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Evaluating Earnings Quality Using The Performance-Adjusted Discretionary Accruals Model Case Study Of Toyota Motor Company During The Period 2008-2023

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Abstract:

This study aimed to evaluate the quality of earnings issued by Toyota Motor Company during the period 2008-2023 using the "Kothari, Leone & Wasley" model, or the named "performance-adjusted discretionary accruals model". A sample of the financial statements issued by the company during the period studied was used. After estimating the company's discretionary accruals, the study confirmed the no statistically significant indicators of its practices of earnings management during the period studied; it confirmed also the quality of its earnings. Other results were reached, the most important is the stability of Toyota's profit chain along with its quality, although the company went through a crisis during 2009 that cost it many losses, it was able to overcome it through an effective strategic planning to maintain its strategic reputation which made it the world's leading company in the automobile industry.

Keywords: Earnings, Quality, Earnings Management, Discretionary Accruals, Toyota Motor Company.

1. Introduction.

International accounting standards (IAS/IFRS) considered as a basic reference for preparing and presenting financial statements. However, these accounting standards distinguished by the multiplicity of alternatives and accounting methods, such as the multiplicity of valuing inventories methods, the multiplicity of depreciation methods, and the methods for evaluating components of assets. International accounting standards also characterized by the accrual basis of

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accounting application.

On the other hand, accrual basis in accounting means recording economic events related to burdens and revenues as soon as they occur, and not when cash received or paid. The multiplicity of accounting alternatives and methods could lead to the company's management exploiting accounting flexibility for the purpose of achieving its own goals and interests at the expense of the interest of shareholders or owners of the company, which may create a conflict between the agency parties, and exploiting accounting flexibility to achieve the company's purposes is known as creative accounting or Earnings management.

Earnings management is practiced either by deliberately inflating earnings for the purpose of beautifying the company's image in the financial market, or by deliberately reducing earnings for the purpose of tax evasion, which necessitates research into all the necessary methods to control and monitor these practices. In light of these foundations, we decided to adopt the topic of this article. The problem of this study formulated as follows:

How to evaluate earnings quality in Toyota Motor Company during the period 2008-2023 using the performance-adjusted discretionary accrual model?

To answer the problem of the study, the hypotheses formulated as follows:

- **The nihilistic hypothesis:** There are no statistically significant indicators of earnings management practices in Toyota Motor Company during the period 2008-2023, which reflects the quality of its earnings.
- **The alternative hypothesis**: There are statistically significant indicators of earnings management practices in Toyota Motor Company during the period 2008-2023, which does not reflect the quality of its earnings.

To answer the problem of the study, the sub-questions formulated as follows:

- What is the quality of earnings?
- What is earnings management practices and what are its types?
- How can we measure the quality of accounting earnings?
- How the quality of earnings be judged in Toyota Motor Company during the period 2008-2023?

In view of the problem of this study, we can say that the main goal of addressing this topic is to address quantitative methods for evaluating the quality of earnings, and try to generalize their use in auditing offices. The importance of this study also highlights the necessity of working to achieve the quality of accounting information.

This study relied on Case study approach by assessing the quality of profits issued by Toyota Motor Company during the period 2008-2023 using the "Kothari, Leone & Wasley" model, or the named "performance-adjusted discretionary accruals model", by applying this model to the financial statements issued by the company during the period studied. The analysis of the study results and testing its hypothesis based on Excel and SPSS program outputs.

The structure of the study divided as follows:

- **A background**: includes the theoretical framework of earnings quality and its relationship to earnings management practices, as well as the quantitative methods used to evaluate earnings quality,
- **Data & Methodology**: includes evaluating earnings quality using the performance-adjusted discretionary accruals model, or "Kothari, Leone & Wasley" model, based on the Case of Toyota Motor Company during the period 2008-2023,
- **Observations & discussion**: includes analyzing the results reached and testing the study hypothesis using statistical treatments.

2. Background.

Accounting classified into two main types: financial accounting and management accounting, financial accounting defined as the sum of operations that include recording, processing, and presenting information resulting from economic events and presenting it to those interested in it from outside the organization, more precisely, financial accounting focuses on three basic functions, recording, processing,

and presenting. On the other hand, management accounting directed to provide managerial information about organization to assist its management (Britton & Waterston, 2006, p3).

