



THE IMPACT OF EARNINGS MANAGEMENT ON CAPITAL ADEQUACY: AN APPLIED STUDY OF A SAMPLE OF BANKS LISTED IN THE IRAQI STOCK EXCHANGE

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Article history:	Abstract:
Received: November 10 th 2022 Accepted: December 11 th 2022 Published: January 18 th 2023	The research aims to show the effect of real earnings management on capital adequacy for a sample of banks listed in the Iraq Stock Exchange. The research sample consisted (10) banks listed in the Iraq Stock Exchange for the period from 2010 to 2019, as real earnings management was measured through the provision for loan losses, unusual cash flows, and estimated expenses, and capital adequacy was measured through the basic and additional capital divided by risk weighted assets. The research concluded that there is an adverse effect of real earnings management practices on capital adequacy, and the research recommends the need for banks to comply with Basel requirements because of their role reduce earnings management practices.

Keywords: Earnings Management, Capital Adequacy

INTRODUCTION

The concept of earnings management (EM) expanded in the business environment quickly, especially after the scandals that were exposed to some major companies that declared bankruptcy such as (WorldCom & Enron) and the reason for this was the manipulation of profits, and the process of earnings management became an important issue for various users of accounting information, investors and other stakeholders being It affects the quality of the financial statements (Ali & Kamardin, 2018) as the positive accounting theory demanded by (Jensen) came as a result of some of the basic incentives for earnings management, including management rewards, terms of debt contracts and political costs. Studies have shown that management uses an opportunistic judgment to increase its compensation based on profits (Lazzem & Jilani, 2018). Proponents of earnings management believe that it is not considered a violation of accounting standards, as the management chooses the accounting policies and methods that achieve the maximum possible benefit for them, and thus influence the users of financial statements to understand business performance (Al-Tamimi and Al-Saadi, 2015), since banks act as an intermediary between lenders and depositors, the bank offers loans at declared interest rates and is financed by deposits and capital, where the bank chooses the interest rate for deposits in order to maximize profits, as capital plays an important role as it is the main source of loan financing in addition to

the fact that capital is important to the risks associated with deposits, it is likely that a bank that suffers from a lack of capital will turn into bankruptcy in the face of negative development on the asset side (Ghosh, & Das, 2005). Therefore, the bank should follow an effective strategy that achieves profits and avoids risks. Accordingly, the research problem lies in the following question: Does the company's earnings management for its real activities affect the capital adequacy ratio?

The research aims to present and discuss the concept of earnings management and the reasons that motivate management to use flexibility in accounting standards when preparing financial statements, as well as discussing the importance of capital adequacy for companies, and showing the relationship between earnings management and capital adequacy ratio.

Research hypothesis: The research is based on the following hypotheses:

1. "The level of real earnings management and capital adequacy varies in the research sample banks".
2. "There is a significant relationship between the real earnings management and the capital adequacy ratio in the banks of the research sample."
3. "There is a statistically significant effect of real earnings management on the capital adequacy ratio in the banks, the research sample."



LITERATURE REVIEW

Concept of earnings management

The concept of earnings management covers the various accounting techniques used by managers to achieve specific financial results, and according to the literature there is no generally accepted definition that can be explained by the complexity and difficulty of the scope of the term "earnings management", Beneish (2001) indicated that there is "no consensus" about what earnings management (Costa & Mota, 2021), this has increased researchers' interest in studying the impact of real earnings management after Sarbanes Oxley SOX act where they found that CEO are more likely to engage in real earnings management through abnormal cash flows (Liu, 2022), agency theory is used to explain earnings management. Jensen and Meckling (1976) define the agency relationship as "a party that gives another party to perform a specific function or service and is given decision-making power, Dividend management stems from the agency relationship between shareholders and managers (agents) that creates an agency relationship these are conflicts between agents due to differences in interests between principal and agent, and thus this discrepancy will lead to inconsistent information, as management will not disclose information in an truthful and transparent manner to shareholders based on agency theory, large companies will experience greater information asymmetry and its effect on the company's performance (Alhadab & Al-Own, 2017; Nalarreason et al., 2019) Schipper (1989) was the first to define earnings management as "a deliberate interference with the reporting of financial information with the aim of obtaining private gain" (Andreas et al., 2021) accordingly, earnings management is an attempt by company managers to interfere or influence information in the financial statements in order to mislead stakeholders who want to know the company's performance (Hughes et al., 2012; Enomoto et al., 2015; Muda et al., 2018), research indicates that the manipulation of the preparation of financial statements by management is not only through estimates and accounting methods, but also through operational decisions such as accelerating sales, deferring research and development expenditures, and maintenance expenses (Roychowdhury, 2006), and earnings management can be divided into two types (Zang, 2012; Melado & Saona, 2020):

