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RESEARCH ARTICLE

THE IMPACT OF NON-PERFORMING LOANS AND THEIR REFLECTION ON CREDIT POLICY ACCORDING TO STANDARDS BASEL III IN IRAQI COMMERCIAL BANKS STANDARD AND ANALYTICAL STUDY FOR THE PERIOD (2010-2023)

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Abstract

Within the framework of the economic race,some economic andfinanci al changes that Iraq witnessed during the period (2010-2023) emerged. The problem of nonperforming loans was raised as one of the fundame ntal problems that had a significant impact on the performance of the Iraqi banking system,especially commercial banks.The volatile econom ic conditions affected by structural challenges,security instability and fluctuations in oil prices put increasing pressure on productive and financial activities, which directly affected the ability of borrowers to fulfill their credit obligations.

Introduction:-

This research paper is extracted from a master's doctoral thesis submitted. introduction The impact of non-performing loans and their reflection on credit policy according to standards Basel III in Iraqi commercial banks A standard and analytical study for the period (2010-2023) . First , the simple relationship between non-performing debts and credit policy is analyzed using simple linear regression, where the relationship between non-performing debts and one of the indicators is studied. Home to Credit Policy . This research includes the applied aspect of studying the relationship between the proposed variables, which includes presenting the study methodology and the methods used in it, and analyzing, discussing and interpreting the results reached by the study:

1. Research Objectives:

- Analysis of the impact of non-performing loans on the credit policy of Iraqi commercial banks.
- Examination of the concept of bad debts in the Iraqi banking financial system and its effect on credit policy.
- Correction of the repercussions of non-performing loans on the application of Basel III standards in banks.
- Identification of automated strategies that Iraqi banks can adopt to improve the management of non-performing loans and enhance credit policy.

2. Standard Study:

This econometric study aims to test hypotheses related to the relationship between non-performing loans and credit policy using advanced statistical models such as regression and time-series analysis. These models will measure the impact of the non-performing loan ratio on banks' ability to effectively implement credit policies, as well as the

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effect on capital adequacy ratios and credit risk in line with Basel III standards.The study seeks to clarify how these loans influence the stability of the banking system and the efficiency of lending operations in Iraqi commercial banks.

3. Analytical Study:

The analytical study relies on financial data from Iraqi commercial banks during the period **2010–2023**. It will analyze how the adoption of Basel III standards has enhanced the ability of banks to manage credit risks and reduce non-performing loan ratios.

The analysis will also examine:

- The impact of credit policies on handling non-performing loans.
- How these policies contribute to the sustainability of the Iraqi banking system.

By using this mixed methodology, the study aims to provide practical insights to support better credit policy formulation and reinforce financial stability in Iraqi banks.

4. Statistical Methods for Data Analysis:

To conduct the standard analysis, multiple regression models will be used to explore the relationship between various financial variables—particularly non-performing loans and credit policy—while considering the influence of Basel III standards.

Impact of Non-Performing Loans on Credit Policy:-

Impact of non-performing loans on credit policy in this vital sector. Using econometric and analytical methods, the research seeks to provide an accurate view of how non-performing loans affect the financial stability of Iraqi banks and how to enhance the implementation of Basel III standards to improve overall credit performance.

Study Hypotheses

Main Hypothesis:

- Non-performing loans in Iraqi commercial banks significantly affect the credit policy of banks according to Basel III standards.

Sub-Hypotheses*:*

- The first hypothesis: There is an inverse relationship between the non-performing debt ratio and the credit policy of Iraqi commercial banks.
- The second hypothesis: Applying Basel III standards can contribute to improving the management of non-performing loans in Iraqi commercial banks.
- Hypothesis 3: Effective strategies for managing non-performing loans can enhance the stability of commercial banks' credit policy.

The Importance of Research:-

i)III Standards can contribute to strengthening Arab and international gains.

ii) It will also support banks in improving their management of non-performing loans and enhancing credit policy in accordance with international standards(NSFR,LCR).

iii)It will also enhance the financial stability of the Iraqi banking sector by improving banking risk management.

Determining the Sample (Iraqi Commercial Banks) and the Method of Selecting It:-

Iraqi commercial banks (34 banks), due to their pivotal role in the Iraqi financial system, and their great impact on the national economy. The Iraqi commercial banking sector includes both government-owned and private banks, representing all types of credit activities in Iraq.

The study spanned a period extending from 2010–2023. This is to cover a period of economic and political fluctuations in Iraq, which enhances the study's ability to provide results that represent the real challenges facing the banking sector in this time frame.

Sample Selection and Methodology:

(7) banks were selected according to a set of criteria to ensure comprehensive representation of Iraqi commercial banks:

- Gulf Commercial Bank

- Ashur International Investment Bank
- United Investment Bank
- Middle East Iraqi Investment Bank
- Trans Iraq Investment Bank
- Mosul Development and Investment Bank
- Iraqi Investment Bank

iv)Type:
Private banks across Iraq were included. Each type of bank is subject to different regulatory and financial conditions, which allows for comparison of the impact of non-performing loans on credit policy within each type.

v)(7) Iraqi commercial banks representing the private sector were selected based on their financial size**,** diversity of credit services**,** and the availability of required financial data during the research period. This includes some of the largest banks in Iraq and a number of private banks with significant influence on the Iraqi economy.

vi)Time Period:
The financial data of the selected banks were studied over a time period extending from 2010–2023**.** This period witnessed numerous economic and political challenges that significantly impacted banks' credit standing. These challenges included economic crises**,** fluctuations in oil prices, and unstable political conditions**,** all of which had a direct impact on banks' ability to manage risks and non-performing loans.