Accounting also considered as an information system, its inputs represent a set of economic events that recorded and processed, while its outputs express financial information that disclosed in the financial statements.

Financial statements is a management tool of communicating with external parties about the financial activities of the company. Through financial statements interested parties outside the company can know the financial effects of the company's operations, its resources & obligations (Carmichael, Whittington & Graham, 2007, p329), the main financial statements from the perspective of international financial reporting standards IFRS include balance sheet statement, income statement, the statement of cash flows, and the statement of changes in equity, in addition to explanatory appendices to the financial statements. Creative accounting practices is the manipulation of financial statements to achieve the company's management goals, it can be defined according to "Mulford & Comiskey, 2002" as all steps including aggressive choices and fraudulent financial reporting, so any steps taken toward earnings management or income smoothing (Mulford & Comiskey, 2002, p3) through this definition, we can consider earnings management as a type of creative accounting.

Earnings management is the managers controlling or manipulating the organization's profits to achieve own goals, and showing the false picture of income, which in turn leads to presenting accounting numbers that may differ fundamentally from what they would have been in the absence of manipulation (Al-Far, 2011, p23) earnings may be managed using the framework of GAAP by increasing or decreasing provisions, and may also be done through influencing cash flows, e.g., accelerating or delaying sales (El Diri, 2018, p8).

Some examples of earnings management practices by increasing earnings include decreasing expenses by: reducing taxes, big bath or excessive one-year write-offs, increasing closing inventory, capitalizing expenses, lengthen depreciation lives, be generous with bad depts (Jones, 2011, p48). So decreasing profits by increasing income used the following strategies: premature sales recognition, increase interest receivable, include non-operating profits, treat loans as sales, swaps a product with another company (Jones, 2011, p46).

The companies practice earnings management by deliberately

inflating the size of profits, it is called upward earnings management, this type is practiced in order to improve the company' s image in the financial market and attract the largest number of investors and those dealing with the company, earnings management can also practice downward profit management by intentionally reducing the number of its profits, it is called declining earnings management, it is practiced for the purpose of evading the payment of taxes.

In general, earnings management practiced by either reducing or inflating through the company's revenues and expenses. Here, the control tools, such as accounting auditors or tax auditors must be vigilant and effectively review the company's invoices and tax documents.

Many studies have confirmed the relationship between the concept of discretionary accruals and earnings management practices, "Yaari & Ronen, 2008" indicate that accruals arise when there is a discrepancy between the timing of cash flows occurrence and the timing of accounting operations recognition during a period, so total accruals consist of two types of accruals: "Discretionary Accruals" and "Non-Discretionary Accruals." When discretionary Accruals (DAC) is the accruals arise from accounting treatments chosen for the purpose of earnings management, non-discretionary accruals (NDA) arise from the transactions carried out by the company in the current period, and reflect the true level of the company's performance (Feddaoui, 2013, pp124-126).

Measuring earnings management practices depends on measuring the company's discretionary accruals, and since it is difficult to differentiate between discretionary and non- discretionary accruals, several financial models presented to calculate non- discretionary accruals in order to determine and measure non- discretionary accruals, the most prominent of these models are the following:

- "Healy ، 1985" model,
- "DeAngelo, 1986" model,
- " Dechow & Sloan ,1991" model,
- "Jones , 1991" model,

- "Modified Jones , 1995"model,
- " Ress , Gill & Gore, 1996" model,
- "Kothari , Leone & Wasley , 2005" model, and many modern models proposed by researchers to estimate discretionary accruals for the purpose of measuring earnings management practices.

According to the study of "Feddaoui,2013" which relied on evaluating the models, "Modified Jones , 1995"model," Ress , Gill & Gore, 1996" model, "Kothari , Leone & Wasley , 2005" model, "Raman & Shahrur , 2008" model, she confirmed that the statistical comparison between those models concluded that "Modified Jones , 1995" model is the most accurate in estimating the value of non-discretionary accruals (Feddaoui, 2013, pp127-137).