- Earnings management with accruals: Earnings management on an accrual basis includes many accounting methods to improve profits, which must be returned in future periods and should not affect the company's cash flows, among these methods are reclassifying some items in the financial statements, and

manipulating the timing of recognizing revenues and expenses, the method of depreciation of fixed assets and the estimation of the allowance for doubtful debts.

- real earnings management: earnings management with real activities involves manipulating operational business processes and thus has an impact on the cash flows of the company, and accordingly, the real manipulation of the activity reduces the value of the company, as the actions taken to increase profits in the current period may negatively affect the cash flow in future periods. For example, reducing research, development, advertising and maintenance expenses.

Thus, when management is restricted to the practice of earnings management with accruals by highly experienced auditors, the management prefers earnings management with real activities over earnings management on accrual, because earnings management is more acceptable than (AEM) as well as difficult to detect by auditors (Jiang et al., 2018).

Capital adequacy

One of the main objectives of the banking sector supervisors is to increase the stability of financial markets through capital requirements, especially the requirements set by the Basel Committee on Banking Supervision (BCBS) (Laas & Siegel, 2017) capital adequacy ratios act as a safety for banks to reduce the expected risks facing banks, especially for international transactions, the application of capital adequacy ratio regulations in line with international standards will help banks achieve sound management and protect the banking system from financial shocks (Nguyen, 2021), as the main purpose of banking is to achieve maximum profitability through which can be seen the strength of the bank's financial system, and capital adequacy is one of the factors that determine the growth of the bank, and therefore the capital adequacy ratio is used to measure capital and reserves for write-offs in credit coverage. , especially the risks that occur due to the failure to collect interest (Angari & Dana, 2020) capital adequacy is defined as "the adequacy of information collected in the bank related to the risks associated with assets, off-balance sheet transactions and other risks (Senan et al., 2022), Pandia has referred to capital adequacy as "the ability of the bank to maintain sufficient capital that helps the management of the bank to identify, measure, oversight and control the risks that arise and affect the amount of capital, capital adequacy can be obtained by calculating the capital with risk-weighted assets (Anggriani & Muniarty, 2020).



According to (Basel II), the capital adequacy ratio is calculated through two main items in the balance sheet (El-Ansary & Hafez, 2015):

- Core capital: represents the primary measure of the bank's financial strength and includes paid-up capital, disclosed capital reserves, net income for the year and innovative capital instruments.
- Additional capital: It includes asset revaluation, undisclosed reserves, loan loss reserves, holding long-term securities, and mixed capital instruments.

As the risk-weighted assets are a measure of the amount of the bank's risk-weighted assets, where the appropriate level of capital adequacy ensures that the bank has sufficient capital to expand its business, while its net assets are sufficient to face any financial deflation without bankruptcy, meaning it is the ratio that determines the ability of banks to meet its temporal obligations and other risks such as credit risk, market risk and operational risk (Fatima, 2014), as credit risk "is the possibility of the borrowing bank or the counterparty failing to perform its obligations in accordance with the agreed terms" credit risk may arise due to the default of the counterparty or the decrease in market value due to the transfer of credit quality to the counterparty (Yan et al., 2020).

