



## RESEARCH ARTICLE

## The Impact of Using The PATROL Model of Banking Control and Supervision in Improving the Performance a Sample of Commercial Banks Listed on The Iraqi Stock Exchange

Hussein Mustafa Muhammad Ali Al-Saadawi<sup>1\*</sup>, Muhammad Mahmoud Al-Taie<sup>2</sup>

<sup>1,2</sup>College of Administration and Economics, University of Babylon, Iraq

ARTICLE INFO	ABSTRACT
Received: May 25, 2024 Accepted: Jun 27, 2024	The aim of the research is to shed light on measuring the impact of using the PATROL model on the performance of commercial banks, and to identify the most important indicator of the PATROL model that has a greater impact on improving the performance of commercial banks. The statistical program (EViews 12) was used to study the measurement and analysis of the impact of using the PATROL model for banking supervision and control in improving the performance of commercial banks. The research, according to the (Panel ARDL Model), found that there is a significant relationship and effect of the PATROL model indicators on the performance of banks (ROE) in the long and short term, and these results were consistent with the research hypothesis. The most influential indicator was profitability, which reached (19.7%).
<b>Keywords</b>	
PATROL model	
PATROL model indicators	
Evaluation of bank performance	
Return on assets	

**\*Corresponding Author:**

bus591.hussein.mustafa@student  
.uobabylon.edu.iq

### INTRODUCTION

The banking sector is considered one of the fundamental pillars of the economy of any country, as it represents one of the elements that contribute to development through the optimal distribution of available resources. The existence of a sound banking system has become a necessity that imposes itself on the reality of monetary policy.

The PATROL model, considered one of the modern models for performance evaluation, has been used. It includes five key indicators (capital adequacy, profitability, credit risk, regulation, and liquidity), and is considered one of the important early warning models used by regulatory authorities (the Bank of Italy) to evaluate the performance of banks.

## RESEARCH METHODOLOGY

### First: Research Problem

The research problem lies in determining the extent of the impact of the indicators of the PATROL model for banking supervision and control in improving the performance of commercial banks.

### Second: Research Hypothesis

The main hypothesis can be formulated based on the research problem as follows:

Do the indicators of the PATROL model for banking supervision and control lead to improving the performance of banks?

From this, the following two sub-hypotheses emerge:

Alternative Hypothesis (H1): There is a statistically significant effect of the PATROL model indicators in the long and short term on influencing the bank's performance (ROA) at the level of the three banks.

Null Hypothesis (H0): There is no statistically significant effect of the PATROL model indicators in the long and short term on influencing the bank's performance (ROA) at the level of the three banks.

### Third: Importance of the Research

The importance of the research lies in the fact that it sheds light on the importance of the PATROL model in improving the performance of commercial banks. This model helps in reducing the risks to which banks are exposed, and contributes to enhancing transparency and accountability, which leads to improving the performance of banks.

### Fourth: Research Objectives

- 1-Extracting the results and providing proposals for the possibility of applying the PATROL model in the Iraqi environment.
- 2-Identifying the main indicators of the PATROL model that have a greater impact on improving the performance of commercial banks.
- 3-Measuring the impact of the PATROL model on the performance of commercial banks.

### Fifth: Research Population and Sample

Research Population: The banking companies registered in the Iraq Stock Exchange, which amounted to (24) commercial banks.

Research Sample: Three banks listed on the Iraq Stock Exchange were selected, which are (Baghdad, Gulf Commercial, and Iraqi Commercial).

### Sixth: Scope of the Research

Spatial Boundaries: This research was applied to three companies listed on the Iraq Stock Exchange.

Temporal Boundaries: The research period was defined from (2011-2022) using annual data extracted from their financial reports and statements for the companies listed on the Iraq Stock Exchange.

### Seventh: Research variables

**Table:(1) Research variables**

variable	Variable type	Variable symbol
Capital adequacy	independent	CA

Profitability	independent	P
Credit risk	independent	CR
Organization	independent	O
Liquidity	independent	L
Return On Assets	Continued	RA

Source: Prepared by the researcher

## Theoretical Side

### PATROL model for banking control and supervision

#### Introduction

Given the role that the banking sector plays in the economy of any country, and given the negative aspects that banks are exposed to, the PATROL banking evaluation system presents itself as one of the tools that enable supervisory authorities to verify the soundness of their banks.

