed through an analysis of the development of the main banking performance indicators, namely: profitability and liquidity, asset quality (non-performing loans), and levels of capital adequacy.

3-1 The Global Financial Crisis (2008–2009):

The financial disturbances that appeared from mid-2007, following the subprime mortgage crisis in the United States, intensified during 2008 and led to the most severe banking and financial crisis since the Great Depression of 1929. Despite the interventions of central banks, within the framework of their function as lenders of last resort, growing

tensions marked the development of the financial sector starting in August 2007, leading to



the collapse of financial markets and a decline in global economic activity. However, its impact on Algeria was limited due to the following reasons (Bouziane, 2009, p. 440):

- The weak openness of the Algerian banking sector to external financial markets;
- The absence of a financial market in the true sense in Algeria;
- The Algerian government's reliance on a budget based on a reference price much lower than market prices, which shields it from any repercussions in case oil prices fall;
- The existence of considerable financial surpluses thanks to high oil prices in the period preceding the crisis.

3-1-1 Presentation of Algerian banking performance indicators during financial crisis 2008

Based on the results derived from the annual reports issued by the Bank of Algeria on Algeria's economic and monetary development for the period extending from 2007 to 2010, which were compiled in the following table showing the observed ratios of banking performance indicators during the mentioned period:

Table (1): Development of Algerian Banking Performance Indicators during the Period (2007–2010)

Indicators	2007	2008	2009	2010
Capital Adequacy Ratio (%)	12.8	16.54	22.1	23.31
Return on Equity (ROE) (%)	24.6	25.15	99.3	20.72
Return on Assets (ROA) (%)	1.05	1.19	1.37	2.16
Liquidity to Total Assets Ratio (%)	52.2	51.43	51.8	52.98
Liquidity to Short-Term Liabilities Ratio (%)	124	114.5	115	114.3
Non-Performing Loans Ratio (NPLs) (%)	35.5	25.4	21.1	18.31

Source: Annual reports of the Bank of Algeria for the period of (2007-2010)

The development of Algerian banking performance indicators was graphically represented according to capital adequacy indicators, liquidity ratios, profitability, and asset quality through non-performing loans in the following figure:

Fig (2): Graphical Development of Algerian Banking System Performance Indicators during the Period (2007–2010)

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Source: Made by the two researchers based on Table 01 and Excel program.

3-1-2 Solvency or Capital Adequacy Indicators:

Capital adequacy to face unexpected emergencies is considered one of the most important measures adopted to assess the stability of banks and the financial system. A balance must be achieved between maintaining capital and using funds for profit generation. The capital adequacy ratio of the banking sector ranged between 12.8% and 23.31% during the period 2007–2010, with solvency ratios clearly exceeding the legal minimum required at that time, which was 8%. This high level is attributed to banks' tendency to raise their own funds, including core equity, which constitutes the most effective protection against unexpected losses and represents more than 90% of the value used in calculating the indicator. After the establishment of the new regulatory framework in 2008, which included the minimum capital requirement for banks and financial institutions, private banks strengthened their own funds starting in December 2009. The state had previously strengthened the minimum capital of public banks before 2009. In this context, the state increased the capital of the public banks it owns by injecting 107.9 billion dinars in cash and 131.1 billion dinars in the form of participation bonds, which reinforced the degree of stability of the banking system.

3-1-3 Banking Liquidity Indicators:

According to the International Monetary Fund report, the Algerian banking system maintained good levels of liquidity during this crisis thanks to the state's injection of financial resources into public banks, especially since the period preceding the crisis was characterized by the availability of liquidity resulting from oil export revenues and economic stability. The Bank of Algeria relies on two main indicators to measure liquidity, as recommended by the International Monetary Fund: the liquidity-to-total-assets ratio and the statutory liquidity ratio.

Despite recording a slight decline in the statutory liquidity ratio, which represents liquid assets to short-term liabilities, in 2008 compared to 2007-at 114.49% for the former and 123.7% for the latter-it stabilized thereafter until 2010. However, this ratio remains higher than the required minimum set at 100%.