Relationship between earnings management and capital adequacy

The net profit is one of the accounting figures that express the company's performance to judge the management's efficiency in using the available economic resources in addition to the decisions taken to achieve profits, as well as the interest of stakeholders in the extent of the company's management's ability to achieve the target profit and maintain its financial position, especially since profits express About the amounts owed to the management as rewards and that the shareholders want to know the cash distributions to them, so the management seeks to increase profits through the use of flexibility in accounting standards or through accounting methods and methods, which is called "earnings management" (Ibrahim, 2019), as many researchers, including (Bergstresser & Philippon, 2005) studied the quality of profits and earnings management, they found that management has many incentives to use its personal judgment to influence accounting profits, including management compensation (Alqerm & Obeid, 2013), when management manages profits, this results in asymmetry of information between management and shareholders, which results in an impact on the financial statements. This applies to capital when companies report positive capital, which leads to attracting potential investors to invest in that company, and vice versa, motivates management to

manage profits (Nalarreason et al., 2019) where management resorts to earnings management practices in order to avoid capital adequacy fees incurred by management in light of falling below the minimum capital adequacy requirements, on the one hand, and on the other hand, to increase its profit-based compensation and to prevent breaches of debt contracts (Elnahass et al., 2018).

Sample and data collection

In this axis, the researchers dealt with the research sample and the method of measuring variables, as well as testing the hypotheses and the results that were reached, as follows:

First: the research sample

The field of research represented the banking sector, research community included the 47 banks listed in the Iraq Stock Exchange until the closing year of 2021, and the research sample was 10 banks and a time series was adopted that extended from 2010 to 2019, and the condition was to choose the sample and provide the necessary data to measure the variables, as well as the continuation of the research sample banks to disclose their financial reports without interruption during the research sample period, and Table (1) illustrates the selected research sample banks.

	Bank	Symbo I		Bank	Symbo I
1	Ashur International Bank	BASH	6	United Investment Bank	BUND
2	National Bank of Iraq	BNOI	7	Al-Mansour Investment Bank	BMNS
3	Iraqi Credit Bank	BROI	8	Mosul Development Bank	BMFI
4	Commercial Bank of Iraq	BCOI	9	Baghdad Bank	BBOB
5	Gulf Commercial Bank	BGUC	10	Sumer Commercial Bank	BSUC

Second: Measure and describe the research variables

The research included two types of variables, independent and dependent, as the independent variable represented in the real earnings management (REM), which was measured in agreement with the study (Chou & Chan., 2018), where the earnings management was measured through the loan provision according to the following equation:



$$LLP_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(LLP_{i,t-1}/A_{i,t}) + \beta_2(WO_{i,t}/A_{i,t}) + \beta_3(WO_{i,t+1}/A_{i,t}) + \varepsilon_{i,t}$$

Whereas, $LLP_{i,t}$ provision for loan losses, $WO_{i,t}$ net provisions of the bank, $A_{i,t}$ the company's assets in the previous year.

The management can manipulate the reported profits through normal operating decisions such as the normal cash flows through revenues and the change in revenues according to the following equation:

$$CFO_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2(REV_{i,t}/A_{i,t-1}) + \beta_3(\Delta REV_{i,t}/A_{i,t-1}) + \varepsilon_{i,t}$$

Whereas, $CFO_{i,t}$ the normal cash flow from the operating activities of the company at the end of the current year, $REV_{i,t}$ total revenue, $\Delta REV_{i,t}$ change in total revenue.

Since the Abnormal Cash Flow (AbCFO) represents the normal cash flow minus the cash flow calculated under this equation, we multiply the residual values by (-1) so that higher values indicate greater amounts of CFO decrease by companies to increase reported profits. The management can manipulate profits through discretionary expenditures, and it was measured according to the following equation:

$$DiscEXP_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2 + (REV_{i,t-1}/A_{i,t-1}) + \varepsilon_{i,t}$$

Whereas, $DiscEXP_{i,t}$ discretionary expenditures.

Whereas, (AbDISX) is the estimated residual value of the equation. We multiply the residual values by (-1) so that higher values indicate greater amounts of discretionary expenditures that firms make to increase reported profits. By collecting the measures of manipulation of real activities in one equation, as follows:

$$REM_{i,t} = AbCFO_{i,t} + AbLLP_{i,t} + AbDiscEXP_{i,t}$$

Whereas, $REM_{i,t}$ real earnings management.

As for the dependent variable, it represented the adequacy of capital, which was measured in agreement with the study (El-Ansary & Hafez, 2015) and the study (Zedan & Daas, 2017) according to the following equation:

$$CA = \frac{\text{Tier 1} + \text{Tier 2}}{\text{risk-weighted assets}}$$

Whereas, Tier 1 the main capital, Tier 2 additional capital, risk-weighted assets. Table (2) shows the descriptive statistics of the research variables.

