International Journal of Business Diplomacy and Economy
ISSN: 2833-7468
Volume 03 Number 01 (January) 2024
Impact Factor: 10.45
SJIF (2023): 5.208

www.inter-publishing.com

The Extent of the Effect of Disclosing Research and Development Activities on Earnings Management

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ABSTRACT

The research aims to identify voluntary disclosure of research and development (R&D) activities and the extent of its effect on earnings management. To achieve this goal, quantitative methods were used. In collecting data, the researchers depend on the financial statements published on the Iraqi Securities Commission website for a sample of companies, amounting to (4) samples, for the period (2013-2022). Voluntary disclosure of research and development activities was measured by research and development costs divided by sales. Earnings management is measured by Miller's model. The most important results reached are that there is a very low level of disclosure of research and development activities in companies (research sample). It is also noted that there is a large discrepancy in the levels of disclosure between companies and across the years (research sample), meaning that there are high levels in some observations, while there are low levels in other observations within a wide gap between the two levels. Also, it is noted that there are very high levels of earnings management according to Miller's model in companies (the research sample), and this level of earnings management varies from one company to another and from one observation to another, with great variation between those observations. It was also found that there is a positive relationship between the disclosure of research and development activities and earnings management, meaning that an increase in the level of disclosure of research and development activities will be accompanied by an increase in the level of earnings management practices in companies (research sample).

KEYWORDS: Voluntary Disclosure, Research and Development Activities, Earnings Management.

1. Introduction:

Over the past decades, a lot has changed in the global economy, as financial markets have grown increasingly and the need for financial reports that investors and stakeholders rely on when making their decisions has become greater. Companies are being asked to improve the level of disclosure of information contained in financial reports, as there is a large discrepancy in the quantity and quality of financial information provided by companies. Given the strong acceleration of innovation in science-based economic sectors and the increase in intangible resources, companies are realizing the importance of providing information about innovation, especially research and development information. In addition, the entry of globalization has led to a reduction in the heterogeneity between accounting practices and standards, as the introduction of international reporting standards in 2005 to European countries led to a significant change in the contents of companies' financial reports. The application of accounting standards has improved the quality of information and increased voluntary disclosure. Therefore, disclosing intellectual capital - especially research and development activities - is an important aspect of financial reports that stakeholders need. Voluntary disclosure is necessary in order to change the performance of financial resources to attract potential investors. Research and development activities are voluntary disclosures associated with a more transparent corporate information environment and have been considered a governance tool capable of monitoring managers according to agency theory. Therefore, this can reduce the tendency of managers to manage earnings in favor of their own interests. Disclosure of research and development activities can also improve the quality of earnings, thereby reducing earnings manipulation by managers.

1.1 The problem of Research:

Voluntary disclosure of research and development operations is one of the important aspects that keeps pace with developments in the business environment. Financial scandals have cast doubt on the process of producing financial information, due to bad changes in companies and their future earnings. Therefore, there is a need to disclose research and development activities in order to improve the quality of earnings, which leads to reducing manipulation of earnings by managers. Thus, more transparent financial reports are produced. Through what was mentioned, the research problem ends with the following question: Is there an effect of disclosure of research and development activities on earnings management?

1.2 The objective of Research:

The main objective of the research is to identify voluntary disclosure of research and development activities and the extent of its impact on earnings management.

1.3 The hypothesis of Research:

The research is based on two main hypotheses:

(H1). The first main hypothesis: There is a statistically significant correlation relationship between the disclosure of research and development activities and earnings management.

(H2). The second main hypothesis: There is a statistically significant effect of disclosure of research and development activities on earnings management.

1.4 The importance of research:

The research gains its importance by clarifying the role of voluntary disclosure in providing additional information in financial reports, especially research and development activities. This helps investors and stakeholders make their own decisions. The availability of additional information through voluntary disclosure enhances the strength of financial reports and reduces the manipulation of earnings by managers.

1.5 The community and sample of Research:

The research community is represented by industrial and agricultural companies listed on the Iraq Stock Exchange. The research sample consisted of two industrial companies and two agricultural companies. The time limits for the research sample were ten years for the period (2013 - 2022). The selection of the sample represented industrial and agricultural companies only, according to two conditions: (1) the availability of financial data in these companies that serve the research, and (2) the continuation of these companies to report their financial statements in the Iraqi Stock Exchange without interruption through the research specified period.