As for the ratio of liquid assets to total assets, its value stabilized between 51% and 52%, which are reassuring levels and higher than the standard ratios established by central banks and international bodies. Nevertheless, banks suffer from a surplus in banking liquidity, which led the government to direct all monetary policy tools toward absorbing excess liquidity, such as raising the mandatory reserve ratio to 8%.

3-1-4 Profitability Indicators:

The level of profitability achieved by the bank reflects its ability to strengthen its equity and carry out cash distributions to its shareholders. The development of the return on equity followed a relatively upward trend, rising from 24.59% in 2007 to 25.99% in 2009. However, the indicator declined in 2010, especially for private banks, where it fell from 21.84% in 2009 to 16.79% in 2010. This decline is attributed to the increase in their capital in line with the requirements of Regulation No. (04-01) dated 4 March 2004 and Regulation No. (08-04)

dated December 2008⁴, relating to the minimum capital requirement, as the impact of the rise in private banks' own funds was greater than the volume of their activity.

In contrast, the return on assets indicator maintained a slight upward trend from 1.05% in 2007 to 2.16% in 2010, supported mainly by the positive development of private banks' activities in terms of intermediation and non-intermediation, amid a decline in non-performing loans to total loans, which did not exceed an average of 4% during that period.

3-1-5 Asset Quality Indicator:

The non-performing debt ratio experienced an upward trend during the period prior to 2007 due to the rise in non-performing receivables in public banks, which occurred during the period (2003–2007) and was related to the strong concentration of private institutions, particularly those forming groups. However, during the period (2007–2010), it witnessed a significant decline from 35.5% to 18.31%, due to the relative regularity of collections during that period, in addition to the rescheduling of the debts of distressed institutions and individuals, as well as the repurchase of bad debts of banks by the public treasury (the issuance of bonds worth 364.0 billion dinars under the repurchase operations carried out during the period 2009–2010).

3-2 The Oil Price Crisis (2014–2016):

Global oil markets witnessed a sharp collapse in prices in mid-2014, from more than 110 US dollars per barrel to less than 30 US dollars at the beginning of 2016, as a result of increased U.S. shale oil production, the slowdown in global economic growth following the 2008 global financial crisis, and OPEC's decision to maintain high production levels. Algeria was among the most affected countries due to its heavy reliance on hydrocarbon revenues, which account for more than 95% of exports and 60% of public revenues. The collapse in oil prices led to a sharp decline in foreign exchange reserves, and the public budget recorded a rising deficit that reached alarming levels of GDP, forcing the government to reduce public spending and freeze major development projects. These developments were directly and profoundly reflected in the Algerian banking system, as its performance indicators were affected in a troubling manner.

3-2-1 Presentation of Algerian banking performance indicators during Oil Price crisis 2014:

The following table represents the development of banking performance indicators during the period (2013–2016).

Table (2): Development of Algerian Banking Performance Indicators during the Period 2013-2016

Indicators	2013	2014	2015	2016
Total Solvency Ratio (%)	21.5	15.98	18.4	18.75
Core Solvency Ratio (%)	15.5	13.27	15.8	16.33
Return on Equity (ROE) (%)	19	23.55	20.3	18.14
Return on Assets (ROA) (%)	1.67	1.98	1.83	1.86
Liquidity to Total Assets Ratio (%)	40.5	37.96	27.1	23.5