Table (2) descriptive statistics of the research variables.

	Banks	Mean		Std. Deviation		Minimum		Maximum		Variation coefficient	
		REM	CA	REM	CA	REM	CA	REM	CA	REM	CA
1	BASH	.14589	1.4780	.025744	1.01413	.0899	.350	.1801	2.870	17.6%	68.6%
2	BNOI	.12438	1.1330	.021162	.359600	.0988	.580	.1600	1.960	17.0%	31.7%
3	BROI	.084682	3.2010	.023701	.590940	.0573	2.180	.1354	3.990	28.0%	18.5%
4	BCOI	.11417	5.7610	.017555	1.11190	.0925	4.140	.1504	7.600	15.4%	19.3%
5	BGUC	.12147	.87900	.041180	.349395	.0810	.490	.2080	1.480	33.9%	39.7%
6	BUND	.17328	.32300	.008714	.099001	.1532	.200	.1830	.500	5.0%	30.7%
7	BMNS	.08456	1.8850	.026868	.564471	.0538	.700	.1313	2.440	31.8%	29.9%
8	BMFI	.115024	1.22400	.0254074	.320527	.0857	.650	.1604	1.620	22.1%	26.2%
9	BBOB	.097829	.68000	.0115122	.303645	.0839	.250	.1161	1.270	11.8%	44.7%
10	BSUC	.110942	2.11600	.0705151	.815805	.0556	.750	.2826	3.310	63.6%	38.6%
	total	.117225	1.86800	.0399392	1.63690	.0538	.200	.2826	7.600	34.1%	87.6%

It is noted from Table (2) that the (BMNS) bank recorded the lowest level of real earnings management between the banks of the research sample, followed by the (BROI) bank, while the highest level of real earnings management was for the (BUND) bank, in terms of the mean for sample, while the results of the standard deviation and the coefficient of variation indicate that there is dispersion and variance in the Sumer Bank (BSUC), which means that the levels of real earnings management vary during the time period of the research sample, and that the mean of this bank does not clearly indicate the actual level of earnings management. As for capital adequacy, it is

noted that BCOI has the highest level of capital adequacy, with a relatively large difference from the rest of the banks, and that the level of capital adequacy was recorded in a bank (BBOB), and these results confirm the levels of the coefficient of variation that recorded values less than 50%, which indicates consistency and the absence of dispersion in the sample except for the (BBOB) bank, which recorded the value of the coefficient of variation 63%, which indicates that its arithmetic mean does not reflect the level of capital adequacy clearly in that bank.



Third. Hypothesis testing

The research included three main hypotheses:

(H1). The first main hypothesis: The level of management of real earnings and the adequacy of capital in the research sample banks varies.

To test this hypothesis, the (T) method was used for one sample. Table (3) shows the test results:

Table (3) Real Earnings management and capital adequacy variance test

Variables	Value (T)	Sig.	DF	Mean	Std. Deviation	Variation coefficient
REM	29.351	.000	99	.117225	.0399392	34.1%
CA	11.412	.000	99	1.86800	1.636902	87.6%

It is noted from Table (3) that the significance of the value of (T) for both variables was less than (5%), which means that there are significant differences for the levels of real earnings management and capital adequacy in the research sample. It has to accept the first main research hypothesis.

(H2). The second main hypothesis: There is a significant relationship between real earnings management and the adequacy of capital.

To test this hypothesis, the Pearson correlation coefficient was calculated for the relationship between each of the real earnings management and capital adequacy, and table (4) shows the value of that coefficient.

Table (4) shows the relationship between each of the real earnings management and capital adequacy

Variables	CA	
REM	correlation coefficient	**-.0355
	Sig.	0.000

It is noticed from Table (4) that the correlation coefficient recorded a significant level of less than 5%, which indicates the existence of the relationship, while the negative value of the correlation coefficient of (-0.335) indicates that the relationship is negative (inverse) between the management of real earnings and the adequacy of capital, which It means that the higher the level of real earnings management in the research sample banks, the lower the levels of capital

adequacy. This confirms to accept the second main hypothesis.

(H3). The third main hypothesis: There is a significant effect of managing real earnings on capital adequacy.