Data Sources:-

Financial data were collected from:
- Reports from the Central Bank of Iraq
- Banks' annual reports
- Databases available from financial and economic institutions

This data includes key financial indicators such as:
- Non-performing loan ratios
- Capital adequacy ratios
- Liquidity ratios
- Total non-performing loans

These indicators help analyze the relationship between non-performing loans and credit policy**.**

i)
The researcher relied on a set of financial indicators related to the study variables ، and they were referred to in the :theoretical aspect to explain the extent of their connection to credit risks. The following indicators were used

A- Independent variable (capital adequacy according to BasII The capital adequacy ratio was adopted according to BaselIII standards :(Central Bank of Iraq, 3:2018) and according to the following equation

$$\text{Capital adequacy ratio} = \frac{\textbf{Supplementary money capital + basic money capital}}{\textbf{Assets are weighted against market and operating credit risks.}} \leq \mathbf{10.5}$$

Considering that the capital base account or total capital represents the sum of (medium term loans plus basic capital .(and supporting capital

B-Indicators for the dependent variable (credit risk): The group of financial indicators that may indicate the .extent of credit risk incurred by banking activity, which were referred to in the theoretical aspect, were relied upon

- **Loans to current assets ratio(** Karim, 2019: 283):and is evaluated according to the following equation :

$$\textbf{Loans to current assets ratio} = \frac{\textbf{Total loans}}{\boldsymbol{Total\ current\ assets}} \times \mathbf{100}$$

Loan loss provision rate (Serwadda, 2018:1630) :is calculated according to the following equation

$$\textbf{Loan losses allowance rate} = \frac{\textbf{Loan losses allowance}}{\textbf{Total loans}} \times \mathbf{100}$$

Total debt ratio(Bergendorff & Osback, 2017:20):is calculated according to the following equation

$$\text{Total debt ratio} = \frac{\text{Total Liabilities} - \text{Total Equity}}{\text{Total assets}} \times \mathbf{100}$$

The ratio of non-performing loans to total loans (Abdel Rahman, 2017: 88)according to the is calculated following equation

$$Total\ Non - Performing\ Loans\ Percentage$$

$$= \frac{\text{Total non} - \text{performing loans}}{\text{Total non} - \text{performing loans}} \times 100$$

- **The ratio of loan loss provisions to non-performing loans**(Adeolu, 2014:39) is calculated according to the :following equation

$$Provision\ for\ loan\ losses\ to\ non - performing\ loans = \frac{\text{Provision for doubtful debts}}{Non - performing\ loans} \times 100$$

- **Loan to deposit ratio**(Al-Shakrchy, 2017: 36) :and it can be calculated according to the following equation

$$\text{Deposit to loan ratio} = \frac{\text{Total loans}}{\text{Total deposits}} \times 100$$

1. Definitions of the impact of non-performing loans on Iraqi commercial banks

The concept of non-performing debt: These are debts, or what is known as installments, that have not been paid for a specific period. This period may vary from one country to another or from one financial institution to another. In Iraq, it is governed by regulations issued by the Central Bank of Iraq that specify the time periods (i.e., extract allocations) for revenue. Consequently, non-payment leads to the accumulation of bad debts at financial institutions. These debts are considered non-income-generating, as borrowers are no longer able to repay the interest or principal .according to the terms agreed upon in the loan agreement

1.1. :Types of non-performing loans

- Outstanding loans: installments not paid on time.
- Bad loans: You are experiencing difficulties in repaying them, which may result in not being fully repaid.
- Doubtful loans: Loans whose collection is doubtful due to the deterioration of the borrower's financial situation.

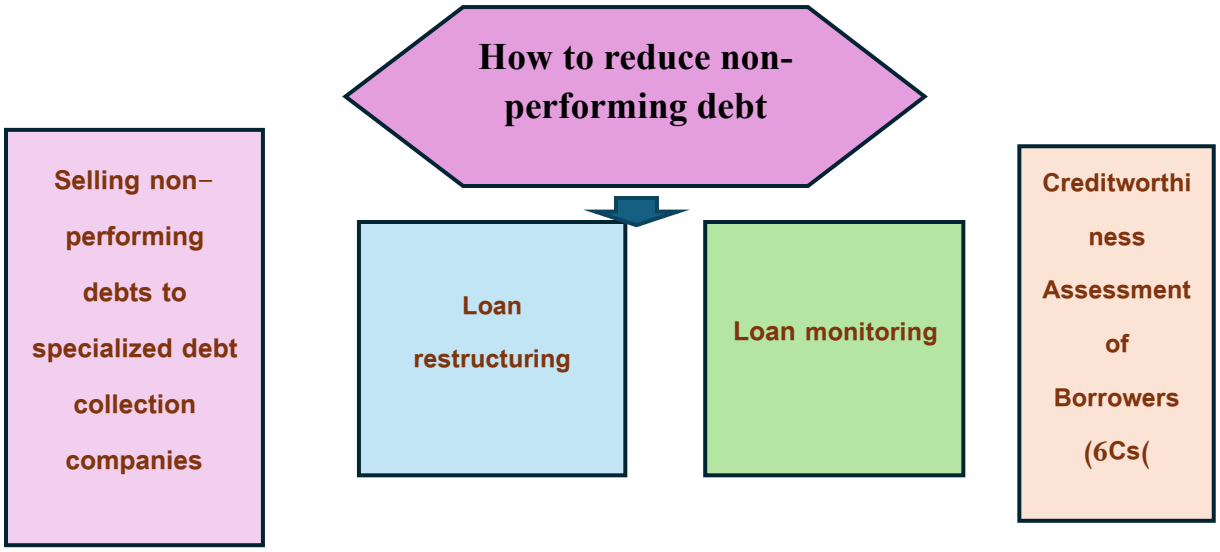
1.2. ?What are the reasons that led to non-performing debt

ii) Deteriorating economic conditions and financial crises lead to a decrease or inability of the borrower to repay.
iii) Poor Credit Management Failure to assess the creditworthiness (6Cs)of borrowers can cause an increase in non-performing debt.
iv) Market changes, interest rate fluctuations, and exchange rates affect a borrower's ability to repay.