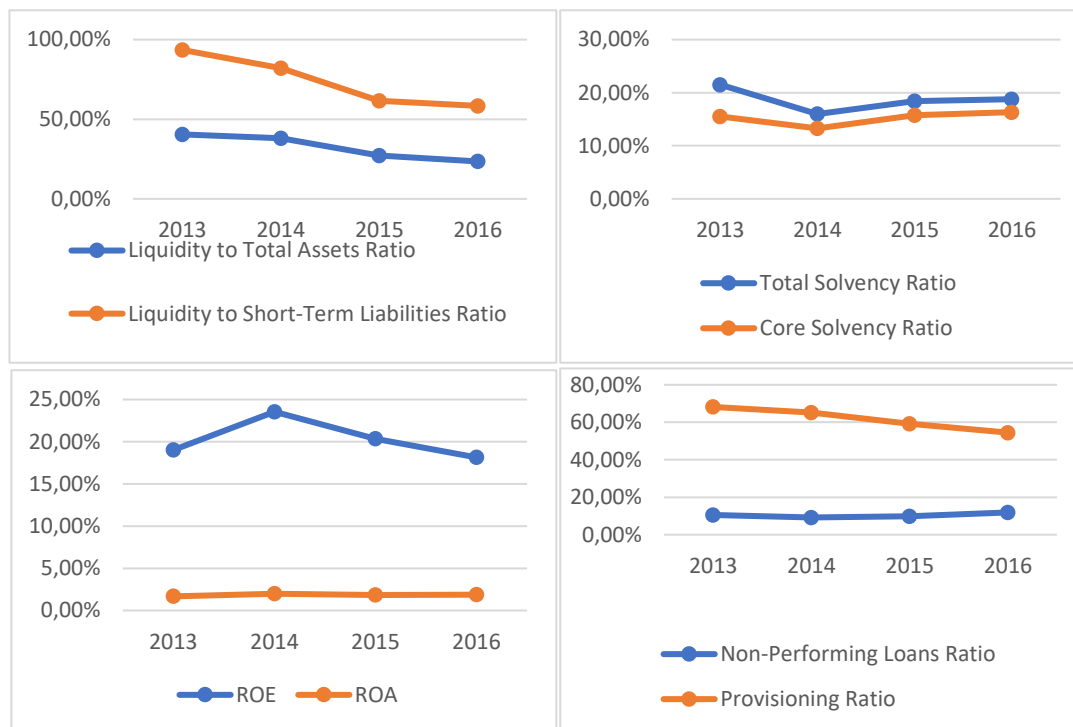
⁴-In order to strengthen the resilience of the banking system and enhance its stability against financial and banking obligations, the minimum bank capital was raised in a first stage from 0.5 billion dinars to 2.5 billion dinars, and in a second stage from 2.5 billion dinars to 10 billion dinars.

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Liquidity to Short-Term Liabilities Ratio (%)	93.5	82.06	61.6	58.39
Non-Performing Loans (NPLs) Ratio (%)	10.6	9.21	9.75	11.88
Provisioning for Non-Performing Loans (%)	68.2	65.22	59.2	54.5

Source: Annual reports of the Bank of Algeria for the period (2013-2017)

Fig (3): Graphical Development of Algerian Banking System Performance Indicators during the Period (2013–2016)



Source: Made by the two researchers based on Table 02 and the Excel program.

In view of the financial performance indicators, the situation of the banking sector remains sound, as some indicators improved while others—especially the level of non-performing receivables and their ratio to regulatory own funds, as well as provisioning ratios—experienced a slight deterioration. However, they remain at levels close to those prevailing in the banking systems of similar emerging and developing countries.

3-2-2 Solvency or Capital Adequacy Indicators:

The solvency ratio of banks reached a high level in 2013, as the ratio of core own funds exceeded 15.1%, while the ratio relating to total own funds exceeded 21%, i.e., at rates far above the standards recommended under the Basel III Agreement. With the beginning of the implementation of the provisions of Regulation No. 14-01⁵ in early October 2014, the core