A simple linear regression equation has been prepared to estimate the level of capital adequacy in terms of real profits management, in order to determine the level of the latter's impact on capital adequacy levels, and table (5) below shows this effect.

Table (5) The effect of real earnings management on capital adequacy

variable	B ₀	B ₁	Value (T) Sig.	Value (F) Sig.	R ²	R ² adj.
REM	3.576	-14.568	-3.765 (0.000)	14.172 (0.000)	.355 ^a	.126

It is noted from Table (5) that:

1. The regression equation model is proven in terms of the value of (F) of (14.172), which was significant at the level of significance (5%), which means that it is possible to estimate the levels of capital adequacy in terms of real earnings management.
2. The value of the fixed limit coefficient of the value (T) of (-3.765) is fixed, which recorded a significant level (0.000) which is less than 5%, which confirms the existence of the moral effect of managing real earnings in capital adequacy.

3. The negative beta (B₁) value of (-14.568), indicates that the negative (reverse) effect of managing real earnings on capital adequacy, meaning that the banks research sample more tend to adopt real earnings management procedures in accounting work procedures to determine the result of the activity and prepare financial reports, this will be reflected in the low levels of capital adequacy for these banks.
4. The value of the coefficient of determination (R²) of (.126), indicates that the real earnings management explains (12.6%) of the changes



that occur in the levels of capital adequacy, and this percentage is rather small, and that the largest explanation percentage (87.4%) is due to factors other not shown in the current form.

It can be said to accept the third main hypothesis.

CONCLUSION

1. The management's adherence to the practices of managing real earnings lies for a personal reason, which is to give priority to the personal interest of the management, therefore accounting and non-accounting methods are used to influence the outcome of the company's business.
2. The adverse effect of real earnings management practices on capital adequacy confirms that maintaining an appropriate or high level of capital adequacy limits manipulation in the financial statements of the research sample banks, meaning that banks comply with the standards set by the competent authorities to provide appropriate financing for operational activities.

RECOMMENDATION

1. The necessity of holding training courses for investors and other stakeholders by the Iraq Stock Exchange to make them aware of the real earnings management practices because of their negative effects on the outcome of the banks' work.
2. The commitment of banks to comply with the requirements of (Basel) in calculating capital adequacy, because this leads to a reduction in real earning management practices by banks before publishing the financial statements.

REFERENCES

1. Alhadab, M. M., & Al-Own, B. (2017). Earnings management and banks performance: Evidence from Europe. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(4), 134-145.
2. Ali, B., & Kamardin, H. (2018). Real earnings management: a review of literature and future research. *Asian Journal of Finance & Accounting*, 10(1), 440-456.
3. Alqerm J. F., & Obeid, S. N. S. (2013). The pricing of the real earnings management evidence from Malaysian Stock Exchange.

4. Al-Tamimi, A. & Al-Saadi, H. H. (2015). Profit management factors of its emergence and methods and ways to reduce them. University of Baghdad, 1st ed.
5. Andreas, Enni S., Tatang A. G., & Nurhayati (2021). Earnings management and initial public offerings among Indonesian manufacturing companies. *Investment Management and Financial Innovations*, 18(3), 27-39.
6. Anggari, N. L. S., & Dana, I. M. (2020). The effect of capital adequacy ratio, third party funds, loan to deposit ratio, bank size on profitability in banking companies on IDX. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 4(12), 334-338.
7. Anggriani, R., & Muniarty, P. M. (2020). The effect of non-performing loans (NPL) and capital adequacy ratio (CAR) on profitability (ROA) at PT. Bank Central Asia (BCA), TBK. *Ilomata International Journal of Management*, 1(3), 121-126.
8. Chou, Y. Y., & Chan, M. L. (2018). The impact of CEO characteristics on real earnings management: Evidence from the US banking industry. *Journal of Applied Finance and Banking*, 8(2), 17-44.
9. Costa, R. A., & Mota, J. (2021). Earnings Management in Hospitality Firms: Evidence From Portugal. *Tourism: An International Interdisciplinary Journal*, 69(4), 578-594.
10. Doukakis, L. C. (2014). The effect of mandatory IFRS adoption on real and accrual-based earnings management activities. *Journal of Accounting and Public Policy*, 33(6), 551-572.
11. Dyreng, S. D., Hillegeist, S. A., & Penalva, F. (2022). Earnings management to avoid debt covenant violations and future performance. *European Accounting Review*, 31(2), 311-343.
12. El-Ansary, O., & Hafez, H. (2015). Determinants of capital adequacy ratio: An empirical study on Egyptian banks. *Corporate ownership & control*, 13(1).
13. Elnahass, M., Izzeldin, M., & Steele, G. (2018). Capital and earnings management: evidence from alternative banking business models. *The International Journal of Accounting*, 53(1), 20-32.



