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The Impact Of The Application Of Artificial Intelligence Systems On The Quality Of Financial Performance (A Field Study)

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Abstract:

The study aimed to know the impact of the application of artificial intelligence systems on the quality of financial performance in the energy sector companies whose shares are listed on the Amman Stock Exchange. This study relied on the historical descriptive approach, the descriptive analytical approach, and the deductive approach, to answer the study problem and its hypotheses. One of the most important findings of this study is that there is a relationship between the applications of artificial intelligence and the quality of financial performance. Also, this study recommends that all financial management employees need to master the use of these applications, due to the many benefits achieved from their use.

Keywords: *artificial intelligence, quality, financial performance.*

1. Introduction:

The great and successive technological development and rapid scientific development, especially in the field of information technologies and smart software, is one of the most important features of the twenty-first century. In addition to this, the importance of applying this development in the business world is emerging, as business organizations are concerned with the elements of accuracy and time, which can be found in artificial intelligence systems in their work, as they have applied them in the world of finance and business, and many of them are now considered among the leading organizations in their field of work. The technology of artificial intelligence is considered a relatively modern science, and it is a computer science that is interested in studying human intelligence and simulates it in order to create modern smart computers that can be programmed to accomplish many work that requires a high ability of induction, deduction and cognition, and all these qualities are enjoyed by humans and are classified within the list His intelligent behaviors that a machine cannot acquire from others.

The issue of quality is receiving great attention from various business organizations in Jordan in various fields due to the paramount importance of this issue and its direct link to profitability and continuity in accounting and competition in management. Also, financial performance is one of the relatively recent concepts in administrative and economic sciences, which basically expresses how the organization exploits the available resources before reaching financial hardship or borrowing from financial organizations and selling assets to cover current expenses and maintain the market share of the product or service and continuity in the field of business.

2. The problem and questions of the study:

The main problem of this study revolves around the impact of the application of artificial intelligence on the quality of financial performance. In order to answer this main question, it is necessary to derive a set of sub-questions to cover this topic in a scientific way that enables us to formulate hypotheses, importance and objectives of the study. Accordingly, the methods of measuring the study variables will be determined. The sub-questions are as follows.

1- Is there an impact of the application of artificial intelligence in the return on equity?

2- Is there an impact of the application of artificial intelligence in the return on assets?

3- Is there an effect of applying artificial intelligence on earnings per share?

3. Study Hypotheses:

To achieve the objectives of the study and to answer the questions posed by the study problem, a set of hypotheses were formulated that will answer the study questions, which are as follows:

- ✓ The first hypothesis: There is no effect of using artificial intelligence applications in the return on equity.
- ✓ The second hypothesis: There is no effect of using artificial intelligence applications in the return on assets.
- ✓ The third hypothesis: There is no effect of using artificial intelligence applications in the earning per share.

4. Study objectives:

This study aims to know the impact of the application of artificial intelligence on the quality of financial performance in companies listed on the Amman Stock Exchange through the analysis of financial reports for the period (2016-2020). As well as reading the published scientific research papers and doctoral dissertations in this field, and then analyzing them in order to elicit and read what they contain in order to draw realistic and logical conclusions about the subject of the study. As well as clarifying the concept of artificial intelligence through its tools, characteristics and importance in influencing the quality of financial performance.

5. Importance of the study:

The importance of this study is that it examines artificial intelligence and the impact of its application on the quality of financial performance, and the importance of its application in business organizations because of its great importance in terms of accuracy and speed in completing, recording and classifying large operations in a short time with the availability of the element of safety and accuracy needed by the decision maker and the investor alike in business organizations so that all beneficiaries of the information provided by the applications of artificial intelligence can rely on it in making rational decisions.

6. Previous Studies:

Study (AL Sheikh Zaid 2020) the impact of company characteristics on the financial performance of insurance companies.