1.3. Effects of non-performing loans on the banking system

- This will result in a decline in confidence in the banking and financial system and a negative impact on sustainable economic growth.
- You are exposed to risks (reputation).
- It also leads to instability in the financial system and thus to the risk of financial crises.
- Credit rating and loan monitoring are two important tools for banks in their efforts to manage risks and enhance the stability of the financial system.

Scheme No. (1) Methods for reducing non-performing debts



Non-performing loans pose a serious challenge to banks and the financial system, resulting in reduced bank profitability and increased financial risks. Therefore, efficient risk management and credit management are essential to enhance the stability of the financial system and improve bank management:

a- Credit assessment and loan monitoring can contribute to
1 - Reduce creditrisk.
2 - Detect the quality of the credit portfolio.
3 - Enhancing financial stability.
4 - Increased renaissance in the financial system.
5 - Reducing non-performing debt.

- What are the most important Basel III indicators?

As an international standard for banking supervision and aimed at enhancing the stability of the global financial :system

1 - **Capital Adequacy Ratio(CAR)**

- .Its purpose is to ensure that banks have sufficient capital to meet risks
- Requirements: Banks must maintain a capital adequacy ratio of no less than(%10.5)in risk-weighted asset ..

- **Liquidity Coverage Ratio (LCR)**
- .Its purpose is to ensure that banks have sufficient liquidity to meet short-term financial challenges
- Requirements: Banks must maintain a liquidity ratio of no less than(%100) with high-quality liquid assets sufficient to cover external cash flows for a period of(30) days.

2 - **Stable Funding Ratio (NSFR)**

- The purpose is to ensure that banks have stable capital to meet long-term financial challenges.
- Requirements: Banks must maintain stable funding of no less tha(%100) which means that the bank must have stable funding that covers illiquid,assets and the non-performing portion of liquid assets .

3 - **Leverage limit**

- Purpose: To ensure that banks do not rely excessively on debt and reduce leverage risks (deposits and loans in (the bank.

- Requirements: Banks must maintain a leverage ratio of no less than (3% which means that the bank must ,( ) have capital of no less than3%) of total assets .

4 - Risk management

- Requirements: Banks must have a comprehensive risk management framework that includes the identification, assessment and management of various risks, including credit risk , market risk and liquidity risk.

b- Basel III objectives and their impact: Protecting depositors and ensuring that the bank has the ease of

1 - .Urges bank stability
2 - .Reducing systemic risk
3 - .Increase confidence

c- The impact of non-performing loans on banks in light of BaselIII standards .

It is considered a major challenge for banks and financial institutions, as tIII standards aim to enhance the stability of the financial system by improving risk management and supervision of banks, and have the following impact:

Effective management of non-performing debt is essential to ensuring the stability of the financial system and enhancing confidence in it.

1 - Increased credit risk, which in turn leads to a decrease in the value of assets and increased losses.
2 - Impact on capital: Non-performing loans can lead to a decrease in banks' regulatory capital, which may affect their ability to provide credit and finance economic activities.
3 - Increased capital requirements: BaselIII standards require banks to hold sufficient capital to meet risks, as non-performing loans increase these requirements..

2. Display financial data for selected banks

To conduct the empirical analysis in this study, financial data of Iraqi commercial banks were collected for the period between (2010 -2023) This data includes several important financial indicators that help in analyzing the impact of non-performing loans on credit policy. Among the financial data analyzed are:

2.1. codes Search variable

Table(1) Codes of research variables

significance	The symbol	Indicator
dependent variable	CREDIT	Credit growth rate
dependent variable	LOANS	Loan to total assets ratio
independent variable	ADQ	Capital adequacy ratio
independent variable	AGE	Bank age
independent variable	COST	Bank Efficiency Index
independent variable	NINC	Bank business model
independent variable	NPL	Non-performing loan ratio
independent variable	ROA	Return on Assets
independent variable	ROE	Return on Equity
independent variable	SIZE	Bank size
independent variable	GDP	economic growth
independent variable	INFL	inflation