In this study we are going to choose the "Kothari, Leone & Wasley" model because it is a new model adopted in 2005 for estimating discretionary accruals, which was introduced by Kothari, Leone & Wasley and is called the performance-adjusted discretionary accruals model, it links the accruals to the company's past and current performance, so that it takes into account the relationship between the accruals, and the return on assets (ROA) component as a means of measuring the company's performance.

(1) $$\mathbf{ROA\ i,t= (Net\ Income\ i,\ t/\ Total\ Assets\ i,t\ )\ x\ 100}$$

The model of "Kothari, Leone & Wasley" indicates that the effectiveness of the previous models used to measure discretionary accruals improved by controlling return on assets, which can have an impact on their measurement. It will be explain as follows:

(2) $$\mathbf{NDA_{i,t}/\ A_{i,t-1} = \alpha_1\ (1/\ A_{i,t-1}) + \alpha_2\ (\Delta REV_{i,\ t} - \Delta AR_{i,\ t}\ /\ A_{i,t-1})}$$
$$\mathbf{+ \alpha_3\ (PPE_{i,t}/\ A_{i,t-1}) + \alpha_4\ ROA_{i,t} + \varepsilon_{i,t}}$$

In which:

$ROA_{i,t}$: Represents the rate of return on the assets of company (i) in year (t).

$NDA_{i,t}/ A_{i,t-1}$: Non-discretionary accruals to total assets of company i in year t,

$A_{i,t-1}$: Total assets of company i in year t-1,

$\Delta REV_{i,t}$: The change in revenues for company i between years t and t-1,

$\Delta REC_{i,t}$: The change in accounts receivable for company i between years t and t-1,

$PPE_{i,t}$: The total volume of real estate, equipment and property of company i in year t,

$e_{i,t}$: Random Error of the regression model (Feddaoui, 2013, pp132-133).

The above model takes into account the relationship between discretionary accruals and the return on assets (ROA) component as a means of measuring the company's performance. This ratio expresses the extent to which the company uses its fixed assets to achieve profits (Fournier, 2007, p207), so a high rate of ROA indicates the company's efficiency in managing its assets.

From above, we can say that the quality of earnings can be evaluate by the absence of earnings management practices in the financial statements of the company.

3. Data and Methodology.

In order to test the hypothesis of the presence of statistically significant indicators of the quality of earnings issued by Toyota Motor Company during the period 2008 - 2023, we selected a sample of financial statements issued by the company during the same period, which mainly consists of five financial statements as follows:

- The balance sheet statement,
- The income statement,
- The Statement of Cash Flows,
- The Statement of changes in equity,
- The explanatory appendices of the financial statements.

Then we followed the following main steps:

Step N^0 1: Estimating the value of the company's total accruals.

Total accruals are determined through this equation:

(3) $$\mathbf{TAC_{i,t} = NI_{i,t} - CFO_{i,t}}$$

In which:

$NI_{i,t}$: the net result of company (i) in year (t).

$CFO_{i,t}$: Operating cash flows of company (i) in year (t) (Feddaoui,

2013, pp124-125).

Step N^0 2: Estimating the value of Non-discretionary accruals using the performance-adjusted discretionary accruals model.

To estimate Non-discretionary accruals, we estimated "Kothari, Leone & Wasley" model parameters through a regression equation of Total accruals for the period 2008-2023 in each year separately using the following equation:

(4) $$TAC_{i,t}/ A_{i,t-1} = \alpha_1 (1/ A_{i,t-1}) + \alpha_2 (\Delta REV_{i,t} - \Delta AR_{i,t} / A_{i,t-1}) + \alpha_3 (PPE_{i,t}/ A_{i,t-1}) + \alpha_4 ROA_{i,t} + \varepsilon_{i,t}$$

By determining the regression model coefficients, they substituted into the regression equations of the period studied to calculate the value of non- discretionary accruals:

(5) $$NDA_{i,t}/ A_{i,t-1} = \alpha_1 (1/ A_{i,t-1}) + \alpha_2 (\Delta REV_{i,t} - \Delta AR_{i,t} / A_{i,t-1}) + \alpha_3 (PPE_{i,t}/ A_{i,t-1}) + \alpha_4 ROA_{i,t} + \varepsilon_{i,t}$$

Step N^0 3: calculating the value of discretionary accruals.