1.6 The method of Research:

The research relied on the deductive and inductive methods. Literature was extrapolated from Arab and foreign letters and magazines in order to build the theoretical aspect. After that, the research was tested on four companies, and data was obtained from the financial statements of these companies published in the Iraq Stock Exchange.

1.7 The model of Research:

Figure (1) shows the research model according to the relationship between the two variables:

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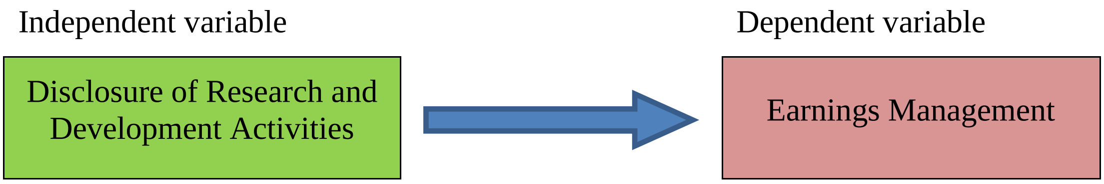
Figure (1) Research model



Source: The figure prepared by researchers.

2. The Theoretical Framework of the Research:

2.1 The concept of voluntary disclosure:

The occurrence of financial crises led to a deficiency in accounting disclosure due to the complexity contained in the financial statements, which are characterized by ambiguity and their inability to meet the needs of users of those lists because the information disclosed in the reports represents the minimum amount of information, which does not keep pace with the development of the business environment and does not meet all the needs of stakeholders. This led to voluntary disclosure, which discloses additional financial and non-financial information that mandatory disclosure does not provide (He, et al., 2019: 2).

Voluntary disclosure is complementary to mandatory disclosure, as they do not differ in the aim, but the difference between them is that mandatory disclosure is disclosure that is made following mandatory requirements and laws from government agencies or bodies, whatever their source. As for what is disclosed more than the mandatory disclosure, which results from management decisions and not from any legislation or laws, it is considered optional disclosure. It gives more information and details than mandatory disclosure, as it can be considered a complement to mandatory disclosure to achieve information disclosure in a manner characterized by consistency and diversity (Al-Zaghloul et al., 2018: 35).

Voluntary disclosure is defined as the provision of free information by company management to provide other information appropriate to the needs of decision-makers (Abdel-Ghani, 2020: 20). It is also known as providing information that goes beyond the legal obligations established by legislative bodies (Zamil, et al., 2023).

From the above, voluntary disclosure can be defined as the disclosure of additional information that contributes to increasing the confidence of users of the financial statements and helps them in making their decisions.

2.2 The importance of voluntary disclosure

Voluntary disclosure is of great importance to users of financial statements, workers within the company, and stakeholders. The importance of voluntary disclosure is as follows: (Rashwan & Abu Rahma, 2017: 9) (Abu Talib, 2016: 27)

1. It reduces the problem of information asymmetry between management and investors. This leads to increased liquidity and increased demand for securities, which leads to a reduction in the cost of capital.
2. It contributes to reducing the cost of borrowing.
3. It improves the company's reputation and increases community confidence, which in turn leads to increased demand for products, and thus increased sales. This is a positive aspect of the company's financial position.
4. It improves employees' confidence in the company's work and supports their confidence in improving its performance.
5. It contributes to the continuity and sustainability of the company in the field of business.

6. It reduces the information gap between the report user and the report preparer from all directions.
7. The importance of voluntary disclosure also lies in making the annual report move from being single distinct information published in the annual financial reports to an important part of the company's ongoing disclosure process.

2.3 The objectives of voluntary disclosure

The main goal of voluntary disclosure is to provide additional information that cannot be obtained from mandatory disclosure. Here it contributes to enabling users to make appropriate decisions and reduce risks that may occur in the future. The most important objectives of voluntary disclosure can be highlighted as follows: (Adlan, 2017: 19) (Bouchaib, 2016: 20)

1. Providing information about future cash inflows and outflows and providing information capable of predicting those flows.
2. It helps investors evaluate returns on investment in the company.
3. Describe unrecognized items and provide measures for them, unlike the measures included in the financial statements.
4. Providing information that contributes to increasing comparability, whether self-comparison within the company or between the company and other companies.
5. Providing information about the company's future plans and strategy in terms of production, marketing, and financial aspects, which contributes to supporting the decisions and predictions of stakeholders towards the company in the future.