#### The Origin of the PATROL Model

The PATROL model was established in Italy when the Bank of Italy introduced this system in 1993. It is considered a modern external control tool that provides an indication of the efficiency and good management of banks, and provides assistance in the use of supervisory resources for inspection operations. The PATROL model is an early warning model, which is used by supervisory and regulatory authorities (Fatiha, 226:2023). It was named PATROL derived from the Italian words (Patrimonial) meaning capital adequacy, (Redditivita) meaning profitability, (Rischiosita) meaning credit risk, (Organizzazione) meaning organization, and (Liquidita) meaning liquidity (Salih and Mohamed, 169:2021).

The main inputs of the model are the data that can be obtained from banking reports, whether monthly, semi-annual or annual, received by the central bank from the banks. The outputs are the synthetic judgments, which are found by the supervisory and regulatory authorities and are highly confidential. They use all available relevant information according to uniform procedures to obtain the results, which represent a combination of quantitative and human judgment on the performance of banks (Al-Nuaimi, 333:2017). The advantages and disadvantages of the model are summarized in Table 2

**Table(2) Advantages and disadvantages of the PATROL model**

Disadvantages	Advantages	Model
The results of the analysis reflect the current situation of the bank only	1-Efficiency in evaluating the current status of the bank 2-High speed in analysis, in order to identify the important parameters in the bank's consolidated reports	PATROL

Sores: Klaas, Jana and Vagizova, Venera, Tools for assessing and forecasting financial stability of the commercial bank under conditions of instability, Investment Management and Financial Innovations, Vol 11, No 4, 2014, 158-159.

#### PATROL Model Indicators

The PATROL model has been used by regulatory and supervisory authorities. There are five indicators for this model, which are as follows:

**1-Capital Adequacy:** Capital adequacy refers to the size or level of capital that can withstand risks and attract deposits. Capital adequacy has become a major contemporary issue in the present time. It is calculated using the formula:

Capital Adequacy = determinants Capital / Total Assets... (1) (Shadia and Manal, 79:2020)

**2-Profitability:** Profitability is a fundamental goal for all banks and a necessary condition for their survival. Profitability is one of the most important of a bank's performance, as profits are the primary source of appropriate returns for the bank's shareholders and strengthening the bank's capital (Nour et al., 69:2021). To analyze the profitability indicator, we relied on the Return on Equity (ROE) as it is more comprehensive than the model of the rate of return on assets. It is calculated using the formula:

Return on Equity (ROE) = Net Income / Equity \* 100... (2) (Ramli and Qarfi, 159, 2021)

**3-Credit Risk:** Credit risk is defined as the potential loss resulting from the inability of the client (borrower) to repay the original loan amount and its interest on the due date specified in the contract terms (Husseini, 2021:137). It is calculated using the following equation:

Credit Risk = Provision for Doubtful Debts / Total Loans... (3)

**4-Organization:** Organization is defined as the means by which the efforts, abilities, and talents of employees working together to achieve a common goal are coordinated, so that the objectives are achieved with the least amount of conflict and contradiction, and the maximum level of satisfaction is achieved (Sharahe, 2018:66). The expression of organization in banks is as follows:

Organization = Number of employees who have attended training courses / Total number of employees... (4) (Al-Nuaimi, 2017:326)

**5-Liquidity:** Liquidity is defined as the bank's ability to meet its obligations, especially to depositors, and an adequate level of liquidity is positively related to the bank's performance (Dang, 2019:63, Odawo and others). It is calculated according to the following equation:

Liquidity = Liquid Assets / Total Assets... (7) (Taj Al-Din, 2020:431)

## Measuring and Evaluating Performance in Banks

Performance, in general, is defined as the bank's ability to acquire and manage its resources in order to develop a competitive advantage (Shehada, 2018: 17).

### Evaluation of Bank Performance

#### Concept of Evaluating Bank Performance

Performance evaluation is one of the most important administrative functions through which management seeks to achieve the best results and improve performance to achieve effective performance and high productivity (Yassin, 2021: 42; Jam et al., 2011).