The discretionary accruals calculated through the following equation:

(6) $$DAC_{i,t} = TA_{i,t} - NDA_{i,t}$$

Step N^0 4: Determine the quality of accounting earnings.

After estimating discretionary accruals for each year during the period studied, the absolute value of the company's discretionary accruals and the average of this value is calculated, and the following decision be taken:

- If **the absolute value** of discretionary accruals in a particular year exceeds the average, we say that the company has practiced earnings management during this year and therefore, there are **no indicators of the quality of its profits,** so we give a dummy variable (0),
- If **the absolute value** of discretionary accruals in a particular year is less than the average, we say that the company has not practiced earnings management during this year and therefore, there are **indicators of the quality of its profits,** so we give a dummy variable (1) (Feddaoui, 2013, pp55-57).

Step N^0 5: Using the binomial test to determine the extent to which there are statistically significant indicators of the quality of earnings issued by Toyota Corporation during the period 2008-2023.

4. Observations & discussion.

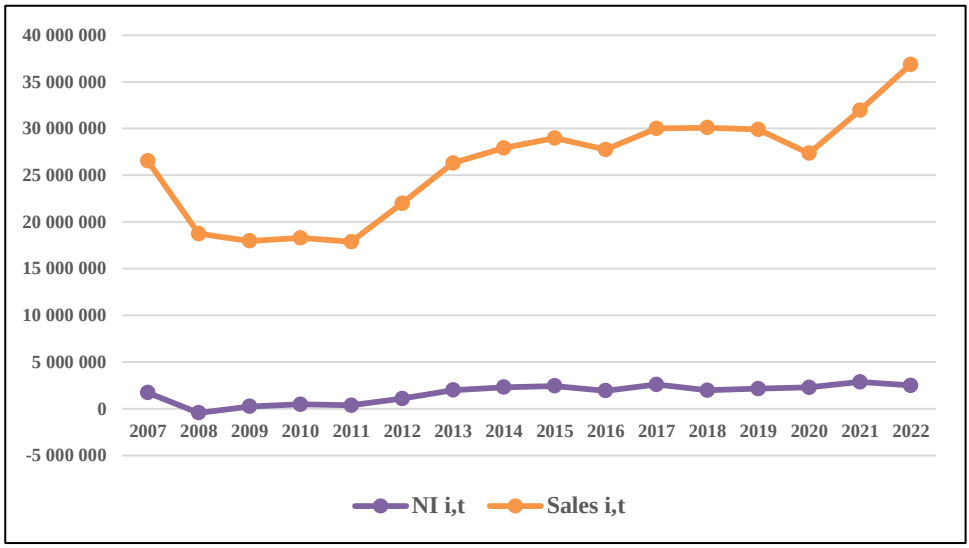
Toyota Corporation was created in 1926 by Sakichi Toyoda to product and sell automatic looms, than it has diversified and expanded its business areas to include textile machinery and automobiles, (Toyota Industries Corporation, https://www.toyota-industries.com/company/history/). In 1929 Sakichi received a big sum of money, approximately 100,000 British pounds, because of selling rights to the patent for an automatic textile machine to a well-known British company; he gave the sum to his son Kishiro, and asked him to use it to conduct the necessary research to produce the first Japanese car. Kiichiro Toyoda did not forget what his father told him: "*My contribution to the future of Japan was in weaving textiles, and I want you to make your contribution in the field of cars*."

In 1935, after years of continuous work and research in the cars industry, the efforts of Kiichiro and his work team resulted in the development and completion of a model of a gasoline car engine, they called it Model AA., and in 1936, the first Toyota car produced. This model influenced by the American style, but the engine design was Japanese, and the new model gradually followed by the production of other models. Then Toyota quickly began to expand outside Japan in the 1950s, by entering the American markets in 1957, and the Crown model was the first car to reach America, but with the introduction of the Corolla model in 1965, Toyota began to build its reputation and sales, and was able to compete with local producers (Alghad journal website, 2011, https://alghad.com/Section-208/uncategorized/).

The just-in-time production system (JIT) is the internal system used by its founder Toyota Motor Corporation; it means the production of the main units in the main quantities at the necessary time (Monden, 1994, p7), Today "Toyota way" is to find the better way for achieving constant innovation and renewal (Osono, Shimizu & Takeuchi, 2008, p9).