⁵- It should be noted that Regulation No. 14-01 dated 16 February 2014, which includes the solvency ratio applied to banks and financial institutions, stipulated raising this ratio from 8% to 9.5% starting from 1 October 2014. Core capital was required to cover credit, market, and operational risks at a minimum rate of 7%, in addition to imposing the formation of a safety margin of 2.5%. The regulation also authorized the Banking Commission to grant banks a grace period to gradually apply these measures. It is observed that this regulation adopts from Basel II the inclusion of both market and operational risks in the calculation of the capital adequacy ratio, as well as the weighting of credit risk based on the rating of the Standard & Poor's agency, and adopts

capital adequacy ratio declined to 13.27%, and the total solvency ratio fell to nearly 16% in 2014. However, it quickly improved during 2015 and 2016, reaching 16.33% for core solvency and 18.86% for total solvency. This improvement is attributed to the significant strengthening of banks' and financial institutions' own funds. The state had decided to increase the capital of three public banks during 2015 and 2016, while public banks continued to allocate part of their results to reserves, which enabled them to widely comply with prudential rules related to the coverage of banking risks.

3-2-3 Banking Liquidity Indicators:

Unlike the period characterized by excess banking liquidity (2002–2014), during which dinar deposits largely covered the outstanding volume of loans, the upward trend in medium- and long-term loans translated into a decline in liquid assets. Liquid assets to total assets declined markedly from 40.46% in 2014 to 23.50% in 2016. The same applies to the ratio of liquid assets to short-term liabilities, which fell from 93.52% in 2014 to 58.39% in 2016.

The surplus of bank liquidity experienced a gradual decline due to the increase in mortgage loans granted to households (medium- and long-term loans provided by banks to families for the purchase or construction of homes), which prompted banks in 2016 to resort to refinancing from the Bank of Algeria through open market operations to cover their liquidity needs, including the objective of building mandatory reserves.

3-2-4 Profitability Indicators:

The return on equity indicator recorded an increase in 2014 compared to 2013, reaching 23.55% in the former against 19% in the latter. However, it soon declined during 2015 and 2016 to 20.34% and 18.14%, respectively. As for the return on assets, despite its fluctuation between slight increases and decreases from 1.67% to 1.86%, it can be considered relatively stable. The profitability of the banking sector thus remains good despite the declines and fluctuations recorded in both indicators.

3-2-5 Asset Quality Indicator:

The non-performing loans ratio continued its steady decline following its sharp rise recorded in 2007, when default reached 35.5%, as it fell from 10.56% in 2013 to 9.21% in 2014. However, its upward trend resumed in 2015 at 9.75% and reached 11.88% in 2016.

During this period, the public treasury once again repurchased banks' receivables from their public enterprise clients for a total amount of 456.2 billion dinars, bringing the total net repurchase operations during 2015 and 2016 to 761.1 billion dinars. The public treasury cancelled loans amounting to 161.2 billion dinars (granted to banks under these loans) and issued bonds for the remaining amount estimated at 599.9 billion dinars.

3-3 The Global Health Crisis (2020):

The global health crisis, or the COVID-19 pandemic, is a worldwide health crisis caused by the novel coronavirus (SARS-CoV-2). It began in late 2019 in the Chinese city of Wuhan and spread rapidly to become a global pandemic causing thousands of deaths around the world, and officially declared by the World Health Organization in March 2020 (Aomari & Abriki, 2025, p. 66). This led all countries of the world to adopt numerous measures in an attempt to limit its spread, including partial lockdowns, curfews, and border closures. The

from Basel III the increase of the overall ratio, but not to 10.5% as stipulated by the agreement, rather to a lower level, in addition to imposing the margin known as the capital conservation buffer.

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wide spread of the COVID-19 pandemic during the first three months of 2020 placed various countries around the world before real challenges, pushing them into a state of extreme emergency and driving them to search for effective solutions to confront the repercussions of the current global health crisis. This pandemic constituted an unprecedented shock for contemporary economies, as it led to the sudden and unannounced suspension of the activities of most economic institutions and bodies.

The Algerian banking system was affected by the COVID-19 pandemic, which had a negative impact on the country's economic sphere through the suspension of economic activities and the decline in oil revenues. This affected the banking sector through impacts on liquidity, deposits, and loans, while the risk of default increased. In response, the monetary authorities adopted exceptional measures to mitigate its severity in order to absorb the shocks of this crisis.