#### Definition of Bank Performance Evaluation:

Bank performance evaluation is the process of analysing the achieved results on banking activities and events and comparing them with the previously prepared plans, identifying deviations, diagnosing their causes, and taking the necessary measures to reduce their impact or prevent their recurrence in the future (Shamir and Al-Baaj, 2022: 412; Kanval et al., 2024; Waheed et al., 2010).

#### Objectives of Bank Performance Evaluation

The process of evaluating performance in the bank is a fundamental objective to identify the adequacy of its capital, and the soundness of its financial position. Among these objectives are the following:

1-Identifying the points of malfunction and weakness in the bank's activity by measuring the productivity of each department and identifying the strengths and weaknesses in order to know the causes of deviations and correct them.

2-Providing statistical data and information through performance evaluation reports in the bank contributes to the continuous update, and helps in developing policies and studies that work to improve performance patterns and increase their effectiveness (Al-Zubaidi, 2016: 50).

3-Activating the supervisory body on the performance of the bank's operations, which provides an opportunity for bank managers to ensure high efficiency, achieve goals, and achieve high returns at low cost.

4-Comparing the bank's performance and that of similar banks according to the sector or activity within the different sectors, with the aim of developing senior management to improve the bank's performance level (Al-Juraiwi, 2022: 28).

### Performance Measurement and Evaluation Models for Banks

There are models for evaluating the performance of banks, and the model that was relied upon in this study is the Return on Assets (ROA).

The return on assets (ROA) is usually considered the most appropriate ratio for evaluating the performance of a bank (Khataybeh, 2013:40). It is measured according to the following formula:

Return on Assets (ROA) = Net income after tax / Total assets... (1) (Zaghood, 2015:48)

## Standard Aspect Measuring and Analyzing the Impact of Using the PATROL Model for Banking Supervision and Oversight in Improving the Performance of a Sample of Commercial Banks for the Period (2011-2022)

### Introduction

Using the statistical software (Eviews12) to demonstrate the effect of the independent variables on the dependent variable, as the set of Views was dealt with on the basis of cross-sectional time series, and thus the total number of Views became (144) Views. The model specific to this data will be built using the panel data approach, as it represented the study of three banks: (Bank of Baghdad, Gulf Commercial Bank, Iraqi Commercial Bank) for the period (2011-2022). The data for the study variables (the dependent variable and the independent variables) were dealt with on a quarterly basis.

To build the required model, the following steps will be taken:

### Testing the stability of time series for the research sample variables

**Table (3) Results of testing the stability of time series for the research sample variables**

Levin, Lin & Chu t* At the first difference			Levin, Lin & Chu t* At the level			Test type
The result	Moral value	Statistical value	The result	Moral value	Statistical value	variable
stable	0.0000	-11.5633	Unstable	0.7744	0.75342	CA
			Stable	0.0010	-3.07712	P

stable	0.0000	-18.9538	Unstable	0.4894	-0.02661	CR
stable	0.0000	-9.17877	Unstable	0.1350	-1.10284	O
stable	0.0000	-11.5632	Unstable	0.4736	-0.06616	L
stable	0.0000	-10.9028	Unstable	0.0561	-1.58880	ROA
<b>ADF - Fisher Chi-square At the first difference</b>			<b>ADF - Fisher Chi-square At the level</b>			<b>Test type</b>
Stable	0.0000	132.152	Unstable	0.8914	2.28774	CA
			Stable	0.0085	17.2106	P
Stable	0.0000	351.492	Unstable	0.0988	10.6788	CR
Stable	0.0000	96.9021	Unstable	0.3744	6.45256	O
Stable	0.0000	132.152	Unstable	0.7405	3.52573	L
Stable	0.0000	120.838	Unstable	0.3066	7.15673	ROA
<b>PP - Fisher Chi-square At the first difference</b>			<b>PP - Fisher Chi-square At the level</b>			<b>Test type</b>
Stable	0.0000	132.152	Unstable	0.8938	2.26467	CA
			Unstable	0.2205	8.24848	P
Stable	0.0000	132.152	Unstable	0.0000	105.145	CR
Stable	0.0000	132.152	Unstable	0.3626	6.56808	O
Stable	0.0000	132.152	Unstable	0.7412	3.52076	L
Stable	0.0000	132.152	Unstable	0.3002	7.22925	ROA

Source: Prepared by the researcher based on the outputs of the statistical analysis program (EViews 12)

It is evident from Table (3) that the variables (CA, CR, O, L, ROA) show the significance of all unit root tests after taking the first difference, as the p-value associated with each test was less than the statistical significance level (0.05), from which we conclude the absence of a unit root in the data series after taking the first difference for all tests, and therefore, we judge the stationarity of the series at the first difference.