Through **Figure N^0 1**, we can analyze the development of earnings and sales volume achieved by Toyota Motor Corporation during the period 2008-2023 as follows:

Figure 1. Earnings and Sales volume of Toyota Motor Corporation during the period 2008-2023(In million Yen).



Source: Prepared by the researcher - Excel Outputs.

Through the Figure N°01, the sales volume of Toyota increased between the year 2007 and 2008 to a value of 24820510 million Japanese yen, then it decreased during the period 2009-2012, and from the year 2012, it gradually increased to reach the highest value during the year 2023 with a sales volume reached 34367619 million yen. Looking the company's profits it declined in the year 2009, so that the company recorded a loss worth **-436937** million yen, but from the year 2010 until 2023, the profit witnessed a gradual increase while maintaining the stability of the income series, so that the series had the highest value 2874614 million yen.

The reason for the decline in Toyota sales during the period 2009-2012, in which Toyota witnessed a loss in 2009, to the negative effects of the global financial crisis in 2008, which forced it to eliminate thousands of jobs when the first technical problems in Toyota cars were revealed at the end of August 2009 after a fatal traffic accident in America .

During the following months of the same year, several manufacturing defects verified in many Toyota models, including the Lexus model. The major problem that Toyota drivers faced, even after some models recalled in early 2010, was the sudden acceleration that

occurred. The American transportation authorities attributed it to a defect in the electrical system, which Toyota has repeatedly denied. The number of cars that Toyota forced to recall due to the crisis since the second half of 2009 reached 8.5 million cars, including about six million in the United States. The company also decided to recall more than one million cars from Europe and at least 75 000 cars from China.

The company also forced to stop production of eight models in the United States, and it also temporarily frozen production in some of its factories in America and Japan. Toyota stated in preliminary estimates in 2010 that recovering that large number of cars and repairing at least hundreds of thousands of them would cost it approximately two billion dollars. Then the company's management quickly confirmed that in the future it would focus on the quality of its product more than quantity, and that Toyota would continue to raise the level of production and sales. Indeed, Toyota was able to overcome this crisis and increase its sales volume starting in 2010, as well as achieving profits (Aljazeera, 2010, https://www.aljazeera.net/ebusiness/2010/3/11/).

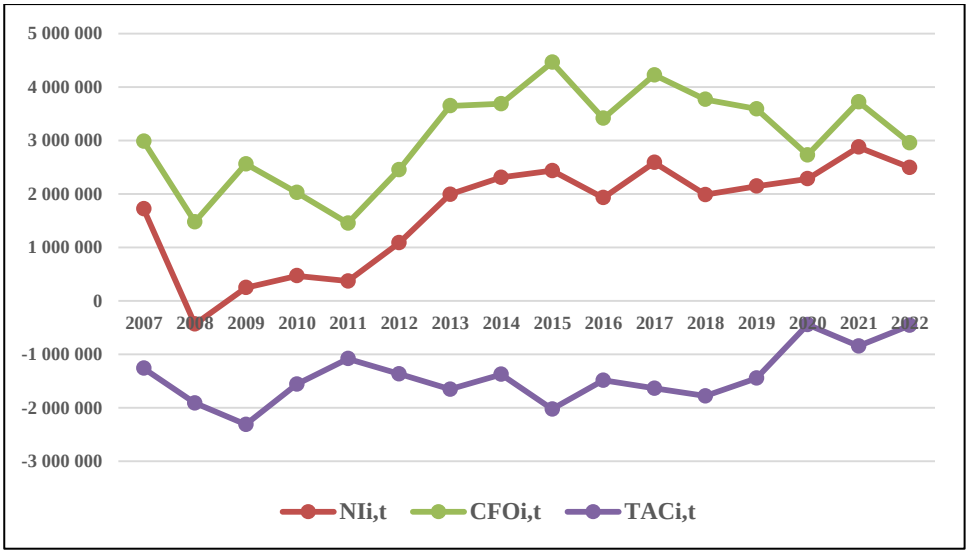
After Estimating Toyota's total accruals during the period 2008-2023, Table N^{o} (01) shows the following results:

Table 1. Toyota's total accruals during the period 2008-2023.