2.4 The motives for voluntary disclosure:

The voluntary disclosure has several motives, including: (Al-Najjar, 2021: 38) (Abu Talib, 2016: 22)

1. Informing users of financial reports about the reasons for taking certain actions or actions in the company, future expectations, and operational conditions to improve the reputation and image of the company before users and stakeholders.
2. Reducing capital, as disclosing information reduces uncertainty related to the future and thus reduces potential risks.
3. Reducing the company's future financial and non-financial uncertainty and reducing agency costs.
4. Guess government oversight and potential legislation. The company makes voluntary disclosure if it becomes clear that there are risks. If these aspects are not disclosed, there may be government intervention.
5. Statement of important additional information that benefits its users and not general, generally accepted information.

2.5 The concept of research and development activity:

Research and development activity is the essential factor for the company's long-term survival. It works to improve quality, reduce costs, and reduce waste in the production process. It works to achieve excellence in operational processes as the facility develops, which leads to an increase in competitiveness by controlling markets (Al-Amour, 2015: 38). Research and development activities feed technological innovations, especially large institutions that have financial and human capabilities. Research and development activities are defined as everything that is carried out according to a systematic basis that aims to increase the stock of knowledge, including knowledge related to transparency and society, and to use this knowledge for new

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www.inter-publishing.com

innovations that benefit the organization. It is also defined as the creation and development of new products based on knowledge, technology, and awareness of new production techniques (Dumrul & Kilicarslan, 2018: 234). It is also defined as all efforts that include transforming knowledge into solutions in the form of images or production methods for material or consumer products (Awarib & Bouzid, 2021: 38).

2.6 The importance of research and development activities:

Research and development activities work to increase the state's ability to produce technology between countries or sectors, and help increase the state's exports to gain competitive strength and thus economic growth. Increased investment in research and development is accompanied by more innovative and competitive goods and services in international markets, creating a competitive advantage that has positive effects. The importance of research and development activities can be stated through the following: (Mustafa & Murad, 2013: 29) (Amina & Bouaia, 2019: 493)

1. Increasing the development of technological innovations and developing them successfully.
2. Working to solve production problems, working to increase production, and reduce costs.
3. Keeping up with all developments taking place in the internal and external environment.
4. Developing new creative methods and using technology to develop production processes.
5. Choosing effective alternatives to develop technology for use in the organization.
6. It is the basic foundation of innovation and creativity.
7. Integration into the global economy to become more innovative and adapt to the changes taking place.

2.7 The objectives of research and development activities:

There are many objectives that research and development activities pursue, which are: (Al-Haddad, 2014: 24) (Shuaib, 2014: 7)

1. An increase in the stock of knowledge and the use of this knowledge in new innovations.
2. Development of new products.
3. Improve current products.
4. Analyze and study competitive products.
5. Providing technical services to the organization's functional departments.
6. Find new uses for current products.
7. Supporting knowledge and research for new ideas or increasing production and economic capacity and achieving future benefits.

2.8 The types of research and development activities:

Research and development activities have several divisions: (Mounira & Salma, 2019: 142) (Al-Abadi, 2018: 32)

1. Basic research: It is represented by theoretical or figurative work directed at acquiring knowledge related to observed events without any intention to apply it. It aims to participate in the development of knowledge and discover scientific fields without having a specific goal.
2. Applied research: It represents the work carried out to identify possible applications that result from basic research or to find new solutions that allow reaching pre-defined goals, taking into account existing

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knowledge and expanding research with it to solve a specific problem. Applied research depends on basic research, which is theoretical and transformed into an applied aspect.

3. Development: It includes how to use basic or applied research results to begin providing raw materials or new products or improve what exists, as it contributes to transforming research into a practical reality.