As for the variable (P), the test results (Levin, Lin & Chu t, ADF-Fisher Chi-square) for the unit root show significance at the level, as the p-value associated with each test was less than the statistical significance level (0.05). Meanwhile, the results of the table showed the insignificance of the PP-Fisher Chi-square test, as the p-value associated with the unit root test reached a value of (0.2205), which is greater than the significance level (0.05), meaning that the null hypothesis of the presence of a unit root cannot be rejected, and therefore, the decision will be the absence of a unit root in the data series for the majority of the tests, and consequently, the series under study is judged to be stationary at the level.

#### **Autoregressive distributed lag model (Panel ARDL Model)**

The summary of the unit root tests for all variables shows that the variables (CA, CR, O, L, ROA) are non-stationary at the level and stationary at the first difference, while the variable (P) is stationary only at the level. The results of the above tests indicate the possibility of building a Panel Autoregressive Distributed Lag (ARDL) model. The results of estimating the optimal model are presented in Table (4)

**Table (4) Results of the autoregressive distributed lag period model (Panel ARDL Model)**

معلمات الاجل الطويل والاجل القصير لأنموذج (1,4,4,4,4) Panel ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
CA	0.089464	0.001002	89.24813	0.0000
P	0.197319	0.000916	215.3247	0.0000
CR	0.028850	0.000698	41.33274	0.0000
O	0.004936	0.000223	22.13192	0.0000
L	-0.031640	0.000208	-152.2024	0.0000
Short Run Equation				
COINTEQ01	-0.330246	0.336456	-0.981542	329400.
D(CA)	0.023788	0.009180	2.591248	0.0115
D(CA (-1))	0.002990	0.004158	0.719237	0.4742
D(CA (-2))	0.002990	0.004158	0.719237	0.4742
D(CA (-3))	0.002990	0.004158	0.719237	0.4742
D(P)	0.285816	0.150707	1.896504	0.0617
D(P (-1))	-0.000402	0.001438	-0.279551	0.7806
D(P (-2))	-0.000402	0.001438	-0.279551	0.7806
D(P (-3))	-0.000402	0.001438	-0.279551	0.7806
D(CR)	-0.020797	0.027834	-0.747190	0.4573
D(CR (-1))	0.012575	0.006992	1.798493	0.0761
D(CR (-2))	0.012575	0.006992	1.798493	0.0761
D(CR (-3))	0.012575	0.006992	1.798493	0.0761
D(O)	-0.002632	0.001265	-2.079790	0.0409
D(O (-1))	-0.000458	0.000337	-1.359268	0.1781
D(O (-2))	-0.000458	0.000337	-1.359268	0.1781
D(O (-3))	-0.000458	0.000337	-1.359268	0.1781
D(L)	0.010889	0.006008	1.812325	0.0739
D(L (-1))	0.005722	0.004203	1.361541	0.1774
D(L (-2))	0.005722	0.004203	1.361541	0.1774
D(L (-3))	0.005722	0.004203	1.361541	0.1774
Mean dependent var	-0.000233	S.D. dependent var		0.007574
S.E. of regression	0.000838	Akaike info criterion		-11.00865
Sum squared resid	5.34E-05	Schwarz criterion		-9.606240
Log likelihood	860.6229	Hannan-Quinn criter.		-10.43879

Source: Prepared by the researcher based on the outputs of the statistical analysis program (EViews 12)

It is clear from Table (4) that the independent variables (CA, P, CR, O) have a positive effect on the Return on Assets (ROA) and at the level of the three banks. Increasing one of these variables or all of them will lead to an increase in ROA, i.e., there is a positive relationship, and this is in line with economic theory. The greatest impact was for the profitability variable (P), meaning that increasing this ratio by 1% leads to an increase in ROA by 19.7%, which indicates the efficiency of the management of the three banks in organizing and employing their resources well. Thus, the alternative hypothesis (H1) was proven, which states: "There is a statistically significant effect of the PATROL model indicators in the long and short term on the bank's performance (ROA) at the level of the three banks."