Year	NIi,t	CFOi,t	TACi,t
2007	1 644 032	3 238 173	-1 594 141
2008	1 717 879	2 981 624	-1 263 745
2009	-436 937	1 476 905	-1 938 120
2010	244 212	2 558 530	-2 314 318
2011	465 485	2 024 009	-1 558 524
2012	368 302	1 452 435	-1 084 133
2013	1 083 482	2 451 316	-1 367 834
2014	1 991 648	3 646 035	-1 654 387
2015	2 307 904	3 685 753	-1 377 849
2016	2 434 211	4 460 857	-2 026 646
2017	1 926 985	3 414 237	-1 487 252
2018	2 586 106	4 223 128	-1 637 022
2019	1 985 587	3 766 597	-1 781 010
2020	2 142 329	3 590 643	-1 448 314
2021	2 282 378	2 727 162	-444 784
2022	2 874 614	3 722 615	-848 001
2023	2 492 967	2 955 076	-462 109

Source: Prepared by the researcher - Excel Outputs.

Figure 2. Total Accruals of Toyota during the period studied.



Source: Prepared by the researcher - Excel Outputs.

It is clear from the results above that the decrease in the value of total accruals recorded during the crisis period that the company witnessed during the year 2009, it increased with the increase in the net profit during the following period.

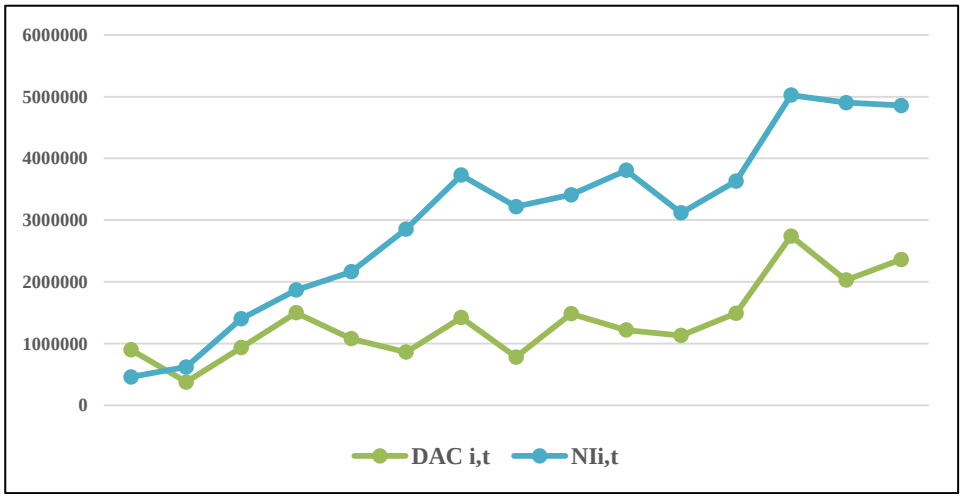
In the second step, we estimated Non-discretionary accruals using the performance-adjusted discretionary accruals model or the called "Kothari, Leone & Wasley" model through a regression equation of Total accruals for the period 2008-2023 in each year separately.

Appendix N°(01) shows the regression equations used to estimate the value of non-discretionary accruals, so **Appendix N°(02)** also shows the regression model coefficients calculated using SPSS Statistics program.

After compensating, the model coefficients, the value of non-discretionary accruals estimated to the total assets, the discretionary accruals calculated during the period studied.

After estimating the value of the company's discretionary accruals **Appendix N°(03)** during the period 2008-2023, the following summary figure was prepared:

Figure 3. The relationship between Net income & discretionary accruals.



Source: Prepared by the researcher - Excel Outputs.

Table 2. Descriptive Statistics of discretionary accruals.

	N	Minimum	Maximum	Mean	Std. Deviation
DAC	16	378061	2742103	1353084	605824,4394
Valid N (listwise)	16				

Source: SPSS Outputs.

From **Figure N°(03)** and **Table N°(02)** we note a positive mean of discretionary accruals, so we can say that there is a possibility of practicing earnings management in Toyota during the period 2008-2023 in a positive and upward manner by increasing earnings. The rise of discretionary accruals curve coincides with the rise in the company's profits throughout the period studied, the similarity of the two curves confirms the relationship between discretionary accruals and the size of earnings. Descriptive statistics also present the highest value of discretionary accruals around **2742103** million yen during the year 2021, while the lowest value was in 2010, with a value of **378061** million yen.