Source: Researcher's work

Table(2) Search bank codes

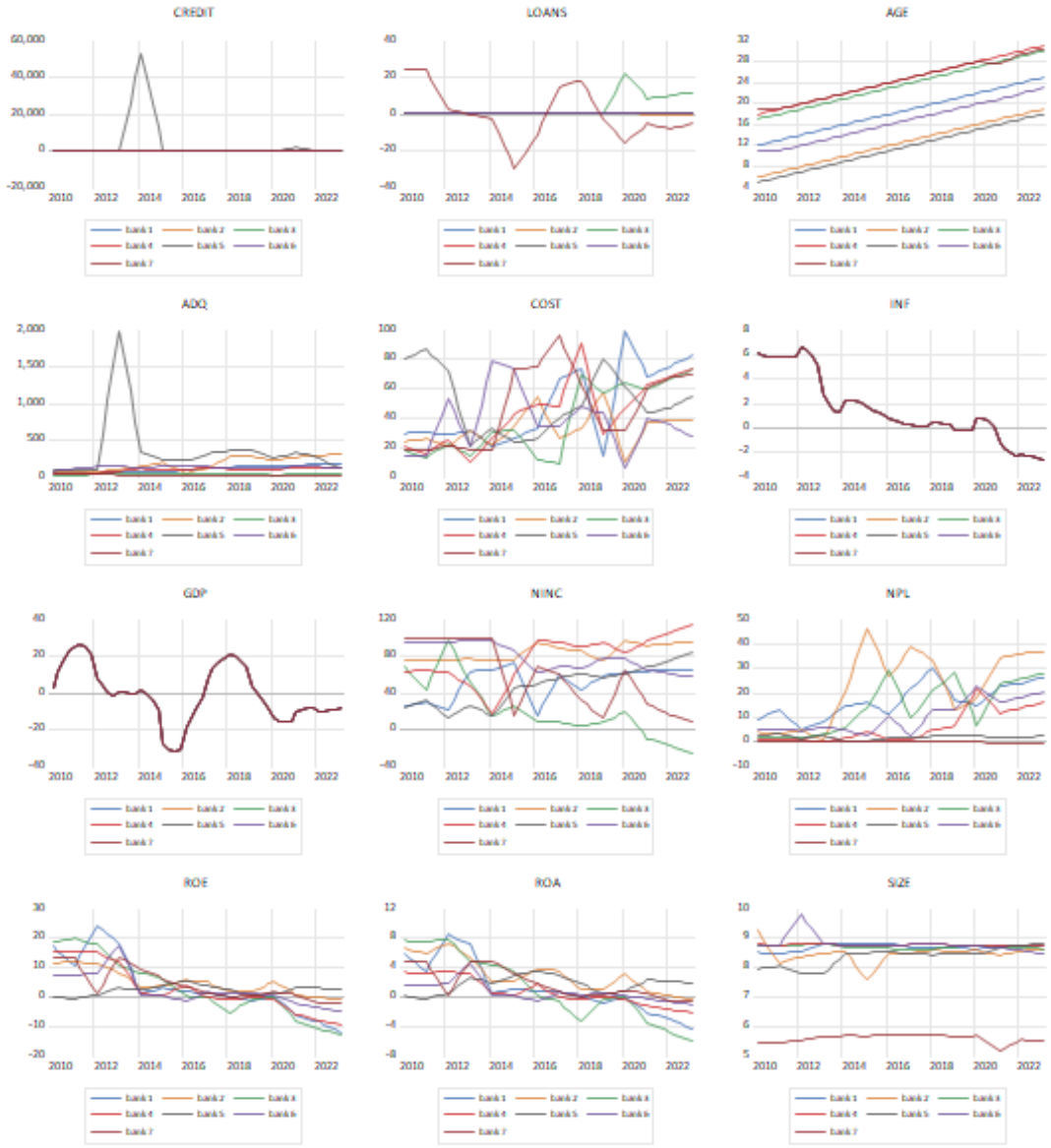
The symbol	Bank name
Bank1	Gulf Commercial Bank - Iraq
Bank2	Ashur Bank
Bank3	United Investment Bank
Bank4	Middle East Bank
Bank5	Trans-Iraq Investment Bank
Bank6	Mosul Bank
Bank7	Iraqi Investment Bank

Source: Researcher's own work

2.2. The development of research indicators during the period from the first quarter of 2010 to the first quarter of 2023 for all banks in the research sample

Evolution of research variables during the quarterly period 2010 2023

Figure(1) Time series graphs of the study variables



1.1. Stationarity tests for research variables using the integrated tablet data method

- **The figure was prepared by the researcher based on the results of theEViews 10 program.**

listed in ,resulting from the projection of time series data for the study variables and their linear values The graphs Figure (5) unit root test for as well as the results of the ,PP , :reflectPhillip-Perron (1988)Non-stationarity of time series variables (credit growth rate The study was conducted at the level of (loans to total assets ratio, capital adequacy ratio, bank age, bank efficiency index, bank business model, non-performing loan ratio, return on assets, and by taking their first differences and re-conducting the (return on equity, bank size, economic growth, inflation unit root test forPP .Perron (1988) Phillip for the variables concerned, the time series data for them became stable at their first differences, which was demonstrated by the results of the calculated values ofpp in terms of showing statistical significance, as the probability values(Prob.) did not exceed the 0.05 barrier.

Based on the results of thePhillips-Perron)1988 ((pp) test for the time series data of the study variables , and given that their stability does not exceed the second difference barrier, and remains within the first difference limits, these

which ,time series meet the conditions for the joint integration test between the study variables Presented byPesaran et al ., 2001).

Table(3) Results of the stationarity test for the credit growth rate variable at the original level and the first difference

Panel unit root test: Summary
Series: CREDIT
Date: 05/17/25 Time: 11:43
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.14200	0.0008	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.80769	0.0000	7	357
ADF - Fisher Chi-square	50.7130	0.0000	7	357
PP - Fisher Chi-square	16.2175	0.3003	7	364

Panel unit root test: Summary
Series: D(CREDIT)
Date: 05/17/25 Time: 11:42
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.01288	0.1556	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.04380	0.0000	7	350
ADF - Fisher Chi-square	65.3594	0.0000	7	350
PP - Fisher Chi-square	57.4157	0.0000	7	357

:Sources**EViews statistical program outputs** version 13

We note from the table above, and according to the stationarity tests for the panel data and according to theIM , ADF andPP method for individual series, that some tests show that the credit growth variable is stationary at the original level, such as the ADF andIM tests at a significance level of 5%, but the stationarity of the variable is .confirmed according to all tests when taking the first difference of the data at a significance level of 5%

Table(4) Results of the stationarity test for the variable of the ratio of loans to total assets at the original level and the first difference

Panel unit root test: Summary
Series: LOANS
Date: 05/17/25 Time: 11:44
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.14928	0.0158	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.19224	0.0142	7	357
ADF - Fisher Chi-square	29.8249	0.0081	7	357
PP - Fisher Chi-square	11.7587	0.6257	7	364