The research sought to clarify the role of business intelligence in the process of financial decision making in the private banks in the province of Erbil, by measuring the impact and testing the relationship between the concept of business intelligence and financial decision making. A questionnaire was adopted and distributed to the administrative staff in the private banks. The research hypotheses related to the correlation and influence between the two variables were tested using (SPSS). The most important findings of the research are the existence of a correlation and a significant impact between business intelligence, and financial decision-making. The research is framed in two aspects, the first is the theoretical aspect and the concepts of business intelligence and financial decision making. Second, the practical aspect was based on the questionnaire form as a means of obtaining data and analyzing the results to reach conclusions and proposals.

Study (Al-Dalahma et al., 2019) entitled the impact of artificial intelligence applications on the accounting profession:

This study aimed to know the impact of artificial intelligence applications on the performance of the accounting profession in Jordan. Jordan, with a very high degree of approval from the point of view of Jordanian chartered accountants, and after rejecting the hypotheses of the nihilistic study, the researchers reached a set of recommendations, the most important of which are that workers in the accounting profession keep abreast of technological developments, including the applications of artificial intelligence to maintain their jobs.

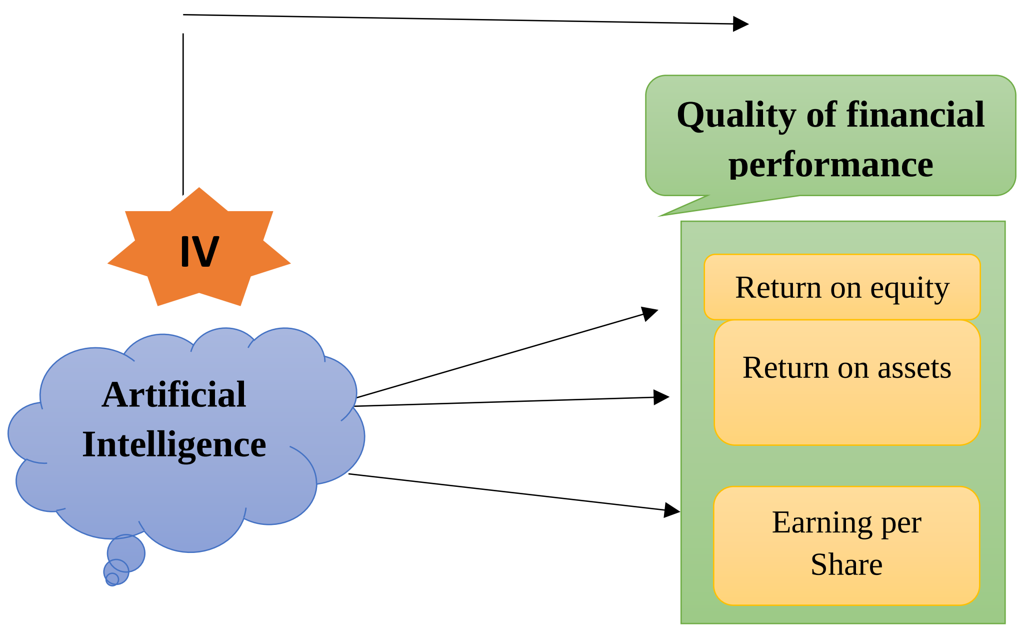
Study (Al-Shatnawi et al, 2019) entitled the impact of using artificial intelligence applications in improving the quality of accounting information.

This study aimed to test the effect of using artificial intelligence applications in improving the quality of accounting information in public shareholding companies in Jordan. A field study was conducted in order to answer the questions posed by the study problem, and the results showed a significant and statistically significant effect of the use of artificial intelligence applications in the characteristics of accounting information, including the appropriateness of accounting information and honest representation, and the absence of an effect of artificial intelligence applications on the property of comparability and comprehension of information.

Study (Ismail & Kassab, 2019) the impact of service quality on the relationship between market orientation and financial performance.
The aim of this research is to study the impact of service quality on the relationship between market orientation and financial performance through a field study on Syrian banks in the city of Hallab. To achieve the purpose of the research, 85 questionnaires were distributed to branch managers and their assistants. The study found that service quality directly affects financial performance, and that the interaction of service quality with marketing orientation will increase financial performance, and that improving the service leads to attracting new customers, and repeated purchase of the service leads to improving profits and financial performance.