After estimating the value of discretionary accruals, the quality of

earnings for Toyota Company was evaluated during the period studied according to the following rule - **Appendix N°(04)**:

- If the absolute value of discretionary accruals in a particular year exceeds the average, we say that the company has practiced earnings management during this year and therefore, there are no indicators of the quality of its earnings, so we give a dummy variable (0),
- If the absolute value of discretionary accruals in a particular year is less than the average, we say that the company has not practiced earnings management during this year and therefore, there are indicators of the quality of its earnings, so we give a dummy variable (1).

Using binomial test to determine the extent to which there are statistically significant indicators of the quality of earnings issued by Toyota Corporation during the period 2008-2023 presented in the following Table:

Table 3. Binomial Test.

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
EM	Group 1	0	9	0,56	0,50	0,804
	Group 2	1	7	0,44		
	Total		16	1,00		

Source: SPSS Outputs.

Through the table above, the result of binomial test according to the SPSS program outputs shows that the total number of views of earnings management practices reached 7 views out of a total of 16 views, with a percentage of 44%. While the number of views of non-practicing reached 9 views, with a percentage of 56%, it mean that the quality of earnings disclosed by the company are estimated at 56%, and the significance level of the test appears at a value of 0.804 with a significance level of 0.05.

Thus, we will reject the alternative hypothesis and accept the null hypothesis:

There are no statistically significant indicators of earnings management practice in Toyota Motor Corporation during the period 2008-2023, which reflects the quality of its earnings.

Today, Toyota is a first automobile manufacturer; it produces trucks, buses, and various industrial vehicles, in addition to manufacturing cars. It also provides financial services through Toyota financial

services and among its activities are the robot industry.

Despite the crisis that the company faced during the year 2009, which caused its loss and many problems to which it was exposed, it was able to follow a path of effective strategic planning with the aim of getting out of that crisis, in which it relied on the following (Sultan, https://www.youtube.com/watch?v=3AUyytMlZqo):

- Monitoring the company's goals,
- Fixing the technical defects that appeared in some cars,
- Focusing on developing its results and customer research,
- Establishing a quality assurance center in various toyota centers,
- Benefiting from the support of external experts,
- Apologizing to customers for all defects in the company's product, and thanking them for their patience and understanding,
- Taking corrective measures with pictures and explanations,
- Following-up, repairing and additional maintenance for affected products.

In fact, the company's reputation preserved through transparency and effective management of its crisis, enhancing the development and research aspect, as well as maintaining the stability of its earnings chain in the period studied, so following the crisis without resorting to earnings management practices.

Finally we can say that the quality of Toyota's earnings recorded during the period 2008-2023 was the result of the quality of its smart strategic planning to face crises, as well as its adoption of transparency, reliability, and disclosure with its customers, which makes it an example of leading and successful companies, and today Toyota is a leader in the global automobile market that can confront competition and manage crises effectively.

5. CONCLUSION

Through this study, the quality of profits issued by Toyota Motor Company during the period 2008-2023 evaluated by measuring the extent of its practice of earnings management using the performance-adjusted discretionary accruals model, so we can come up with a set of results as follows:

- Toyota's profit series during the studied period was characterized by stability, it did not witness a loss except during the year 2009, when it went through difficulties that were a result of the repercussions of the global financial crisis in 2008, which affected its sales during that period,

- Toyota was able to overcome its crisis starting in 2010 through an effective strategic planning based on transparency with customers, research and development in order to correct technical and artistic defects,
- Toyota was and still the leading company in the automobile industry that has gained a strategic reputation in its competitive environment thanks to its strategic intelligence, quality performance, and effectiveness of planning and monitoring of performance,
- The results of estimating Toyota's discretionary accruals during the studied period showed that there were no statistically significant indicators of its practice of earnings management during the period 2008-2023, which reflects the quality of its earnings.