2.9 The disclosure of research and development activities:

International Standard No. (38) requires disclosure of intangible assets, including research and development activities, based on an assessment of the technical feasibility of the asset, and research into the asset's operations with the possibility of using resources for its work. Thus, the standard produces two different treatments for research and development activities based on the nature of the process. If expenditures meet the specified standards, they are capitalized as part of intangible assets. When companies disclose information, they make a trade-off between the cost of disclosure and the benefits that result from it, and this trade-off is more sensitive when disclosing research and development activities because it expresses a large degree of privacy (Ali & Meligy, 2021: 20). There is a decrease in the evaluative ability of accounting information as a result of the inability of the financial report to represent the economic conditions that result from large investments, including research and development expenditures. Research and development expenses can be used as an earning management tool. Companies can manipulate expenses to meet the target earnings. Managers are working to capitalize expenditures to more closely meet expectations. The motives for capitalizing research and development expenditures are to exercise earnings management. It refers to treating those expenses as expenses instead of capitalizing them. The disclosure of research and development activities provides additional information about accounting earnings and book value (Markarian et al., 2008: 250).

2.10 Earnings Management:

Earnings management is an issue that many researchers are interested in and have commented on. Earnings adjustments occur when managers use accounting estimates or internal transactions to influence financial statements to mislead certain related parties about the status of a company's business, or to influence contracts that have obligations based on accounting earnings targets. However, there is still no consensus on the definition of earnings management. It is defined as adjusting earnings to achieve pre-determined management goals, which is a deliberate intervention in the process of providing financial information to achieve personal goals (Tran & Dang, 2021: 1). Earnings management is also defined as the use of accounting techniques to produce financial statements that provide a very positive view of companies' business activities and financial position (Kliestika, et al., 2021: 1452).

2.11 Earnings management strategies

There are a group of strategies for earnings management, which are: (Soria, 2017: 14)

1. Earnings reduction strategy:

A. The first case: The earnings achieved by the institution in the financial period are high, and management expects these earnings to decrease or remain the same in the future period. There are motives on the part of management to transfer earnings from the current period to the future.

B. The second case: The management reduces earnings in the current period, specifically at a time when earnings may be low in the organization and management expects them to rise in the future.

2. Earnings increasing strategy:

A. The first case: The earnings achieved in the current period are low and management expects that they will increase or remain the same in the future period, but some motives push management to transfer earnings from the future period to the current period.

B. The second case: The management increases earnings in the current period, specifically at a time when the earnings achieved by the organization are high but are expected to decrease in the future period.

2.12 Earnings management motives

There are many motivations undertaken by management, including: (Badr, 2013: 52-53) (Nasser, 2016: 54) (Mohamed & Hizia, 2018: 99)

1. Motives related to market valuation expectations: The prevailing use of accounting information by investors and financial analysts helps them evaluate stocks. This can be a strong motivation for managers to manipulate earnings to influence the stock price in the short term.
2. Contractual motives: Accounting data is used to organize and monitor contracts between owners and the company. Several contracts arise from it, including administrative reward contracts that are between the interests of management and the interests of others. There are several contracts, including:

A. Lending contracts: They are made in a specific way to limit the actions of management that affect stakeholders within the company at the expense of creditors. It creates an incentive for management to manipulate earnings.

B. Managerial bonus contracts: Many managers postpone income if the earnings target in the bonus program is not achieved.

3. Political motives: The political motives for managing earnings are represented by the desire to reduce the cost of compliance with government regulations and laws. There is what is called the political cost hypothesis. There are also strong motives among companies that face the possibility of government intervention. Earnings management is practiced to reduce income to optimize the costs associated with this income.
4. Taxes: The taxes borne by the organization create a strong incentive for managers to manipulate earnings, so they choose accounting methods and policies that reduce earnings and thus reduce the tax.
5. Company size: The larger the size of the company, the greater the likelihood that earnings will be managed significantly by management, due to the presence of a wide scope for expenses and accruals, flexibility in using accounting changes, as well as the possibility of reducing earnings from year to year, unlike small companies.

2.13 The methods of practicing earnings management:

There are many earnings management methods, including: (Hamoudi, 2010: 50) (Qazal, et al., 2019: 149)

1. Accounting changes: Accounting changes made by the company from time to time affect earnings management. Management makes these changes to achieve specific goals, such as managing earnings. The accounting changes are as follows:

A. Change in accounting policies: Management's flexibility in choosing accounting procedures makes it a differentiation to choose the appropriate accounting policies for the company. These procedures are represented by the accounting methods that the accountant uses to record accounting operations, including, for example, calculating depreciation or the method of valuing inventory.