Panel unit root test: Summary
Series: D(LOANS)
Date: 05/17/25 Time: 11:45
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.72997	0.2327	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.94116	0.0000	7	350
ADF - Fisher Chi-square	52.0179	0.0000	7	350
PP - Fisher Chi-square	46.9895	0.0000	7	357

:Source**EViews statistical program outputs** version 13

We find from the table above, according to the stationarity tests for the panel data and according to theIM ,ADF andPP methods is the ratio of loans to total assets for individual series, that some tests show that the variable of stationary at the original level, such as theADF test and at a significance level of 5%IM but the stationarity of the , .variable is confirmed according to all tests when taking the first difference of the data at a significance level of 5%

Table(5) Results of the stationarity test for the non-performing loan ratio variable at the original level and first difference

Panel unit root test: Summary
Series: NPL
Date: 05/17/25 Time: 11:46
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.89241	0.0292	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.58346	0.0567	7	357
ADF - Fisher Chi-square	21.2282	0.0959	7	357
PP - Fisher Chi-square	7.26033	0.9242	7	364

Panel unit root test: Summary
Series: D(NPL)
Date: 05/17/25 Time: 11:47
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.90304	0.1833	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.31645	0.0000	7	350
ADF - Fisher Chi-square	67.4704	0.0000	7	350
PP - Fisher Chi-square	59.1068	0.0000	7	357

:Source
EViews statistical program outputs version 13

We find from the table above, according to the stationarity tests for the panel data and according to theIM ,ADF andPP methods for the individual series, that all tests show that the variable of the non-performing loan ratio is not Stationary at the original level at the 5% significance level, but the stationarity of the variables is confirmed according to all tests when taking the first difference of the data at the 5% significance level.

Table(6)Results of the stationarity test for the capital adequacy ratio variable at the original level and the first difference

Panel unit root test: Summary
Series: ADQ
Date: 05/17/25 Time: 11:55
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.32757	0.0922	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.82708	0.0023	7	357
ADF - Fisher Chi-square	39.6011	0.0003	7	357
PP - Fisher Chi-square	23.1503	0.0579	7	364

Panel unit root test: Summary
Series: D(ADQ)
Date: 05/17/25 Time: 11:55
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.99293	0.1604	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.54428	0.0000	7	350
ADF - Fisher Chi-square	57.7826	0.0000	7	350
PP - Fisher Chi-square	52.7873	0.0000	7	357

:Source**EViews statistical program outputs** version 13

It appears from the table above, according to the stationarity tests for the panel data and according to theIM ,ADF andPP methods is the ratio of loans to total assets for individual series, that some tests show that the variable of stationary at the original level, such as theIM test. ADF, and at a 5% significance level, but certainly the variable .remains stationary according to all tests when taking the first difference of the data at a 5% significance level

Table(7) Results of the stationarity test for the bank age variable at the original level and the first difference

Panel unit root test: Summary
Series: AGE
Date: 05/17/25 Time: 11:56
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.09634	0.5384	2	102
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	2.19903	0.9861	2	102
ADF - Fisher Chi-square	0.26295	0.9921	2	102
PP - Fisher Chi-square	0.02963	0.9999	2	104

Panel unit root test: Summary
Series: D(AGE)
Date: 05/17/25 Time: 11:57
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.81470	0.0024	2	100
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.22358	0.0000	2	100
ADF - Fisher Chi-square	25.2852	0.0000	2	100
PP - Fisher Chi-square	37.4112	0.0000	2	102

:Source**EViews statistical program outputs** version 13

It is clear from the table above, and according to the stationarity tests for the panel data and according to theIM , ADF andPP methods for individual series, that all tests show that the bank age variable is not stationary at the original level at a significance level of 5%. The stationarity of the variable is confirmed according to all tests when taking the first difference of the data at a significance level of 5%.

Table (8) Results of the stationarity test for the bank efficiency variable at the original level and the first difference

Panel unit root test: Summary
Series: COST
Date: 05/17/25 Time: 13:32
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.88688	0.0019	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.76885	0.0001	7	357
ADF - Fisher Chi-square	41.8153	0.0001	7	357
PP - Fisher Chi-square	14.4142	0.4193	7	364

Panel unit root test: Summary
Series: D(COST)
Date: 05/17/25 Time: 13:33
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.72655	0.2337	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.82788	0.0000	7	350
ADF - Fisher Chi-square	61.8615	0.0000	7	350
PP - Fisher Chi-square	56.0643	0.0000	7	357

:SourceEViews statistical program outputs version 13

It appears from the table above, according to the static tests of the panel data and according to theIM ,ADF andPP methods is static at the original level, the bank efficiency variable for individual series, that some tests show that such as theIM test. ADF, at a significance level of 5%, but the stationarity of the variable is confirmed according to all tests when taking the first difference of the data at a significance level of 5%.

at the original level and the first the bank business model variable Table (9) Results of the stationarity test for difference

Panel unit root test: Summary
Series: NINC
Date: 05/17/25 Time: 13:34
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.06411	0.1436	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.71773	0.2365	7	357
ADF - Fisher Chi-square	16.9398	0.2594	7	357
PP - Fisher Chi-square	6.54542	0.9508	7	364

Panel unit root test: Summary
Series: D(NINC)
Date: 05/17/25 Time: 13:34
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.74318	0.2287	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.79408	0.0000	7	350
ADF - Fisher Chi-square	61.4772	0.0000	7	350
PP - Fisher Chi-square	55.2742	0.0000	7	357

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We find from the table above, according to the stationarity tests for the panel data and according to theIM ,ADF andPP methods is not stationary at the the bank business model variable for individual series, that all tests show that original level at a significance level of 5%. The stationarity of the variable is confirmed according to all tests when .taking the first difference of the data at a significance level of 5%

Table (10)

at the original level and first difference the return on assets variable Results of the stationarity test for

Panel unit root test: Summary
Series: ROA
Date: 05/17/25 Time: 13:35
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.56587	0.0587	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.73240	0.2320	7	357
ADF - Fisher Chi-square	16.6572	0.2749	7	357
PP - Fisher Chi-square	6.22513	0.9605	7	364

Panel unit root test: Summary
Series: D(ROA)
Date: 05/22/25 Time: 10:13
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.56718	0.2853	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.09830	0.0000	7	350
ADF - Fisher Chi-square	52.4807	0.0000	7	350
PP - Fisher Chi-square	51.2143	0.0000	7	357

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We find from the table above, according to the stationarity tests for the panel data and according to theIM ,ADF andPP method is not stationary at the the return on assets variable for individual series, that all tests show that .original level at a significance level of 5%. The stationarity of the variable is confirmed According to all tests when taking the first difference of the data at the 5% significance level.