Study (Barnes et al., 2018) Exploring the Association between Quality and Financial Performance in U.S. Hospitals.
This study aims to explore the relationship between quality and financial performance in American hospitals, by conducting a systematic review of literature from three official databases: PubMed, ABI Inform and Scopus during the years (1997 to 2017). The research process reached 13 relevant studies, and after reviewing the full text of these studies, the characteristics and results were summarized in terms of type and quantity. The study concluded that quality is strongly linked to financial performance and must be dealt with as such. The combination of the two plans and staff could lead to higher quality and more financially stable hospitals.

7. The study model:



Source: Prepared by the researchers based on study variables

8. Theoretical framework:

This study contains three chapters, the first chapter: Artificial Intelligence: we review the literature, studies, research, books, and publications related to the subject of the study. As for the second chapter, the quality of financial performance will be searched through previous research and studies. The third chapter will be devoted to a field study presenting the findings of this study, and it also includes the inclusion of a set of recommendations reached by the researchers.

1: Artificial Intelligence:

Technological development has entered all aspects of economic and scientific life, and artificial intelligence has become an umbrella term for applications that perform complex tasks that in the past required human interventions such as communicating with customers via the Internet or playing a game of chess. The term is often used interchangeably with its subfields, which include machine learning and deep learning. As the full value should be derived from Artificial Intelligence, many companies are making significant investments in data science teams. Data science, an interdisciplinary field that uses scientific and other methods to extract value from data, combines skills from fields such as statistics and computer science with scientific knowledge to analyze data collected from multiple sources.

1.1 The concept of artificial intelligence:

artificial intelligence is more about the ability to think and analyze data than it is about a particular form or function. Although artificial intelligence presents images of high-performance human-like robots taking over the world, it is not intended to replace humans. It aims to significantly enhance human capabilities and contributions. This makes it a very valuable business asset. More than one definition of artificial intelligence can be provided by Arafa (Copeland, 2018) as a field of study that studies how to create computer hardware and software capable of intelligent behavior. As he defined (Elaine, 2017) that it is how to make computers do things better than humans, as well as systems that think like humans and systems that behave like humans, and he looks at artificial intelligence as the ability of a device to carry out activities that he expects only from the human brain. These activities include the ability to know, and the ability to acquire it, as well as the ability to judge, understand relationships and produce original ideas. Artificial intelligence aims to create an intelligent machine that can interact in ways similar to a human being and is then seen as a simulation of the human brain Al-Dalahma et al. (2019).

The emergence of the term artificial intelligence dates back to the fifties of the twentieth century, specifically in 1950 when the scientist (Alan Test) introduced what is known as the Turing test, which means evaluating the intelligence of a computer and classifying it as intelligent if it is able to simulate the human mind) Bonnie Lane, 1988). The important thing now is to know whether artificial intelligence is a science or an art. In fact, artificial intelligence is a science and an art at the same time. It is a science because it developed intelligent computer systems by employing mathematical principles and also has the ability to solve some difficult problems in chemistry, medicine, engineering, and other Different types of sciences, and it is an art that works on the basis that the idea of designing intelligence systems is done through the use of technical methods of programming. Thus, the data stored in the information structure can be manipulated by computer science techniques, so artificial intelligence is very wonderful because it is considered a science and an art at the same time (Nath, 2009).

1.2 Objectives of Artificial Intelligence:

Artificial intelligence aims to know the nature of human intelligence by making computer programs capable of simulating human behavior, characterized by intelligence and the ability to process operations electronically and provide stakeholders with the information they need to help them make various decisions quickly and at the right time (Kozhakhmet et al, 2012; Soufi et al., 2013)

1.3 Advantages and Characteristics of Artificial Intelligence:

Many researchers mentioned the characteristics and advantages of artificial intelligence, including, but not limited to.