However, the liquidity variable (L) showed an inverse relationship with the variable (ROE), and this is in line with economic theory, as an increase in this ratio by (1%) leads to a decrease in the Return on Assets (ROA) by 3.16%.

It is clear that the independent variables (CA, P, CR, O, L) are significant in influencing the dependent variable (ROA) in the long run equation at the level of the three banks and for the studied time period, as the p-value associated with the t-test for the parameter of each variable is close to 0.000, which is less than the significance level of 0.01.

As for the short-run equation parameters, the regression coefficient of the cointegration term COINTEQ01 showed statistical significance, as the p-value associated with its t-test was 0.03294, which is less than the statistical significance level of 0.05. It also appeared with a negative sign, meaning that the time series are cointegrated and the speed of correction towards cointegration is around 33%.

### Choose the optimal model

The results of the experiments on the different Panel ARDL models are presented in Table (5), and from the results of the table it is clear that the optimal model is the ARDL (1,4,4,4,4) model because it has achieved the lowest values for the AIC=-12.009438, BIC=-10.824358, and HQ=-11.405970 criteria, which are the lowest values among all the criteria for the other models.

**Table (5) Results of choosing the optimal model**

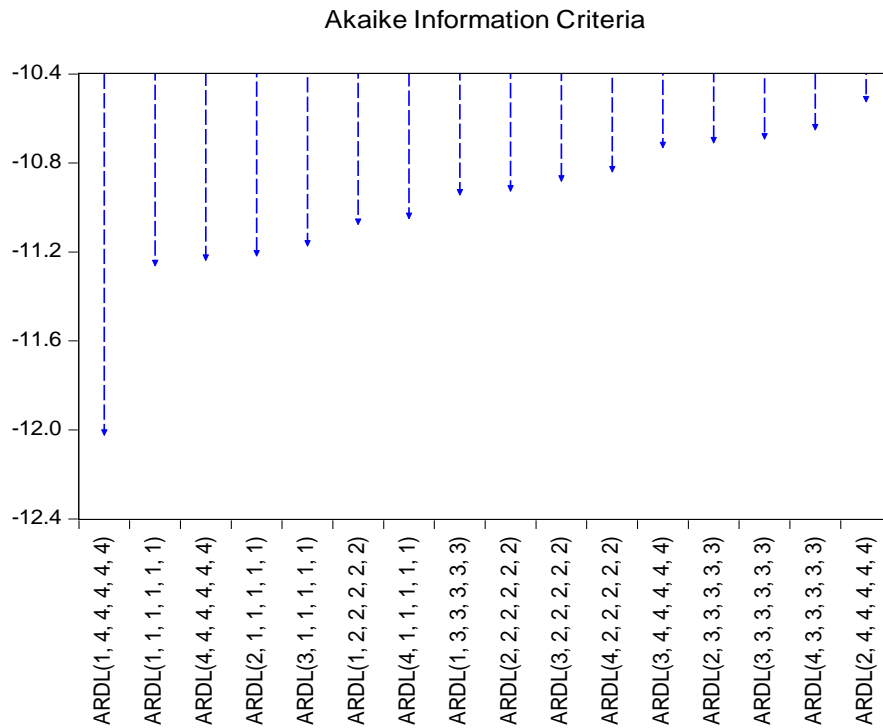
Model	LogL	AIC*	BIC	HQ	Specification
4	860.622912	12.009438	10.824358	11.405970	ARDL(1, 4, 4, 4, 4)
1	765.364986	11.247954	10.745648	11.043840	ARDL(1, 1, 1, 1, 1)
16	817.727880	11.223150	-9.541515	10.539811	ARDL(4, 4, 4, 4, 4)
5	765.446342	11.203732	10.635908	10.972995	ARDL(2, 1, 1, 1, 1)
9	765.540603	11.159706	10.526363	10.902345	ARDL(3, 1, 1, 1, 1)
2	768.129614	11.062570	10.232672	10.725338	ARDL(1, 2, 2, 2, 2)
13	760.364874	11.035831	10.336970	10.751846	ARDL(4, 1, 1, 1, 1)
3	774.375946	10.929939	-9.772450	10.459588	ARDL(1, 3, 3, 3, 3)
6	761.206412	10.912218	10.016803	10.548362	ARDL(2, 2, 2, 2, 2)
10	761.307228	10.868291	-9.907357	10.477812	ARDL(3, 2, 2, 2, 2)
14	761.536024	10.826303	-9.799851	10.409200	ARDL(4, 2, 2, 2, 2)
12	781.314678	10.716889	-9.100773	10.060174	ARDL(3, 4, 4, 4, 4)
7	761.909951	10.695605	-9.472598	10.198631	ARDL(2, 3, 3, 3, 3)
11	763.793430	10.678688	-9.390163	10.155091	ARDL(3, 3, 3, 3, 3)
15	764.103072	10.637925	-9.283882	10.087704	ARDL(4, 3, 3, 3, 3)
8	764.764098	10.511577	-8.960979	-9.881485	ARDL(2, 4, 4, 4, 4)