B. Change in accounting estimates: Change in accounting policies differs from accounting estimates. When a change is made in the accounting policy, a report is prepared on the cumulative effect of the change in income for previous years, such as performing an income adjustment once in the year in which the change occurs, and this is shown in the statement of income for the year in which the change occurred. The cumulative effect is the net income in previous years. Net income is what is reported about it. While the accounting estimate is made in the current year and previous years if it has an impact for more than

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ISSN: 2833-7468
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www.inter-publishing.com

one period, income is not calculated in previous periods, for example, the debtors account when doubtful debts are estimated.

2. Establishing allocations and reserves: Allocations are formed to meet expenses or obligations that are certain to occur and are subject to personal estimates, which gives management a degree of freedom in determining the allocated amount because the policy of determining the allocated amount affects the income measurement process. Management may reduce the amount of provisions or write them off in years of poor performance in order to increase income or overestimate the value of provisions in years in which high profits are achieved. While reserves are made by companies at the end of the period, as they create reserves to face future changes. Management usually resorts to manipulating profits by creating reserves to reduce profits in order to tax evasion.

3. The Applied Aspect:

3.1 Data collection:

The field of research is the industrial and agricultural sector in Iraqi companies, due to their importance in moving the wheel of local development. The research community is represented by companies listed on the Iraq Stock Exchange. The research sample consisted of four selected companies: Al-Mansour Pharmaceutical Industries Company (C1), Al-Kindi Company for the Production of Veterinary Vaccines (C2) [from the industrial sector], Iraqi Company for Meat Production and Marketing (C3), Middle East Fish Production and Marketing Company (C4) [from the agricultural sector], for some time of 10 years (2013-2022), the number of observations on which the data was collected was 40 observation. The method of information content analysis was adopted to collect the data necessary to conduct the applied aspect of the research and to measure its variables.

3.2 Research variables and how they are measured:

The research included two types of variables:

1. The first variable: is the independent variable, which is [disclosure of research and development activities]. It is measured by the ratio of research and development to sales, as in the study (Mustafa & Murad, 2013) and the study (Eldawayaty, 2020), as in the following equation:

$$\text{Disclosure of R\&}D\ activities = \frac{\text{Total expenditure on R\&}D}{\text{Sales}}$$

2. The second variable: is the dependent variable, which is (earnings management). This variable is measured according to the Miller model based on the study of (Tahoun, et al., 2017), (Basudan & Al-Maliki, 2016), and (Ali, 2022). This model is based on calculating net working capital as an element subject to manipulation, and net cash flows from operating activities, which is considered a less manipulable element. The change in this ratio is calculated between the current and previous periods. Miller's model is based on two cases:

A. The first case: If the ratio is zero, this means that there is no practice of profit management, as follows:

$$\left(\frac{\Delta \text{WC}}{\Delta \text{CFO}}\right)_{\text{t}-0} - \left(\frac{\Delta \text{WC}}{\Delta \text{CFO}}\right)_{\text{t}-1} = 0$$

B. The second case: If the ratio is not equal to zero, this means that there is a practice of profit management, as follows:

$$\left(\frac{\Delta \text{WC}}{\Delta \text{CFO}}\right)_{\text{t}-0} - \left(\frac{\Delta \text{WC}}{\Delta \text{CFO}}\right)_{\text{t}-1} \neq 0$$

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Since:

ΔWC: means a change in working capital.

ΔCFO: means the change in cash flows from operating activities.

t-0: means the current year.

t-1: means the previous year.

The absolute value of the result of the equation was taken so that the result of the equation was judged to be in the presence of earnings management whenever the value increased, while the low level of earnings management was judged whenever the value decreased and approached zero.

3.3 Research model:

In the research model, disclosure of research and development activities was adopted as an independent variable, and earnings management was adopted as a dependent variable according to the following equation:

$$EM_{i,t} = \beta_o + \beta_1 DRDA_{i,t} + e_{i,t}$$

Since:

$EM_{i,t}$: represents the earnings management in the company (i) in the year (t).

$DRDA_{i,t}$: Represents the disclosure of research and development activities in the company (i) in the year (t).

B_o: represents the constant coefficient, which is equal to the value of earnings management when the value of disclosure of research and development activities is zero.

B_1: represents the regression coefficient, which represents the level of change in ($EM_{i,t}$) when ($DRDA_{i,t}$) changes by one unit.