1- Artificial intelligence decisions are based on facts, not emotions, and this is what distinguishes them from humans.
2- It has the ability to think, perceive, visualize, be creative, and understand and perceive visible matters.
3- Acquiring knowledge and learning from previous experiences and applying it to new situations.
4- Solve the presented problems despite insufficient information and increase efficiency by reducing the time needed to solve problems.
5- The ability to use trial and error to explore different matters and to respond quickly to new situations and circumstances
6- Machines work without getting tired, bored or stopped, unlike humans
7- Keeping a huge amount of information and the ability to present it in a timely manner in order to assist the administration in making decisions.

8- Reducing the costs of training and developing employees (Al-Najjar,2010).

1.4 The main tools of artificial intelligence:

- **Expert systems:** They are special computer systems that aim to simulate human logic, that is, modeling the knowledge that already exists in the expert human being and then programming and storing it in a knowledge base for an information system in a specialized field of knowledge in order to replace the expert human (Yassin, 2018).
- **Neural networks:** They are one of the most important areas of control engineering and artificial intelligence, which reflects the significant and tangible development in the way of human thinking, and the main idea of neural networks revolves around simulating the human brain's method of making decisions (foltin, 2016)
- **Robots:** It is a machine capable of carrying out pre-programmed work by direct control of the human being or through a programmed signal from the computer, and it is called (the robot).
- **Fuzzy logic:** It is one of the forms of logic used in some expert systems and artificial intelligence applications, created by the scientist (Lutfi Ziyad) at the University of California in 1965. It was developed to be used as a better way to process data.
- **Intelligent Action:** These are software activities that carry out a set of operations on behalf of a user or another program with a certain degree of independence. Intelligent business technology is nowadays one of the main solutions to information problems resulting from the further development of a fully networked business environment Al-Dalahma et al. (2019).

1-5: Applications of artificial intelligence in the field of business:

Artificial intelligence can benefit the economy by helping develop work. Robots and artificial intelligence help people do their jobs better, so the combination of humans and machines is unstoppable. Thanks to deep learning and machine learning, artificial intelligence can become smarter over time, thus increasing business efficiency, and artificial intelligence will greatly reduce the possibility of human error (AL Sheikh Zaid 2020). The use of artificial intelligence is an excellent opportunity for business accountants because it allows them to focus on their duties based on experience and leave the repetitive tasks of the robot. Instead of wasting time on tedious tasks such as the data entry process, you should focus on the work that requires human expertise such as analyzing and interpreting the available data and using that information along with human sense to make important decisions about how to move forward to develop the organization and also exploit the available resources in order to improve financial performance for the organization (Davenport, 2016).

2- The quality of financial performance:

Quality plays an important role in the behavior of decision makers and stakeholders. The higher the quality of the information provided to them, the higher the degree of accreditation and reliability. To achieve this level, the financial information must be honestly and transparently represented, and it must be comparable, verifiable, and available in a timely manner.

2-1- Quality:

Quality is one of the most important factors creating demand for goods and services. At present, quality has become the main requirement for any organization (Talib, 2019). It can be said that reaching a specific definition of quality is difficult due to the different angles from which the researcher looks at the issue of quality, The American Society for Quality Control (ASQ) defines quality as a set of characteristics and specifications for a product or service related to its ability to meet current or assumed requirements, and ISO 9000/2000 is also defined as the degree to which a set of inherited characteristics meet business requirements. It is also defined by (Muhammad et al., 2019) as a standard or set of requirements that require a continuous effort for continuous development and improvement in performance in order to achieve the organization's primary goal of meeting the customer's desires. Moreover, quality plays a major role in achieving the goals of the organization through the optimal use of available resources and achieving a distinctive competitive position in the markets (Mahmoud & Ali, 2020).

