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THE ROLE OF IMPROVING SUSTAINABLE ENERGY BY RELYING ON THE ACCOUNTING INFORMATION SYSTEM AND ITS IMPACT ON THE VALUE OF THE ECONOMIC UNIT

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Abstract

Average growth energy levels in greenhouse gases Models were established in Iraq Securities in 2014, where these models worked to create models of national projects for metal industries, which is a mixed contribution, and represents the temporal limits of the combined units (2009-2019). SPSS-25) and the statistical program (AMOS-25) and the EXEL2020 program) and the researchers came up with a sentence presented, the most important of which is the existence of an average correlation with the study of the value of the change in the value of energy and the value of economic integration with an average value of (0.258). Effective, the most important of which is stimulating industrial companies environmental pollution.

Introduction

The world is currently going through economic, social, cultural and environmental transformations that put pressure on economic units, the great developments in information technology and the pursuit of resources that are more advanced, and the resulting increase in the demand for information has become an intervention. Make it a key difference in helping make key decisions in your local community and financial information. On the other hand, our wages are an economic benefit. Gas emissions resulting from business revenues and greenhouse gas emissions resulting from revenues resulting from revenues resulting from revenues resulting from revenues and this will affect the value of companies, and their impact on the value of the economic unit

The first axis: Research methodology and previous studies

1. Research problem

The contemporary world has witnessed an accelerated technological development, which cast a shadow over the accounting data processing process, which led to an increase in speed and accuracy in the delivery of appropriate information to decision-makers. However, the Iraqi industrial companies did not keep pace with this development, as it is based on the published financial reports of industrial companies. Listed in the Iraq Stock Exchange, we find that it does not contain information about the effects of energy consumption and the damages caused

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by companies to the environment and society. This was reflected on stakeholders in forming a comprehensive and integrated picture of their performance and ability to create sustainable value and maintain it in the long term. Which affects the selection of appropriate investment opportunities for the investor in the Iraqi environment. The research problem can be summarized in the following questions:-

أ- Is there a role for the accounting information system in improving the performance of sustainable energy?

ب- Is there a way to improve the performance of sustainable energy in increasing the value of the economic unit?

ت- Are there fears or obstacles that limit the adoption of energy efficiency measures in industrial joint stock companies listed in the Iraq Stock Exchange?

2. Research importance:-

The importance of the research lies in the urgent need for such research as it deals with an important issue of improving sustainable energy performance through the optimal use of available resources depending on the outputs of the accounting information system, in order to meet the needs of investors and stakeholders as well as to contribute to community service through work. To preserve the environment, achieve the goals of sustainable development and economic well-being.

3. Research Objectives: -

The main objective of the research is to clarify the role of the accounting information system in Improving energy efficiency and objectives can be summarized in the following points:-

1- Statement of the role of the accounting information system in improving energy efficiency

2- Highlight the need to preserve natural resources as a right for future generations.

3- Encouraging Iraqi companies to conserve energy because of its positive effects on society and the environment in general, thus achieving the main objectives of the energy policy represented in energy stability, competitiveness and sustainability.

4. Research hypothesis:

The first main hypothesis:

(There is a significant statistically significant correlation between improving sustainable energy performance based on the accounting information system and the value of the economic unit) from which the secondary hypothesis emerges as follows:

1-There is a significant statistically significant correlation between (total production energy costs, savings in total energy costs, total energy efficiency) combined and between the value of the economic unit in the National Company for Metal Industries and Bicycles Mixed contribution.

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The second main hypothesis:

(There is a significant effect of statistical significance for the variable of improving sustainable energy performance based on the accounting information system on the value of the economic unit) from which the secondary hypothesis emerges as follows:

1-There is a significant effect of statistical significance for the independent dimensions (total production energy costs, savings in total energy costs, total energy efficiency) combined on the value of the economic unit in the National Company for Metallurgical Industries and Bicycles Mixed contribution

5. Community and sample research

Research community is represented by the joint stock industrial companies listed in the Iraqi Stock Exchange, and the research sample is represented by the National Company for Metal Industries and Bicycles - mixed joint stock. For the period (2009-2019), the research community was chosen because it meets the objectives of the study, through which it is possible to measure the impact of the accounting information system in improving the performance of sustainable energy, as well as the possibility of measuring the value of the economic unit as it is industrial joint stock companies whose shares are traded in the Iraqi market. As for the reason for choosing the research sample, it is due to the environmental effects resulting from the company's practice of its activities.