3-3-1 Presentation of Algerian banking performance indicators during the global health crisis 2020:

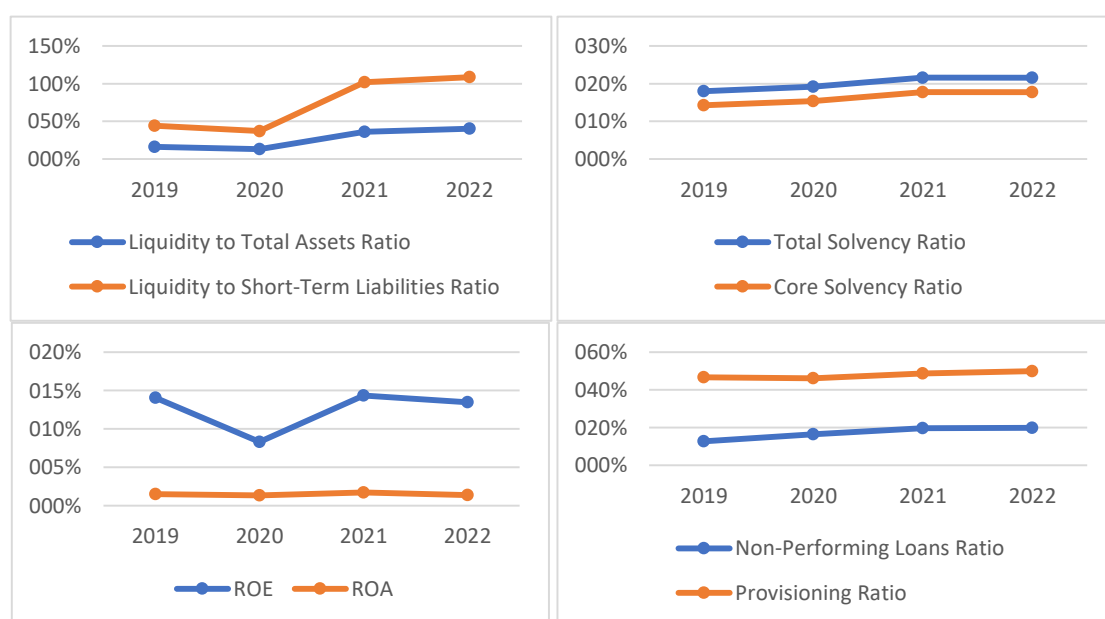
The following table presents the development of the banking system's performance indicators during the crisis period.

Table (3): Development of Algerian Banking Performance Indicators during the Period 2019–2022

Indicators	2019	2020	2021	2022
Total Solvency Ratio (%)	18	19.17	21.6	21.53
Core Solvency Ratio (%)	14.3	15.38	17.7	17.74
Return on Equity (ROE) (%)	14.1	8.31	14.4	13.47
Return on Assets (ROA) (%)	1.51	1.43	1.72	1.38
Liquidity to Total Assets Ratio (%)	16	13.11	36	40.22
Liquidity to Short-Term Liabilities Ratio (%)	44.2	37.14	102	108.5
Non-Performing Loans (NPLs) Ratio (%)	12.7	16.36	19.6	19.86
Provisioning for Non-Performing Loans (%)	46.7	46.14	48.7	49.94

Source: Annual reports of the Bank of Algeria for the period (2022-2024)

Fig (4): Graphical Development of Algerian Banking System Performance Indicators during the Period (2019–2022)



Source: Made by the two researchers based on the Table 03 and Excel program

3-3-2 Solvency or Capital Adequacy Indicators:

The total solvency indicator of the banking sector recorded an improvement at the end of 2020, reaching 19.17% after having been around 18% in 2019. This was the result of the easing of certain prudential rules starting in April 2020⁶, and maintaining the mandatory reserve ratio at 3%, which was subsequently reduced in February 2021 to 2%, while maintaining the other easing measures that exempt banks from building a capital buffer. In addition, the rescheduling of clients' debts until 31 December 2021 contributed significantly to the improvement and stability of this indicator at around 21% until 2022.