2-2- Financial performance:

financial performance is receiving increasing attention by organizations, stakeholders, and investors because it is a tool that gives a clear picture of the existing financial situation in the organization and motivates management to make more efforts to achieve better performance than the previous one (Muhammad & Kunduz, 2021). There are many views of researchers regarding the concept of financial performance, and this diversity is due to the angle from which the researcher looks, the environment in which he works, and the culture and systems prevailing in the organization. The definition of financial performance can also be presented as the extent to which the organization succeeds in making optimal use of the resources available to it and achieving the goals set by the administration at the lowest costs. (Qudor & Sultani, 2019)) define financial performance as the method by which financial ratios and indicators are used to help the organization achieve the set goals. And (Bahaa El-Din, 2020) sees that financial performance is the organization's ability to achieve its goals at the lowest costs by using the optimal resources that are under its control (Bin Yto, 2021).

2.2.1 The importance of financial performance:

(Qudor & Sultani, 2019) the importance of financial performance lies in the fact that it aims to evaluate the performance of organizations from several angles and in a way that serves the users of financial statements who have financial interests in the organization, to determine the strengths and weaknesses of the organization and to benefit from the data provided by the financial performance to rationalize the financial decisions of users. Also (Haddad et al., 2020) sees that the importance of financial performance lies in following up the work of the organization, examining its behavior, monitoring its conditions, evaluating its performance levels and effectiveness, and directing performance towards the right direction required by identifying obstacles and stating their causes, proposing corrective actions and rationalizing the general uses of the organization and its investments in accordance with the general objectives of the institution, as well as contributing to making sound decisions to maintain the continuity and survival of the institution.

2.2.2 Financial performance indicators:

there are many different ways to measure the financial performance of the organization. The following are the main financial indicators used by this study:

- **The first indicator: return on equity: (ROE)**

The rate of return on equity is one of the most important indicators used in measuring the relationship between return and risk, thus measuring the financial performance of companies, consists of three indicators which are the profitability index, the asset management efficiency rating index, the financial leverage index. These indicators were formulated in the following equation (Qureshi, 2004).

$$\text{Rate of return on equity} = \frac{\text{Net income} \quad x \quad 100}{\text{Total shareholders' equity}}$$

- **The second indicator: return on assets: (ROA)**

This indicator measures the company's operational efficiency and optimal use of its available resources (Zubaidi, 2008). and it has been developed in the financial reports published for these companies as follows.

$$\text{Rate of return on assets} = \frac{\text{Net profit } x \ 100}{\text{Total assets}}$$

- **The third indicator: Earnings per share (EPS):**

This indicator shows the amount of profit available to ordinary shareholders, as well as the expected increase in equity which affects the market price of shares to achieve capital gains. (Shabib, 2009).

$$\text{Earnings per share} = \frac{\text{net incoe}}{\text{Weighted average number of ordinary shares}}$$

3. The field study:

The services sector in Jordan is one of the most important economic sectors, as it contributes to 80% of the total Gross Domestic Production. The energy companies listed in the Amman Stock Exchange represent an important economic aspect. This study includes a sample of energy companies listed in the Amman Stock Exchange**.**

3.1 Study Methodology:

This study uses the historical descriptive approach to understand artificial intelligence and its applications in business organizations through primary sources of studies, refereed scientific research, books, etc., as well as secondary sources and what is available for reading on the Internet. As for the dependent variable, it will be measured through the use of the descriptive analytical method and the deductive method, so that the financial information about the companies under study will be used from the website of the Amman Stock Exchange during the study period for the last 5 years (2016-2020). In order for all market information to be available for reading and can be examined and to ensure its extent to which it represents reality, and for this variable, a set of dependent variables will be selected to understand and know the relationship between the applications of artificial intelligence and the quality of financial performance through the return on assets, earnings per share and return on equity

3.2 Study Population:

The study population consists of all seven energy companies listed in the Amman Stock Exchange. A random sample was drawn from these companies, where four companies were randomly selected. It is a representative and scientifically acceptable sample to conduct the study.