6. Statistical methods used

The researchers relied on the data analysis process, which is the annual financial reports of the companies sample the research using the statistical method using the statistical analysis processing program (Spss-25), the statistical analysis processing program (AMOS-25) and the electronic spreadsheet program (Microsoft Excel-2020).

7. Scientific Research Methodology

For the purpose of achieving the objectives of the research and proving its hypotheses, it was relied on the deductive approach in studying the theoretical side and the adoption of the inductive approach in the practical side, by relying on the outputs of the accounting information system represented in energy accounting data by using sustainable energy performance indicators and measuring the extent of their impact on the value of the economic unit by relying on Tobin's Q index to measure the market value of an economic unit.

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previous studies -Secondly

1- Study , et al, 2012) Young Chiu	
The address	Establishing an Integration-Energy-Practice Model for Improving Energy Performance Indicators in ISO 50001 Energy Management Systems Establishing an integrated model for energy practice to improve performance indicators of energy management systems in accordance with ISO 50001
Study type	Research published in the journal MDPAI
Objectives	Identify the challenges associated with enhancing energy performance indicators, and the factors that lead to improving energy efficiency .
study community	Company in Guangdong Province of China
The study sample	production plant with an area of 281,000 m ^{2} and 21,000 employees .
The instrument used in the study	The Energy Integration Practice Model for Improving Energy Performance Indicators .
The most important conclusions	establishment of an energy integration practice model that the introduction of the ISO 50001 energy management system can lead to meeting the requirements of energy performance indicators and passing the international certification ISO 50001 in energy management systems .
The most important recommendations	The study found the need to pay attention to renewable energy by relying on energy saving solutions using wind movement and biomass energy .

2- Study (2015 Teru & Hla)	
The address	**Efficiency of Accounting Information System and Performance Measures - Literature Review The efficiency of the accounting information system and performance measures - a review of the literature**
Study type	International Journal of Multidisciplinary and Current Research Research published in the International Journal of Interdisciplinary and Current Research
Objectives	Examining the efficiency of the accounting information system in performance measures using secondary data.
study community	Small and medium-sized companies
The study sample	Financial and banking management
The instrument used in the study	theoretical study
The most important conclusions	The accounting information system is of great importance to both companies and government units, as it helps in facilitating administrative decision-making, internal controls, and the quality of the financial report, and it facilitates the company's transactions as it plays an important role in the economic system.
The most important recommendations	1.Companies must train their employees to use computer systems effectively and to apply internal control techniques through computer systems. 2.The government should set policies and guidelines that would facilitate the implementation of the work .

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3- Al- Wattar study , et al, (2019)	
The address	The role of integrating hotel sustainability reporting practices into an Accounting Information System to enhance Hotel Financial Performance: Evidence from Iraq The role of integrating hotel sustainability reporting practices in accounting information system To enhance the financial performance of hotels :guide from Iraq
Study type	Research published in the African Journal of Hospitality, Tourism and Leisure African Journal of Hospitality, Tourism and Leisure
Objectives	Explore the role of integration between the accounting information system and sustainability reports in enhancing financial performance in the hotel industry.
study community	The hotel sector in Iraq
The study sample	Hotel companies listed on the Iraq Stock Exchange for the period 2013-2018
The instrument used in the study	Global Reporting Initiative Standards (GRI)
The most important conclusions	1. interaction between the accounting information system and the hotels sustainability report leads to improving the results of the general financial performance. 2. The outputs of the current accounting system do not fully meet the sustainability reports in the hotel industry, and the information contained in the annual reports is revised between the social, economic and environmental dimensions of sustainability. 3.reporting of environmental information has a much greater impact on a hotel's financial performance than reporting on economic and social information.4. positive relationship between reports on hotel sustainability and financial performance in the Iraqi hotel industry may motivate management to provide more information on sustainability concerns in order to improve the
The most important recommendations	The necessity of paying attention to reporting on environmental sustainability because of its significant impact on the financial performance of the hotel sector in Iraq.