Table(11) at the original level and the first return on equity variable Results of the stationarity test for the difference

Panel unit root test: Summary
Series: ROE
Date: 05/17/25 Time: 13:36
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.08626	0.0185	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.86075	0.1947	7	357
ADF - Fisher Chi-square	16.6477	0.2754	7	357
PP - Fisher Chi-square	6.11742	0.9634	7	364

Panel unit root test: Summary
Series: D(ROE)
Date: 05/17/25 Time: 13:37
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.61310	0.2699	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.00926	0.0000	7	350
ADF - Fisher Chi-square	51.8451	0.0000	7	350
PP - Fisher Chi-square	49.6230	0.0000	7	357

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It is clear from the table above, and according to the stationarity tests for the panel data and according to theIM , ADF andPP method is not stationary at return on equity variable for the individual series, that all tests show that the .the original level at a significance level of 5%. The stationarity of the variable is confirmed According to all tests when taking the first difference of the data at the 5% significance level.

Table(12)

at the original level and the first difference the bank size variable Results of the stationarity test for

Panel unit root test: Summary
Series: SIZE
Date: 05/17/25 Time: 13:37
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.81409	0.0024	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.10334	0.0000	7	357
ADF - Fisher Chi-square	44.9190	0.0000	7	357
PP - Fisher Chi-square	20.7992	0.1069	7	364

Panel unit root test: Summary
Series: D(SIZE)
Date: 05/17/25 Time: 13:38
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.81496	0.2075	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.16300	0.0000	7	350
ADF - Fisher Chi-square	54.0063	0.0000	7	350
PP - Fisher Chi-square	49.7117	0.0000	7	357

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It is clear from the table above, according to the static tests of the panel data and according to theIM ,ADF andPP methods the bank size variable is static at the original level, such as for individual series, that some tests show that theIM . testADF, .and at a significance level of 5%, the static nature of the variable is confirmed According to all tests when taking the first difference of the data at the 5% significance level.

Table(13)

at the original level and first differen the GDP variable Results of the stationarity test for

Panel unit root test: Summary
Series: GDP
Date: 05/21/25 Time: 23:54
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.75982	0.0029	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.11422	0.0000	7	357
ADF - Fisher Chi-square	41.2053	0.0002	7	357
PP - Fisher Chi-square	16.9915	0.2566	7	364

Panel unit root test: Summary
Series: D(GDP)
Date: 05/21/25 Time: 23:55
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.51579	0.3030	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.45468	0.0000	7	350
ADF - Fisher Chi-square	44.8678	0.0000	7	350
PP - Fisher Chi-square	68.3229	0.0000	7	357

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table above, according to the stationarity tests for panel data and according to the، It appears from theIM ,ADF and PP methods is stationary at the original level, such GDP variable for individual series, that some tests show that the as theIM test. ADF, .and at a significance level of 5%, the stationarity of the variable is confirmed According to all tests when taking the first difference of the data at the 5% significance level.

Table(14)

at the original level and the first difference inflation variable Results of the stationarity test for the

Panel unit root test: Summary
Series: INF
Date: 05/21/25 Time: 23:55
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.08044	0.1400	7	357
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.96603	0.8330	7	357
ADF - Fisher Chi-square	5.66465	0.9742	7	357
PP - Fisher Chi-square	4.09682	0.9949	7	364

Panel unit root test: Summary
Series: D(INF)
Date: 05/21/25 Time: 23:56
Sample: 2010Q1 2023Q1
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.12306	0.0169	7	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.42986	0.0000	7	350
ADF - Fisher Chi-square	68.4085	0.0000	7	350
PP - Fisher Chi-square	107.724	0.0000	7	357

:SourceEViews statistical program outputs version 13

It is clear from the table above, and according to the stationarity tests for the panel data and according to theIM , ADF andPP methods is not stationary at the inflation variable for individual series, that all tests show that the .original level at a significance level of 5%. The stationarity of the variable is confirmed According to all tests when taking the first difference of the data at the 5% significance level.

2.3. Cointegration test for the two research models

According to the division of the experimental framework into two models, the first is concerned with estimating the impact of non-performing loans on credit policy expressed by the credit growth index, while the second model is concerned with estimating the same impact but on credit policy expressed by the ratio of loans to total assets index. Based on the above, the estimation model can be formulated in the form of two mathematical functions that are .relied upon in constructing two equations Two standards, differing in their dependent variable and identical in their independent variables, as follows:

$$CREDIT = F\{ADQ, AGE, COST, NINC, NPL, ROA, ROE, SIZE, GDP, INFL\}(1)$$
$$LOANS = F\{ADQ, AGE, COST, NINC, NPL, ROA, ROE, SIZE, GDP, INFL\}(2)$$
$$CREDIT = \beta_0 + \beta_1 ADQ + \beta_2 AGE + \beta_3 COST + \beta_4 NINC + \beta_5 NPL + \beta_6 ROA + \beta_7 ROE + \beta_8 SIZE + \beta_9 GDP + \beta_{10} INFL + \varepsilon_i(1)$$