Source: Prepared by the researcher based on the outputs of the statistical analysis program (EViews 12)

### Choosing the optimal model according to the Akaike Information Standard diagram



The figure (1) shows the selection of the optimal model according to the Akaike Information Criterion (AIC). From this, it is evident that the optimal model is the ARDL (1,4,4,4,4) model, as it has achieved the lowest value of the Akaike Information Criterion, which is approximately (-12). The selection rule here is to choose the model achieves the lowest value for this criterion among all possible models.



**Figure (1) The optimal model according to the Akaike information criterion plot**

Source: Prepared by the researcher based on the results of Table (5)

**CONCLUSION**

- 1-The results of the standard analysis showed a significant and positive effect of the indicators of the PATROL model on the ROA in both the long and short term.
- 2-The results of the standard analysis showed that the profitability indicator (P) had the largest share in influencing the return on assets (ROA), reaching 19.7%, which is the goal that banks seek to achieve.
- 3-Evaluating banking performance is comparing the achieved goals with the set goals to discover errors and deviations and work to correct them, as well as diagnosing problems and solving them, and knowing the strengths and weaknesses in the bank.
- 4-The banks' application of the PATROL model can enhance and improve their performance, in addition to identifying errors and deviations and ways to address them.

**Recommendations**

- 1-Recommendation of the Central Bank to use the PATROL model in supervising the performance of banks, as it is considered one of the modern models used for evaluation and forecasting of financial soundness due to its ability to detect weaknesses and deviations and correct them in a timely manner.
- 2-The need for Iraqi banks to be interested in the PATROL model indicators in order to enhance and improve their banking performance and the effectiveness of the control and banking supervision

operations carried out by the regulatory and inspection bodies for the monetary authority represented by the Central Bank.

## REFERENCES

### a. Books

1. Al-Zubaidi, Hamza Mahmoud, *Financial Analysis: Performance Evaluation and Failure Prediction*, Al-Warraq Publishing and Distribution House, Amman-Jordan, 2000.
2. Shara'a, Magdy Abdullah, *Principles of Management and Organization*, 2018.