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4-) StudyAlmagtome, et all, 2020 (	
Circular Economy Initiatives through Energy Accounting and Sustainable Energy Performance under Integrated Reporting Framework **Circular economy initiatives through energy accounting and sustainable energy performance under integrated reporting**	**the address**
International Journal of Mathematical, Engineering and Management Sciences Research published in the International Journal of Mathematical Sciences, Engineering and Management	**Study type**
circular economy that contributes to preserving economic Identifying the resources for the longest possible period through the use of a number of ecological initiatives to achieve this, such as reducing the consumption of .fossil energy , recycling waste, and reducing emissions and pollutants	**Objectives**
• Finding financial and non-financial indicators to measure sustainable energy performance • The implementation of the Integrated Reporting Framework represents a fundamental" change in the philosophy of companies in the field of " financial reporting • Focus on preserving natural resources, especially energy sources, by adopting sustainable development strategies that aim to maintain economic .activity and preserve energy sources in the long term	**The most important conclusions**
Conventional energy sources and since the major gradual abandonment of Which consume industrial companies in the world are the main companies energy, and the low consumption of traditional energy sources means an .increase in the interest of these companies in sustainable energy	**The most important recommendations**

The second axis: - the accounting information system

1. The concept of an accounting information system:

Accounting information system is defined as the unified structure within an economic unit, which uses physical resources and other components to transform economic data into accounting information, with the aim of meeting the information needs of a variety of users. Al-zoubi, 2017: 2) what has been defined as a set of resources, such as people and equipment, designed to transform financial and non-financial data into information through the collection , recording , and Storage and processing of data to generate information for decision makers (Dewi , et all, 2018: 79) As well as "he It helps to achieve the organizational goals of the economic unit and strengthening internal control , This indicates that the information system Accounting has a positive impact on various areas, such as financial management, governance , and credit risk management (Setyaningsih, 2021: 325) .

2. Components of an accounting information system:-

The accounting information system includes the following components: (Sujud & Hachem,, 2019:30)

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أ- Input: _

They are transactions of a financial nature that are documented by documents proving their occurrence on a specific date, where economic events constitute the data that is processed through the accounting information system.

ب- processing: _

It is conducting operations on the inputs through recording, tabulating and summarizing the restrictions of those financial transactions through the use of books and other records to ensure that the processing process is conducted according to the chronology of the system inputs.

ت- output: -

It is represented by the financial statements and reports produced by the system, and it is the final product of the accounting information system.

ث- control: -

The process of controlling inputs, processing and outputs is carried out to ensure the production of correct and error-free information. Therefore, all necessary measures are taken to protect the information system.

ج- Feedback:

It is the negative or positive reactions to the outputs of the system, and the quality of the outputs of the system can be ascertained by comparing the outputs with pre-determined standards of performance and then feeding the system with the results of this comparison (Hall, 2011: 14)

3. Information system functions:

The functions of the accounting information system

أ- Data collection Data collection:-

This function is carried out during the input stage by obtaining data and recording operations to ensure the correctness and completeness of the process of entering data into the accounting information system (A&A, 2012:185).

ب- Data processing: data processing -

The processing process means the procedures or steps that must be implemented to convert the input represented in the raw data into a final product that is information. Here are some of these procedures.

- Segmentation of aggregated data: such as sales , purchases , or production data A and personnel affairs
- Copying , transferring, or dumping data into other documents or other storage media, such as a blanking of work hour cards for each worker in the payroll and wages for workers as a whole , or a blanking of sales invoices in a sales journal .

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- Classifying or organizing data according to certain criteria, such as: Classifying sales by Items sold or according to geographical areas for each item.
- Grouping data of one nature together, such as collecting inventory quantities data from Similar items located in different stores or different regions to obtain the total available quantity of each item of merchandise Existing in stores on a specific date or a specific region.
- Merging data with each other, such as merging lists of sold items with lists The prices of these items in order to calculate the value of the items sold (ie the value of sales) (Al- Ramhi and Al-Dhiba , 2011: 21).

ت- Data management:-

This job includes three steps (data storage, data preservation, data retrieval), where storage includes placing data in repositories called files or databases and stored in a way that can be referenced in the future, since the data is processed into information that is kept As for the maintenance (maintenance), it includes the settlement and processing of the stored data, and the retrieval process is the possibility of accessing and extracting the data or processing it (Al-Jazrawi and Al-Janabi, 2009: 32).

ث- Information production:

The function of information production is the issuance of financial statements, which represent the most important sources that users rely on to obtain information. There are also some other sources for obtaining information such as (production reports, future plans, and the announcement of dividends), but the financial statements enjoy some comparative advantages over Other sources, and among these advantages are their credibility and reliability due to the external audit of these lists, as well as the possibility of providing estimated information in the form of planning budgets related to the future such as profit forecasting (Bilal, 2018: 6). The financial statements aim to provide information on the financial position and Business results to serve decision makers as they meet the common needs of most users of stakeholders, in addition to showing the results of evaluating the efficiency of the administration in carrying out its duties (Bo Aziz, 2021: 51).