3.4 Descriptive Analysis:

To describe the research variables, measures of central tendency, such as the Mean and Standard deviation, were adopted as one of the appropriate methods for conducting this description. Table (1) shows a descriptive analysis of the research variables represented by the variable of disclosure of research and development activities and the variable of earnings management.

Table (1): Descriptive analysis of the research

No.	Co.	Mean		Std. Deviation		Minimum		Maximum		Coefficient of variation	
		DRDA	EM	DRDA	EM	DRDA	EM	DRDA	EM	DRDA	EM
1	C1	0.032	3.092	0.022	2.500	.0077	.348	.0656	7.061	70.1%	80.8%
2	C2	0.008	1.200	0.006	0.767	.0001	.264	.0179	2.776	74.4%	63.9%
3	C3	0.001	3.149	0.002	2.572	.0003	.048	.0069	7.313	156.0%	81.7%
4	C4	0.022	3.401	0.012	3.911	.0087	.110	.0509	10.651	55.1%	115.0%
Total		0.016	2.710	0.017	2.726	.0001	.048	.0656	10.651	110.9%	100.6%

Source: Table prepared by the researchers.

It is noted from Table (1) that according to the arithmetic mean for the ten years of companies (research sample), the level of disclosure of research and development activities (DRDA) was low for companies (research sample), the total arithmetic mean reached only (1.6%), which indicates low levels of spending. On research and development activities in those companies. However, Al-Mansour Pharmaceutical Industries Company (C1) was the highest in terms of disclosure of these activities with a rate of (3.2%), while the Iraqi Company for Meat Production and Marketing (C3) was the lowest with a rate of only (0.1%).

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These values cannot be generalized to all sample observations, due to the high standard deviation and the large discrepancy between the lowest and highest values for each company. In addition, the coefficient of variation exceeds the standard value of (50%) for all companies and the overall level of (DRDA), meaning that there is a large discrepancy and dispersion between those observations, and therefore the value of the arithmetic mean cannot be generalized for the sample items as a whole.

The coefficient of variation was adopted in conducting the descriptive analysis to measure dispersion, in addition to the standard deviation, as it is used to compare the homogeneity of a different data set if its means or units used to measure it differ. The coefficient of variation is calculated by dividing the standard deviation by the mean. If the resulting value exceeds (50%), this indicates the presence of dispersion in the sample observations and the weakness of the mean's representation of the reality of the sample as a whole. It is also noted that the mean of earnings management (EM) for the total sample is (2.710), which is a value far from zero, which indicates the presence of a high level of earnings management in companies (research sample). However, this mean cannot be generalized to all observations due to the presence of large dispersion and variation between those observations, which is indicated by the large increase in the standard deviation and the value of the coefficient of variation exceeding (50%) for the four companies and for the total level of the sample. However, it is noted that the Middle East Fish Production and Marketing Company (C4) was the highest in terms of the level of earnings management (EM) practices, while the Al-Kindi Company for the Production of Veterinary Vaccines (C2) was the lowest in terms of the level of earnings management (EM) practices.

3.5 Discussing results and testing hypotheses:

To choose the appropriate statistical tool to test the research hypotheses, the researchers resorted to testing the normal distribution of the data using the kurtosis coefficient, which is used to test the level of fairness of the data. The data is judged to be normally distributed if the value of this coefficient is between the range (+3 , –3). If it exceeds this range, it indicates that the data is not normally distributed. From Table (2), it is noted that the values of the kurtosis coefficient fall within the permissible range. Therefore, it can be said that the data is normally distributed, and then parametric statistical tools can be used to test hypotheses.

Table 2: Test of normal distribution

Variables	Kurtosis
DRDA	1.937
EM	0.988

Source: Table prepared by the researchers.

After determining the type of statistical tools appropriate for testing hypotheses, the first main hypothesis of the research was stated, which is represented by the following:

(H1). The first main hypothesis:

> “ There is a significant correlation relationship between disclosure of research and development activities and earnings management. ”

To test this hypothesis, the Pearson correlation coefficient was adopted to measure the level and direction of the relationship. Table (3) shows the value of the correlation coefficient between the disclosure of research and development activities (DRDA) and earnings management (EM).