### b. University Theses and Dissertations

1. Al-Jirawi, Shawkat Abdul-Amir Shams, *The Impact of Performance Evaluation Using the CAMELS Model on the Quality of Earnings of Iraqi Banks*, Master's Thesis, University of Qadisiyyah, College of Administration and Economics, Accounting Department, 2022.
2. Chadlia, Hamida, and Manal, Maâbid, *The Role of the B.N.S Banking Evaluation and Rating System in Activating Banking Supervision in Algeria*, Academic Master's Degree, Arab University of Tebessa, College of Economic Sciences, Commercial
3. KHATAYBEH.MOHAMMED ABDULLAH. *Determining Bank Performance In Emerging Markets: The Case Of Jordan Competition, Portfolio Behaviour And Efficiency* .Master Thesis. University of Birmingham. Collage of Social Sciences Birmingham Business School Department of Economics.2013.
4. Sciences and Management Sciences, Department of Economic Sciences, 2022.
5. Shahada, Hanaa Majdi, *The Impact of Corporate Social Responsibility Disclosure on Financial Performance*, The Islamic University–Gaza, Faculty of Economics and Administrative sciences,2018.
6. Yassin, Sanabel Adnan, *moderating effects of firm size in the relationship between managerial performance and financial performance on the Palestinian industrial companies listed at PEX*, the degree of Master, An-Najah National University, faculty of graduate studies, department of accouting,2021.
7. Zaghoul, Iman, *Early Warning Using the CAMELS Model to Evaluate the Performance of Commercial Banks - Case Study of the Algerian National Bank*, Master's Thesis, University of Al-Arabi bin Mahdi, College of Economic Sciences, Commercial Sciences and Management Sciences, 2015.

### c. Journals and Newspapers

1. Al-Nuaimi, Saadallah Muhammad Obayd, *Evaluating Bank Performance Using the PATROL Model: An Analytical Study of a Sample of Iraqi Private Banks*, Tikrit Journal of Administrative and Economic Sciences, Volume 3, Issue 33, 2017.
2. Hussein, Mahmoud Muhammad Abdul Rahim, *The Impact of Disclosure of Banking Credit Risks on Improving the Financial Performance of Commercial Banks: An Applied Study*, Scientific Journal of Commercial Research, Issue 4, 2021.
3. Jothr, Osama Abdulsalam, and Hameed Ayad Abed, and Mohaisen Hussein Ali, *CAMELS Model and its Impact on the Evaluation of Banking Performance*, Journal of Management and Economics, Volume129,2021.
4. Nour ,Abdel Nasser Ibrahim ,and Al-Taweel ,Essam Mohammed, And Rashwan ,Abd el Rahman Mohammed, *Impact of capital risk on the application of CAMELS standards in banks listed on the Palestine Stock Exchange* ,Int. J. Electronic Banking, Vol. 3, No. 1, 2021.

5. Odawo, George Onyango and Makokha Elizabeth Nambuswa and Namusonge Gregory, Effects of Credit Risk Management on Performance of Banks in Kenya, Archives of Business Research – Vo 17, No 2, 2019.
6. Ramli, Hamza, and Karfi, Ammar, Measuring Banking Performance Using the American Early Warning Model CAMELS - A Comparative Study Between the Chinese Agricultural Bank and the American Bank, Volume 8, Issue 1, 2021.
7. Saliha, Ahmad Salih, and Muhammad, Zaidan, Evaluating the Performance of the Algerian National Bank Using the PATROL Model During the Period 2015-2019, Journal of North African Economies, Volume 17, Issue 25, 2021.
8. Shawkat, Abdul Amir Shamir and Qassim, Mohammed Al-Baaj, "Using CAMELS as a tool for Evaluate Banking Performance" A Sample Application Study of Iraqi Banks listed on Iraq's Stock Market for the Period (2015-2020), Al-Qadisiyah Journal for Administrative and Economic Sciences, Volume 24, Issue 3 (2022).
9. Taj Al-Din, Mayada Salah Al-Din, The Effect of the CAMEL Model on Bank Profitability (An Applied Study on a Number of Private Iraqi Banks for the Period 2010-2016), Journal of Economics and Administrative Sciences, Volume 26, Issue 117, 2020.
10. Kanval, N., Ihsan, H., Irum, S., & Ambreen, I. (2024). Human Capital Formation, Foreign Direct Investment Inflows, and Economic Growth: A Way Forward to Achieve Sustainable Development. *Journal of Management Practices, Humanities and Social Sciences*, 8(3), 48-61.
11. Waheed, M., & Jam, F. A. (2010). Teacher's intention to accept online education: Extended TAM model. *Interdisciplinary Journal of Contemporary Research in Business*, 2(5), 330-344.
12. Jam, F. A., Sheikh, R. A., Iqbal, H., Zaidi, B. H., Anis, Y., & Muzaffar, M. (2011). Combined effects of perception of politics and political skill on employee job outcomes. *African Journal of Business Management*, 5(23), 9896-9904.