The core solvency ratio recorded the same trend, rising throughout the studied period to reach 17.74% in 2022, after having been around 14.26% in 2019.

3-3-3 Banking Liquidity Indicators:

During the last five years, the decline in liquid assets of the banking sector did not stop, despite the increase recorded in 2017 resulting from non-conventional financing⁷. However, the downward trend quickly resumed due to the decline in liquid assets by 17.4% in 2020 compared to 14.4% in 2019. Banking liquidity shrank sharply, moving from 1,100.9 billion dinars in 2019 to 461.8 billion dinars in September 2020. This negatively affected both liquidity indicators, whether the overall liquidity ratio, which fell from 15.97% in 2019 to 13.11% in 2020, or the liquidity ratio relative to short-term liabilities, which declined from 44.23% in 2019 to 37.14% in 2020.

With the Bank of Algeria taking emergency measures to address this situation-particularly by lowering the reserve requirement rate, increasing refinancing thresholds for tradable government securities, and extending the refinancing period for banks in general-banking liquidity rose to 632.1 billion dinars by the end of 2020.

The years 2021 and 2022 were marked by a noticeable change and a return of liquid assets to the required level. The Algerian banking sector witnessed a very significant increase in its liquid assets as a result of the treasury's repurchase of syndicated loans granted to public companies in exchange for bonds whose total value reached 2,599.6 billion dinars. This contributed to strengthening the liquidity indicators in 2022, as liquid assets relative to total assets reached 40.22%, while those relative to short-term liabilities reached 108.53%.

3-3-4 Profitability Indicators:

During 2020, the return on equity and the return on capital of the banking sector declined, reaching 8.31% compared to those recorded in 2019, which amounted to 14.26%. With the Bank of Algeria adopting many measures to contain the effects of the health crisis, as well as the special refinancing program for the resumption of economic activity, banks were able to achieve more results and profits during 2021. This led to an improvement in both

⁶- Order No. 05-2020 dated 06 April 2020, relating to exceptional measures to ease some of the prudential rules applied to banks and financial institutions, as amended and supplemented by Order No. 12-2021 dated 30 December 2021. For more information, see the following links:

<https://www.bank-of-algeria.dz/stoodroa/2023/03/05-20.pdf>

<https://www.bank-of-algeria.dz/wp-content/uploads/2023/02/02-2021.pdf>

⁷- Non-conventional financing is considered an exceptional mechanism for the direct issuance of money by the central bank in favor of the public treasury, in order to cover the budget deficit without specifying a maximum amount of this financing, provided that the duration of the application of this mechanism is limited to five years. For more information, see the link: <https://www.asjp.cerist.dz/en/article/63147>

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profitability indicators, as the return on equity reached 14.35%, while the return on assets reached 1.72%.

With the suspension of the easing measures and the termination of the special financing program in June 2022 following the retreat of the COVID-19 health crisis, both profitability indicators—the return on equity and the return on assets—recorded a slight decline, with the first reaching 13.47% and the second 1.38%.

3-3-5 Asset Quality Indicator:

The ratio of non-performing receivables of banks (non-performing loans) continued to rise, recording 16.36% in 2020 compared to 12.70% in 2019. The slow growth of these receivables in 2020 compared to those recorded in 2019 is attributed to the easing measures adopted by the Bank of Algeria (previously mentioned), especially those stipulating that banks and financial institutions may defer the payment of loan installments whose maturities have been reached or reschedule their customers' debts without affecting the classification and provisioning of those loans.

The uncollected receivables of employment support system projects contributed to an increase in the value of non-performing loans by 3.28% in 2021, after which they stabilized, reaching 19.86% in 2022, i.e., with an increase of 0.22%.

As for provisions allocated to non-performing loans for the banking sector, their ratio increased from 46.39% at the end of 2019 to 49.94% at the end of 2022, thus approaching the level of 50%.