14. Enomoto, M., Kimura, F., & Yamaguchi, T. (2015). Accrual-based and real earnings management: An international comparison for investor protection. *Journal of Contemporary Accounting & Economics*, 11(3), 183-198.
15. Fatima, N. (2014). Capital adequacy: A financial soundness indicator for banks. *Global Journal of Finance and Management*, 6(8), 771-776.
16. Ghosh, S., & Das, A. (2005). Market discipline, capital adequacy and bank behaviour. *Economic and Political weekly*, 1210-1215.
17. Hughes II, K. E., Johnston, J. A., Omonuk, J. B., & Dugan, M. T. (2012). Rate regulation of US electric utilities: Does it deter earnings management?. *Advances in Accounting*, 28(1), 49-63.
18. Ibrahim, H. S. (2019), The impact of profit management by real activities on the interactive relationship between operating cash flows and the company's market value, an applied study on the Egyptian companies listed on the stock market, *Journal of Accounting Thought*, (23) 3, 397-483.
19. Jiang, H., Habib, A., & Wang, S. (2018). Real earnings management, institutional environment, and future operating performance: An international study. *The International Journal of Accounting*, 53(1), 33-53.
20. Laas, D., & Siegel, C. F. (2017). Basel III versus Solvency II: An analysis of regulatory consistency under the New Capital Standards. *Journal of Risk and Insurance*, 84(4), 1231-1267.
21. Lazzem, S., & Jilani, F. (2018). The impact of leverage on accrual-based earnings management: The case of listed French firms. *Research in International Business and Finance*, 44, 350-358.
22. Liu, Z. (2022). Meeting Dividend Thresholds through Real Earnings Management of Listed Banks in China: the Perspective of Manipulate Real Activities. *Accounting and Corporate Management*, 4(1), 39-51.
23. Moghaddam, A., & Abbaspour, N. (2017). The effect of leverage and liquidity ratios on earnings management and capital of banks listed on the Tehran Stock Exchange. *International Review of Management and Marketing*, 7(4), 99.
24. Muda, I., Maulana, W., Sakti Siregar, H., & Indra, N. (2018). The analysis of effects of good corporate governance on earnings management in Indonesia with panel data approach. *Iranian Economic Review*, 22(2), 599-625.
25. Nalarreason, K. M., Sutrisno, T., & Mardiaty, E. (2019). Impact of leverage and firm size on earnings management in Indonesia. *International Journal of Multicultural and Multireligious Understanding*, 6(1), 19-24.
26. Nguyen, M. S. (2021). Capital adequacy ratio and a bank's financial stability in Vietnam. *Banks and Bank Systems*, 16(4), 61.
27. Qi, B., Lin, J. W., Tian, G., & Lewis, H. C. X. (2018). The impact of top management team characteristics on the choice of earnings management strategies: Evidence from China. *Accounting Horizons*, 32(1), 143-164.
28. Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of accounting and economics*, 42(3), 335-370.
29. Senan, N.A., Belhaj, F.A., Al-Matari, E.M., Al-Faryan, M.A., & Al-Homaidi, E.A. (2022). Capital adequacy determinants of Indian banks listed on the Bombay Stock Exchange. *Investment Management and Financial Innovations*, 19(2), 167-179.
30. Yan, D., Zhang, X., & Wang, M. (2021). A robust bank asset allocation model integrating credit-rating migration risk and capital adequacy ratio regulations. *Annals of Operations Research*, 299(1), 659-710.
31. Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The accounting review*, 87(2), 675-703.
32. Zedan, K. A., & Daas, G. (2017). Palestinian banks analysis using CAMEL model. *International Journal of Economics and Financial Issues*, 7(1), 351-357.