Through the aforementioned results, we will present a number of recommendations as follows:

- Toyota is an example to be followed in confronting crises without resorting to fraudulent methods to beautify the company's image in the market,
- It is necessary to work on using financial models as the "Kothari, Leone & Wasley" model by external auditors for evaluating earnings quality issued by companies in order to activate oversight of their performance,
- Gaining customers' trust and the company's reputation in the market can be only by establishing a climate of transparency and honesty within the company's environment,
- It is necessary to benefit from Toyota's experience in confronting crises by delving deeper into its strategic planning policy and adopting it in various companies around the world.

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APPENDICES.

- **Appendix N°(01):** Regression model during the period studied.

Years	Y : TAC i,t/Ai,t-1	X1 : (1 / Ai,t-1)	X2 : ((ΔREVi,t – ΔAR i,t) / Ai,t-1)	X3 : (PPEi,t / Ai,t-1)	X4 : ROAi,t
2008	-0,03880	3,06986E-08	0,06429	0,23982	0,05293
2009	-0,05896	3,08087E-08	-0,13900	0,22804	-0,01587
2010	-0,07963	3,44092E-08	-0,08320	0,23092	0,00805
2011	-0,05135	3,29497E-08	0,01999	0,20788	0,01561
2012	-0,03636	3,35366E-08	-0,03492	0,20911	0,01202
2013	-0,04463	3,26254E-08	0,08097	0,22352	0,03053
2014	-0,04662	2,81823E-08	0,08831	0,21535	0,04806
2015	-0,03325	2,41327E-08	0,01833	0,22433	0,04835
2016	-0,04246	2,09513E-08	0,03360	0,20407	0,05132
2017	-0,03136	2,10848E-08	-0,02511	0,21500	0,03953
2018	-0,03358	2,05127E-08	0,03025	0,21062	0,05141
2019	-0,03540	1,98775E-08	0,00626	0,21240	0,03823
2020	-0,02789	1,92541E-08	0,00037	0,20412	0,04067
2021	-0,00844	1,89824E-08	-0,06205	0,21661	0,03665
2022	-0,01362	1,60598E-08	0,05628	0,19796	0,04247
2023	-0,00683	1,47735E-08	0,06173	0,18665	0,03355

- **Appendix N°(02):** SPSS Statistics program outputs of regression test.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	,031	,069		,454	,659
	x1	-2079127	1046489	-,765	-1,987	,072
	x2	,063	,105	,214	,596	,563
	x3	-,066	,448	-,047	-,148	,885
	x4	-,077	,413	-,080	-,187	,855

a. Dependent Variable: y

- **Appendix N°(03):** The value of Toyota's discretionary accruals after replacing the regression model coefficients.

Years	DAC i,t/Ai,t-1	NDAC i,t/Ai,t-1	TAC i,t/Ai,t-1
2008	0,04088	-0,07968	-0,03880
2009	0,02768	-0,08664	-0,05896
2010	0,01301	-0,09264	-0,07963
2011	0,03082	-0,08217	-0,05135
2012	0,05030	-0,08665	-0,03636
2013	0,03521	-0,07984	-0,04463
2014	0,02432	-0,07095	-0,04662
2015	0,03430	-0,06755	-0,03325
2016	0,01640	-0,05886	-0,04246
2017	0,03130	-0,06265	-0,03136
2018	0,02502	-0,05860	-0,03358
2019	0,02249	-0,05790	-0,03540
2020	0,02873	-0,05661	-0,02789
2021	0,05205	-0,06049	-0,00844
2022	0,03256	-0,04618	-0,01362
2023	0,03490	-0,04173	-0,00683

- **Appendix N°(04):** Earnings Quality in Toyota Motor Company during the period 2008-2023

Earnings Quality	Average absolute value	Absolute Value Of DAC	Year
0		1331780,2338	2008
0		898365,4199	2009
0		378060,8979	2010
0	1353084,1599	935265,8506	2011

1		**1499710,1887**	**2012**
0		**1079187,8235**	**2013**
0		**862983,5622**	**2014**
1		**1421213,3751**	**2015**
0		**782951,1523**	**2016**
1		**1484278,3789**	**2017**
0		**1219836,8585**	**2018**
0		**1131628,1841**	**2019**
1		**1491944,5479**	**2020**
1		**2742103,3238**	**2021**
1		**2027534,8106**	**2022**
1		**2362501,9512**	**2023**