3.3 Study Tool:

The researchers used the audited financial reports available on the Amman Stock Exchange website for the latest 5 years, so that they are analyzed in order to understand the impact of artificial intelligence applications on the quality of financial performance, and the results of operating profit from operations will be used. The results of the business represented by net income were also used in order to have a clearer understanding of the variables of the study, as for the dependent variable and the indicators through which the quality of financial performance will be measured, namely, return on assets, earnings per share and return on equity, in addition to operating profit and net income.

3.4 Validity of the study tool:

The information listed in the Amman Stock Exchange is characterized by strict control by the market management, and the administration requires that all published financial reports be audited by an independent chartered accountant. The researchers believe that it provides a reasonable basis on which to build the relationship between artificial intelligence systems that provide very complex computational processors that take place in a few seconds after being inserted into the processing unit in the computer and enjoy a high degree of accuracy and credibility.

3.5 Data Analysis:

After reviewing the financial statements of the companies under study to analyze and understand the relationship between the applications of artificial intelligence systems and the quality of financial performance, the tables for each company will be analyzed and arranged, and the relationship between the numbers in each year of study will be studied.

- **Jopetrol company:**

The Jordan Petroleum Refinery Company (known as: JOPETROL) was established in 1956. It is a public company listed on the Amman Stock Exchange since 2003. JOPETROL operates in the oil, refining and marketing sector focusing on energy. It has subsidiaries operating across Jordan. Table No. (1) shows the results of the work of Jopetrol company.

Table (1) Jopetrol company data:

Data	2020	2019	2018	2017	2016	Analysis
Net Income	14,278,339-	44,188,802	36,872,548	32,927,297	34,066,432	133,776,740
Net Operating Income	38,110,057-	44,426,655	38,235,411	125,934,995	174,624,370	345,111,374
Return on Assets %	-1.31	3.42	2.56	2.41	2.74	10
Return on Equity %	-6.93	18.42	16.74	15.97	17.55	62
Earnings Per Share (JD)	-0.14	0.44	0.37	0.33	0.34	1

Source: Table prepared by researchers based on study variables and Amman Stock Exchange data.

It is noted from Table No. (1) that the company achieves above average profits despite achieving large losses in the last year, perhaps due to the company’s expansion of its business as well as the repercussions of the Covid 19 pandemic, but it can be said that its financial conditions are reassuring and deny the existence of doubts in the accounting policies that The management prepares it, as well as due to the accumulation of net profit in a sound manner, which is positively reflected on the return on assets, as it witnessed an increase from one financial period to another, as well as the figures that explain the profitability of the share, as it was found that there is a continuous increase in the proceeds obtained, which explains the profitability of the share. As for the return on equity, it reassures the shareholders that they are in a safe and stable investment, which may push the current investors to increase their investments in this company and also motivate the waiting investors to invest in this company. It should be noted that the company's shares have witnessed a significant increase in market value over its long productive life.

- **Jordan Electricity Company:**

The Jordan Electricity Company was established in 1938 under the name "Amman Electricity Company" with the aim of introducing electric power to the city of Amman. In 1945, the name of the company was changed to become "Jordan Electricity Company." The Jordanian Electricity Company, a public shareholding limited company, is currently purchasing electric power from the National Electricity Company (the Authority formerly Electricity) is the company responsible for distributing electricity to the cities of Amman, Zarqa, Salt and Madaba. Table No. (2) shows the results of the work of Jordan Electricity Company.

Table No. (2) Jordan Electricity Company**:**

Data	2020	2019	2018	2017	2016	Analysis
Net Income	9759629	9,848,521	9,317,777	7,893,337	12,733,647	49,552,911
Net Operating Income	22737489	20,484,666	13,285,903	19,515,692	26,103,696	102,127,446
Return on Assets %	0.97	1.02	0.93	0.74	1.35	5
Return on Equity %	7.77	7.98	7.63	6.68	11.11	41
Earnings Per Share (JD)	0.11	0.11	0.11	0.09	0.16	1

Source: Table prepared by researchers based on study variables and Amman Stock Exchange data.