3-4 Comparative Summary of the results obtained during the three crises studied:

The following table will present a comparative summary of the results of the development of Algerian banking performance indicators during the three crises:

Table (4): Comparative Summary of the Results of the Development of Banking Performance Indicators during the Three Crises

		2008 Global Crisis	2014 Oil Crisis	Global Health Crisis (COVID-19)
General Context		Caused by subprime mortgages and originated in the U.S. financial markets, then spread globally.	Sharp decline in oil prices from 110 USD per barrel to 40 USD.	A global pandemic that led to the suspension of economic activity.
		Collapse of major stock exchanges and banks.	Decline in oil revenues of the public treasury.	Economic recession and decline in domestic demand.
		—	Decline in foreign exchange reserves and slowdown in economic growth.	Temporary decline in oil prices.
Development of Banking Performance Indicators	Solvency	Increase in capital adequacy.	Decline in 2014 followed by a return to growth.	Increase and stability of solvency ratios.
	Liquidity	Maintenance of comfortable liquidity levels.	Significant decline due to the fall in deposits.	Temporary decline followed by an increase.
	Profitability	Slight fluctuation in profitability.	Decline in profits starting from late 2014.	Decline followed by gradual improvement.
	Asset Quality	Decline in non-performing loans.	Increase in non-performing loans.	Increase in non-performing loans.
Overall Result		Indirect impact due to weak integration into the international financial system.	Strong pressure on liquidity with a decline in most other indicators.	Temporary downturn followed by gradual recovery.

Source: Made by the two researchers based on the previously mentioned information.

4- CONCLUSION:

Through the analysis of the repercussions of the three crises (2008, 2014, 2020) on the performance of the Algerian banking sector, and based on the results obtained, the study proved the invalidity of the first hypothesis, which stated that: *Algerian banking performance indicators develop in the same way in the face of the different global crises during the study period*. The study disproved this hypothesis and showed that performance indicators did not evolve in the same manner, and that some indicators were affected more or less than others.

As for the second hypothesis, which stated that: *the 2014 oil crisis is the most influential on banking performance indicators during the study period*, the results confirmed the validity of this hypothesis, as the 2014 oil crisis had the greatest impact due to the heavy reliance on public financing. In general, the study concluded with the following main results:

- **The 2008 global financial crisis:** It showed a relative resilience of the Algerian banking sector thanks to the financial surpluses resulting from the rise in oil prices in the period preceding the crisis, in addition to the weak openness of Algerian banks to global financial markets, which reduced the magnitude of the direct impact of the crisis.
- **The 2014 oil price crisis:** It revealed the vulnerability of the banking sector to fluctuations in hydrocarbon prices, as the sharp decline in oil prices led to a reduction in foreign exchange reserves and a decrease in public revenues. Banking liquidity shrank as a result of the decline in government deposits, and banks' ability to finance investments weakened, in addition to low profitability indicators. Credit risk also increased due to the distress of economic institutions affected by the slowdown in economic activity. This forced the Bank of Algeria to adopt restrictive monetary policies to preserve financial stability.

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- **The 2020 global health crisis:** It represented a direct internal shock that affected all economic sectors and highlighted the structural weaknesses in risk management and asset quality. Non-performing loan ratios increased, and liquidity and profitability indicators were characterized by volatility under the pressure of the halt in economic activity and the emergency health measures.

In general, it appears that the Algerian banking sector needs comprehensive structural reforms centered on:

- Diversifying sources of financing in a way that reduces excessive dependence on the state and the petroleum sector;
- Improving risk management through the introduction of early warning tools and financial solvency measures, which contributes to enhancing the ability to anticipate crises;
- Strengthening supervision and governance within banking institutions to ensure transparency and efficiency in operational performance.

These recommendations constitute a fundamental entry point for enhancing the ability of the Algerian banking system to withstand future financial crises and to ensure its effective contribution to achieving economic growth and maintaining financial and monetary stability.

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