Table (3): Correlation coefficient value between (DRDA) and (EM)

Variables		EM
DRDA	Pearson	0.330*
	Sig.	0.038

Source: Table prepared by the researchers.

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It is noted from Table (3) that there is a positive (direct) correlation between disclosure of research and development activities (DRDA) and earnings management (EM) in companies (research sample), which means that it is possible for management to increase disclosure of research and development activities. In order to increase the level of earnings management practices. Based on the above, the first main hypothesis is accepted.

The second main hypothesis of the research is as follows:

(H2). The second main hypothesis:

> " There is a statistically significant effect of disclosure of research and development activities on earnings management."

To test this hypothesis, a simple linear regression equation was prepared to estimate the level of earnings management in the companies (research sample) as a function of the level of disclosure of research and development activities. This is to determine the level of influence of disclosure of research and development activities on earnings management. Table (4) shows the level of that effect.

Table 4: Effect of DRDA on EM

	β_o	β_1	Value (t)	Sig.	Value (F)	Sig.	R^2
DRDA	1.899	51.614	2.155	0.038	4.644	0.038^b	0.109

Source: Table prepared by the researchers.

It is noted from Table (4) that the validity of the regression equation model is stable in terms of the value of (F) of (4.644) at a significance level of less than (5%), which means that it is possible to estimate earnings management in terms of the level of disclosure of research and development activities. While the value of (t) of (2.155) at a level of significance less than (5%) indicates the significance of the effect of disclosing research and development activities on earnings management. The positive beta (β_1) value of (51.614) indicates a positive effect, meaning that increasing the level of disclosure of research and development activities will lead to an increase in the level of earnings management practices. This indicates that management can use the process of disclosing research and development activities as a tool to increase levels of earnings management in companies (research sample). The search form can be shown as follows:

$$EM_{i,t} = 1.899 + 51.614\ DRDA_{i,t} + e_{i,t}$$

The value of the coefficient for determining (R2) of (0.109) indicates that disclosure of research and development activities explains (10.9%) of the changes that occur in the levels of earnings management, while the remaining percentage (89.1%) is due to other factors not shown in the current model. Based on the above, it can be said that the second main hypothesis is accepted.

4. Conclusions:

The current research focused on discussing what is a disclosure of research and development activities, with an emphasis on the importance of this type of disclosure in opening up many positive and negative areas, according to the type of method management benefits from this type of disclosure. Researchers have tried to give logical and expected foundations for the relationship of this type of disclosure with earnings management practices. Based on the above, the researchers reached a set of conclusions from the theoretical and practical aspects. The most important of these conclusions are the following:

1. Voluntary disclosure of research and development activities reduces the ability of managers to the earnings manipulation and thus improves the quality of earnings.
2. It is noted that there is a very low level of disclosure of research and development activities in companies (research sample). It is also noted that there is a large discrepancy in the levels of disclosure

between companies and across the years (research sample), meaning that there are high levels in some observations, while there are low levels in other observations within a wide gap between the two levels.

3. It is noted that there are very high levels of earnings management according to Miller's model in companies (research sample), and this level of earnings management varies from one company to another and from one observation to another, with great variation between those observations.
4. There is a positive/direct relationship between the disclosure of research and development activities and earnings management, meaning that an increase in the level of disclosure of research and development activities will be accompanied by an increase in the level of earnings management practices in companies (research sample).
5. Increasing the level of disclosure of research and development activities in companies (research sample) can be exploited by corporate management and harnessed in order to increase the level of earnings management.

Based on these conclusions, a set of recommendations can be presented, as follows:

1. The necessity of disclosing information related to research and development activities in companies' financial statements, because of its great importance in improving the company's position, maintaining its reputation, and increasing its value in the long term.
2. There should be training courses in the company regarding disclosure of research and development activities due to their importance and their impact on the company's earnings.
3. Activating regulatory and supervisory authorities in order to follow up on companies' disclosure of research and development activities in the financial statements, as well as limit the practice of earnings management.

Given that there are some limitations in the current research, namely the small sample and the limited measures used as proxies for the research variables, it is possible that other researchers in the future will discuss the relationship between the two research variables by taking a larger sample that includes (a larger number of companies, different sectors, adopting measures A variety of variables, a wider period of years, and the addition of some intermediate, governing, or interactive variables such as corporate governance).

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