It is noted from Table No. (2) that the company achieves high profits, and it can be said that its financial conditions are reassuring and denies the existence of doubts about the company's continuity in its business in the near term or for at least three years to come, and that the accounting policies prepared by the management in a realistic and sound manner, which reflects positively on the return on Asset has witnessed a rise from one financial period to another. As well as the figures that explain the profitability of the share, as it shows the presence of a continuous and high increase in the investment returns, which led to an increase in the realizable value of the company's shares, as well as the amounts collected explain the profitability of the share. As for the return on equity, it reassures the shareholders that they are in a safe investment and is growing in a good way, which may push the current investors to increase their investments in this company and also motivate the waiting investors to invest in this company. It should be noted that the company's shares have witnessed a significant increase in market value over its long productive life.

- **Central Electricity generation company:**

The Electricity Generation Company was privatized in 2007, when the government sold 51% of its share in this company to the private sector and sold 9% to the Social Security Corporation, while 40% remained government-owned. It undertakes the production of electrical energy in the company's generating stations located in the governorates of the Kingdom Table No. (3) shows the results of the work of Central Electricity Generating Company:

Table No. (3): Central Electricity generation company data:

Data	2020	2019	2018	2017	2016	Analysis
Net Income	10,049,107	21,317,749	3,164,614	6,307,401	7,775,002	48,613,873
Net Operating Income	27,608,112	25,297,977	21,303,525	24,719,307	16,285,272	115,214,193
Return on Assets %	5.03	9.86	1.37	2.90	3.31	22
Return on Equity %	16.63	30.42	6.49	10.46	11.20	75
Earnings Per Share (JD)	0.33	0.71	0.11	0.21	0.26	2

Source: Table prepared by researchers based on study variables and Amman Stock Exchange data.

Table No. (3) shows the efficiency of the financial management and the extent to which it invests the available resources of assets and materials that have been used in an effective and correct manner, and that the indicators for measuring the efficiency of the administration were deduced from the circulation of liquidity and they judge the efficiency of the financial management and the board of directors. It can also be said that the total profit from operations It was high, and this explains the extent to which the financial reports represent reality without performing cosmetic operations for the total profit from operations, that is, before calculating general and administrative expenses, which is a good indicator. As for the net income, it has witnessed an upward increase, which means that there is reasonableness in the financial performance of this company and it improves the quality of its financial performance compared to its competitors. And since the value of the return on investment, if it is less than zero, the company achieves structural losses, but if it is equal to zero, this means that the company recovers what was spent on generating profits and is moving away from the possibility of achieving losses, and since the value in this table is greater than one The company achieves good profits from one period to another, and this is a positive indicator and its results can be relied upon in formulating future accounting policies. Also, the return on assets is good and indicates that the assets were exploited well and that they contributed to generating revenue in a reasonable manner, and this in turn led to an acceptable increase in the return on owners' equity.

- **Electricity Distribution Company:**

The Public Shareholding Electricity Distribution Company was established in accordance with the provisions of Companies Law No. (22) of 1997, in implementation of government plans and programs for restructuring and privatizing the electricity sector approved in the 1990s. With a capital of ten million dinars, the government owns (75%) and the National Electricity Company (25%) divided into equal shares with a nominal value of one dinar per share. Table No. (4) shows the results of the work of Electricity Distribution Company.

Table No. (4) Electricity Distribution Company:

Data	2020	2019	2018	2017	2016	Analysis
Net Income	12,229,419	11,333,944	14,360,381	6,829,616	14,373,101	59,126,461
Net Operating Income	20,074,132	17,428,677	19,831,750	8,189,186	15,004,898	80,528,643
Return on Assets %	1.56	1.31	1.58	0.93	2.22	8
Return on Equity %	31.00	38.45	45.30	23.31	45.64	184
Earnings Per Share (JD)	0.95	1.04	1.25	0.50	1.12	5

Source: Table prepared by researchers based on study variables and Amman Stock Exchange data.