$LOANS = \beta_0 + \beta_1 ADQ + \beta_2 AGE + \beta_3 COST + \beta_4 NINC + \beta_5 NPL + \beta_6 ROA + \beta_7 ROE + \beta_8 SIZE + \beta_9 GDP + \beta_{10} INFL + \varepsilon_i$(2)

Table(15) Results of the joint integration test for the first model

Kao Residual Cointegration test **Series: Credit ……** **Sample: ……** **included: …… …..** **observations: 47 after adjustments**			
Variable	**t-Statistic**		**Prob.**
ADF	**18.33098**		**0.0000**
R-squared		**Mean dependent var**	
Adjusted R-squared		**SD dependent var**	
SE of regression		**Akaike info criterion**	

- **Table prepared by the researcher Based on the results of theE program**

Kao Residual Cointegration Test
Series: CREDIT COST GDP INF NINC NPL ROA ROE SIZE
Date: 07/13/25 Time: 20:50
Sample: 2010Q1 2023Q1
Included observations: 371
Null Hypothesis: No integration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

	t-Statistic	Prob.
ADF	-8.016079	0.0000
Residual variance	3534038.	
HAC variance	7594105.	

Table(16) Results of the joint integration test for the second model

Kao Residual Cointegration test **Series: Credit ……** **Sample: ……** **included: …… …..** **observations: 47 after adjustments**			
Variable	**t-Statistic**		**Prob.**
ADF	**18.33098**		**0.0000**
R-squared		**Mean dependent var**	
Adjusted R-squared		**SD dependent var**	
SE of regression		**Akaike info criterion**	

- **Table prepared by the researcher Based on the results of theEViews** 10 program

The statistical data in the two tables(15,16)indicate the existence of a long-term equilibrium relationship between the variables included in the two models. In the first model, the value of theADF statistic was (-9.109460) and was statistically significant at a significance level of (0.0000), which leads to the rejection of the null hypothesis stating that there is no cointegration, and the acceptance of the alternative hypothesis stating that there is an equilibrium the value of the ADF statistic was , relationship between the variables under study. In the second model(-5.751073)

and was statistically significant at a significance level of (0.0000), which indicates the rejection of the null hypothesis that denies the existence of cointegration, and thus confirms the existence of a long-term relationship between the selected variables. Accordingly, these results methodologically justify the transition to theFMOLS methodology for paired data to analyze the dynamic relationships between variables.

2.4. Cointegration test of the credit growth equation

Table(17) research variables Kao test for the joint integration of the

Kao Residual Cointegration Test
Series: CREDIT AGE ADQ GDP INF NINC NPL ROA ROE SIZE
Date: 05/22/25 Time: 10:27
Sample: 2010Q1 2023Q1
Included observations: 371
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

	t-Statistic	Prob.
ADF	-9.109460	0.0000
Residual variance	5745.141	
HAC variance	11284.87	

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID)
Method: Least Squares
Date: 05/22/25 Time: 10:27
Sample (adjusted): 2010Q3 2023Q1
Included observations: 357 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.228968	0.019076	-12.00315	0.0000
D(RESID(-1))	0.724370	0.037066	19.54290	0.0000

R-squared	0.548170	Mean dependent var	-1.231999
Adjusted R-squared	0.546898	S.D. dependent var	77.84671
S.E. of regression	52.40086	Akaike info criterion	10.76131
Sum squared resid	974776.8	Schwarz criterion	10.78303
Log likelihood	-1918.894	Hannan-Quinn criter.	10.76995
Durbin-Watson stat	2.165934		

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It appears from the results of Table (17) and according to the Kao test for the joint integration of the panel data, that there is joint integration and long-term equilibrium between credit growth and its determinants for the research sample banks for the quarterly period 2010-2023, because the test is significant at the 5% level, and it is also evident from the regression equation of the residuals for credit growth for one lag period that it is significant according to theADF test) for joint integration, and the error correction parameter-0.22) indicates that the imbalance is .corrected during the period 0.22 of time

.the ratio of loans to total assets Testing the cointegration of : Fifth

Table (18)the ratio of loans to total assets Kao test for cointegration of

Kao Residual Cointegration Test
Series: LOANS ADQ AGE COST GDP INF NPL NINC ROA ROE SIZE
Date: 05/22/25 Time: 12:01
Sample: 2010Q1 2023Q1
Included observations: 371
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

	t-Statistic	Prob.
ADF	-5.751073	0.0000
Residual variance	2.186332	
HAC variance	6.587254	

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID)
Method: Least Squares
Date: 05/22/25 Time: 12:01
Sample (adjusted): 2010Q3 2023Q1
Included observations: 357 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.092794	0.010262	-9.042141	0.0000
D(RESID(-1))	0.759788	0.032291	23.52969	0.0000

R-squared	0.630024	Mean dependent var	-0.032144
Adjusted R-squared	0.628982	S.D. dependent var	1.618648
S.E. of regression	0.985938	Akaike info criterion	2.815141
Sum squared resid	345.0865	Schwarz criterion	2.836865
Log likelihood	-500.5027	Hannan-Quinn criter.	2.823782
Durbin-Watson stat	2.035764		

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It appears from the results of Table (23) and according to the Kao test for the joint integration of the panel data, that and its determinants for the ratio of loans to total assets there is joint integration and long-term equilibrium between the research sample banks for the quarterly period 2010-2023, because the test is significant at the 5% level. It also for one lag period that it is of the ratio of loans to total assets appears from the regression equation of the residuals significant according to theADF test) for joint integration, and the error correction parameter-0.09) indicates that the imbalance is corrected during the period of0.09 .of time

2.5. Estimating the credit growth equation in theFMOLS method for panel data and estimating the long-run response

FMOLS method, or fully modified least squares, was employed for panel data because it addresses the problem of autocorrelation and the problem of heteroscedasticity in the residuals of panel data models. It also addresses the problem of misspecification(Philips, PCB, & Hansen, 1990) , (Kao, C., & Chiang, MH, 2001)It also provides . .better results than other estimation methods

Table (19) Results of the credit growth equation according to the FMOLS method for panel data

Dependent Variable: LOANS
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 05/21/25 Time: 23:33
Sample (adjusted): 2010Q2 2023Q1
Periods included: 52
Cross-sections included: 2
Total panel (balanced) observations: 104
Panel method: Weighted estimation
Cointegrating equation deterministics: C @TREND
Regressor equations estimated using differences
Long-run covariance estimates (Bartlett kernel, Integer Newey-West fixed bandwidth)
Warning: one more more cross-sections have been dropped due to estimation errors

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPL	-0.139745	0.060333	-2.316231	0.0230
NINC	0.043792	0.041652	1.051391	0.2962
ADQ	0.124610	0.051042	2.441327	0.0168
AGE	5.966133	0.069211	86.20156	0.0000
COST	-0.031124	0.032799	-0.948923	0.3454
SIZE	-3.839450	0.038851	-98.82387	0.0000
GDP	0.096692	0.044655	2.165338	0.0333
INF	0.229765	0.085119	2.699337	0.0084

R-squared	0.358124	Mean dependent var	-0.184259
Adjusted R-squared	0.193741	S.D. dependent var	9.480240
S.E. of regression	8.512488	Sum squared resid	5941.920
Long-run variance	12.00516		

:SourceEViews statistical program outputs version 13

By reviewing Table (19), which is concerned with estimating the impact of non-performing loans on credi policy expressed by the credit growth index, the equation of which takes the following form:LOANS = - 0.139754 NPL - 0.287115 GRO - 10.11348 VOI - 0.442891 INF - 4.558696 CIV - 18.73808 BUD

Conclusion:-

1. (NPL, ADQ, AGE, SIZE, GDP, INF) in the credit growth index (LOANS) .

2.negative impact of the index is consistent (NPL)in the credit growth index (LOANS) . With the economic logic and experimental studies that framed these relationships, which indicate that a decrease in (NPL), works to raise the levels of credit growth by a factor of (0.1) , which reflects the extent of change in credit growth when the values of this variable change by one integer, which is consistent with the first basic research hypothesis, which states that (increasing the percentage of non-performing loans contributes to reducing credit growth rates in Iraqi banks for the period 2010-2023).

3.The negative impact of the(SIZE) index on the (LOANS) credit growth index contradicts economic logic, which indicates that a decrease in the size of the bank works to raise the levels of credit growth by a factor of (3.83), in contrast to the direction of the change in the size of the bank by an integer amount .

4.direct effect of(ADQ, AGE, INF , GDP) on the credit growth index (LOANS) is consistent with the economic logic and experimental studies that framed these relationships, which indicate that the increase in ((ADQ, AGE, INF , GDP) works to raise the levels of the credit growth index (LOANS) , with coefficients reaching (0.09), (0.22), (5.96), (0.12) respectively , which reflects the extent of change in credit growth (LOANS) , when the values of these variables change by an integer amount .

5.The factors represented by (NPL, ADQ, AGE, SIZE, GDP, INF) are the most influential factors in the credit growth index (LOANS) in Iraqi banks during the study period 2010-2023. The change in these factors explained an amount of (35.8124 %) From the changes in the credit growth index (LOANS) .

6.The factors represented by (NPL, ADQ, AGE, SIZE, GDP, INF) are the most influential factors in the credit growth index (LOANS) in Iraqi banks during the study period (2010-2023), as the change in these factors explained an amount 35.8124 % . From the changes in the credit growth index (LOANS) .

7.failed The variables represented by (NINC, COST) prove their significant impact on the credit growth model in Iraqi banks . There is also a direct effect of increasing the growth of banking business. ninc On the ratio of loans to total assets, as a (1%) increase in the bank's business contributes to an increase in the ratio of loans to total assets by 0.04%, but this direct effect is not significant at the 5% level.

8.There is a direct effect of the capital adequacy ratio. adq Basel III standard on the ratio of loans to total assets, as increasing the capital adequacy ratio by 1% contributes to increasing the ratio of loans to total assets by 0.12%, and this direct effect is significant at the 5% level.

9- There is a direct effect of the age of the bank on the ratio of loans to total assets, as increasing the age of the bank by 1 contributes to increasing the ratio of loans to total assets by 5.9, and this effect is significant at the 5% level, so the more experience the banks have in the banking market, this contributes to increasing their market shares and thus increasing the ratio of loans to total assets.

10.- There is a negative impact of the bank's cost efficiency on the ratio of loans to total assets, as increasing cost efficiency by 1% contributes to reducing the ratio of loans to total assets by 0.03%, but this negative impact is not significant at the 5% level.

11.- There is a negative impact of the bank size on the ratio of loans to total assets, as increasing the bank size by 1% contributes to reducing the ratio of loans to total assets. Total assets by 3.8% and this negative impact is significant at the 5% level.

12.The presence of a repulsive effect To increase the GDP growth rate in the ratio of loans to total assets, as increasing the growth rate by 1% contributes to increasing the ratio of loans to Total assets by 0.09 and this direct effect is significant at the 5% level.

13- There is an impact of the increase in inflation rates on the loan-to-debt ratio. Total assets, if the inflation rate increases by 1%, contributes to an increase in the loan-to-equity ratio. Total assets by 0.22 and this direct effect is significant at the 5% level.

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