Table No. (4) shows the company's financial position through indicators of measuring the dependent variable and some financial operations that help in a better understanding of the financial situation and the efficiency of the financial management in investing the available resources of assets and materials that have been used in an effective and correct manner, and that the indicators for measuring the efficiency of the administration were deduced from Liquidity turnover, which judges the efficiency of the financial management and the board of directors. It can also be said that the total profit from operations was high, and this explains the extent to which the financial reports represent reality. Without any general and administrative expenses, which is a good indicator. As for the net income, it has witnessed an upward increase, which means that there is reasonableness in the financial performance of this company and it improves the quality of its financial performance compared to its competitors. And since the value of the return on investment, if it is less than zero, the company achieves structural losses, but if it is equal to zero, this means that the company recovers what was spent on generating profits and is moving away from the possibility of achieving losses, and since the value in this table is greater than one The company achieves good profits from one period to another, and this is a positive indicator and its results can be relied upon in formulating future accounting policies. Also, the return on assets is good and indicates that the assets were exploited well and that they contributed to generating revenue in a reasonable manner, and this in turn led to an acceptable increase in the return on owners' equity.

9. Conclusions and Recommendations:

9-1 Conclusions:

This study discussed the relationship between artificial intelligence applications and the quality of financial performance in service sector companies whose shares are promoted in the Amman Financial Market in Jordan during the period (2016-2020) the most important of which are the following:

1- The study showed the existence of a significant relationship between the applications of artificial intelligence and the quality of financial performance in the companies under study, and accordingly, we reject the main hypothesis, because the applications of artificial intelligence work with extreme accuracy and in a record time that is almost negligible with the efforts made by the financial administration and its employees. The most important objectives of this study were also achieved, which is to know the relationship between artificial intelligence applications and the quality of financial performance, and the importance of using these applications on the practical reality of these companies was clarified, in addition to the importance of accuracy and speed in completing all work to the fullest.

2- The results of this study showed that the relationship between artificial intelligence applications and the return on assets is a positive relationship, and that is why these applications work according to programs prepared by experts in accounting, production, operations and the whole system in business organizations. Based on this, we reject the first hypothesis, because there is a significant relationship between the applications of artificial intelligence and the total amounts that accrue to investment in assets that produce income.

3- The results of this study, through analyzing the data contained in the financial reports of these companies, showed that the optimum use of the available resources was made without resorting to other sources of financing and that the cost of borrowing them is greater than the benefits expected to be achieved from the return on the share, and this is what prompts us to reject the second hypothesis as there is a good relationship between artificial intelligence applications and earnings per share.

4- The results of this study, through the review, discussion and analysis of financial and non-financial data, showed a relationship between the applications of artificial intelligence and the return on equity, because investment in general when it provides reports that are free of distortion and fraud will lead to an increase in the demand for owning the shares of these companies, which leads to pumping Greater liquidity that results in higher quarters, which raises the value of equity in these companies. Based on the foregoing, we reject the third hypothesis, which states that there is no relationship between the applications of artificial intelligence and the return on the rights of owners.

9.2 Recommendations:

At the conclusion of this study and after discussing the results that were drawn through the analysis of financial reports and related literature and from their various sources, we can formulate a set of suggestions and recommendations that benefit business organizations in improving their financial performance through the use of applications of artificial intelligence systems, and the following are the most important of these recommendations:

1- The study recommends that business organizations need to increase their employees' awareness of the importance of using artificial intelligence applications, in terms of high accuracy and the standard time it takes to use these modern technologies.

2- This study recommends that all employees in the financial management need to master the use of these applications due to the many benefits achieved from their use and making them accessible to all employees in order to access information that is highly reliable and comparable because all companies in the Jordanian financial market are classified according to the activity they practice.

3-This study recommends that all business organizations need to adopt clear action plans that show that continuous education and continuous training for everything new in the field of artificial intelligence applications, especially that these applications are characterized by rapid innovation and development, because they are not stagnant but are constantly changing.

4- This study encourages conducting detailed studies in different fields and for longer periods to reach a great conviction of the importance of using these applications in contrast to the cost-benefit accounting entry.

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