The third axis: - sustainable energy performance and financial measures for its calculation:

Energy: -

The word (energy) is derived from the Greek word (energos) , and it is defined as the ability of a thing to perform a specific action, and is often related to the mechanical movement of bodies (Bouzekri and Laour , 2018:9), and it is also known as “the ability of matter to give A power that is characterized by the ability to accomplish a specific work, where energy is With several pictures like (sound , light, and heat) , as well as “the mechanical energy generated by equipment or machines , and the chemical energy resulting from the reactions of chemicals, electrical energy, atomic energy, and radiation energy” (Amr and Atman, 2020: 7)

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Energy resources Energy Sources:-

Energy sources can be divided into the following:

Non-renewable energy (fossil) Non-Renewable Energy:-

They are those depleted resources that were formed by nature and that exist in limited quantities and that will run out after a certain period of time as a result of their use, such as (oil, natural gas, and coal) (Ruwaiqia , 2019: 79) . Non-renewable energy is divided according to its sources into the following:-

Oil: _

It is a thick, flammable liquid found in the upper layer of the earth's crust of the earth's interior. It consists of a complex mixture of hydrocarbons, and differs in its appearance, composition and purity from one place to another. , 2019: 32).

Natural Gas _

It is one of the types of fuel that consists of plankton, which are microscopic organisms that include algae and primary organisms that died and accumulated in the layers of the earth and their remains were compressed under sedimentary layers and over thousands of years, and by the pressure and heat resulting from the sedimentary layers, these organic materials turned into natural gas (Maqih and Boufar, 2019: 32).

Coal _ _

Coal is one of the oldest sources of energy, and it was discovered before the discovery of oil and natural gas. Rowaqiah, 2019: 86)

Renewable Energy:-

It is the one whose presence in nature is repeated periodically and spontaneously, meaning that it is energy derived from natural resources that are renewable or that cannot be exhausted (Ammar and Abu Tir, 2017: 90) and it was defined by the International Energy Agency (IAE) as generating energy Resulting from natural processes and from renewable sources (Zazou, 2020: 16) and defined by the United Nations Environmental Protection Program (UNEP) as energy that does not come from a fixed and limited stock in nature, and is renewed periodically faster than the pace of its consumption and appears in The following five forms (biomass, sunlight, wind energy, hydroelectric energy, underground energy) .

Sustainable Energy Performance:

Sustainable energy is defined as the process in which energy is used in a way that can meet the needs of the present without affecting the ability of future generations to meet their energy needs (Demirtas, 2013: 32) , while (Kutscher , et all, 2019: 3) That the development of renewable energy is not a "magic" solution to all energy problems, and that the future of sustainable energy is possible "if a social, economic, environmental and political strategy is adopted that includes the development of renewable energy along with energy conservation

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and work to increase efficiency, by adopting a lifestyle that reduces energy consumption. The concept of sustainable energy performance is linked to the following elements:

Energy Efficiency Energy Efficiency:-

The concept of energy efficiency in economic thought has been linked to the scarcity of economic resources, which called for the necessity of allocating limited resources to meet unlimited human needs (Erian, 2020: 18) In the face of the global energy crisis and ever-increasing prices, governments and economic units are formulating energy management regulations and developing technology to improve energy efficiency, thus reducing greenhouse gas emissions and improving management of limited resources (Yung Chiu, et all, 2012 : 5325). , . As defined by (Aqeela, 2018: 125) as the process of reducing or regulating unnecessary energy consumption and working to save energy and reduce the costs paid for it, through the use of means by which energy consumption can be rationalized, such as choosing devices and equipment with high efficiency in terms of consumption energy without affecting the level of services required to be available, and sees (Yang, et all, 2010: 59) One of the most important requirements for sustainable energy is the development of renewable energy, as well as increasing the efficiency of conventional energy . Because this would reflect positively on reducing the demand for conventional energy and thus reducing its use and encouraging the use of clean energy.

Energy management system (EMS) Energy Management System:-

Is the process of orderly coordination and proactively obtain, use, and distribute energy to meet requirements, taking into account environmental and economic aspects (Kals, 2015: 5). The importance of the energy management system lies in being a guide to implementing programs represented in identifying opportunities that contribute to reducing energy use by helping to establish appropriate operational controls, by defining the economic unit using current energy and total energy measurement, as well as "searching for ways New technologies to reduce energy consumption costs, in addition to better compliance with legal requirements, laying the foundations for achieving a significant and sustainable reduction in energy use costs, analyzing results and following up on progress in energy efficiency (Howell, 2014: 1) . Energy management is one of the most prominent Means of improving energy efficiency, as improving energy efficiency is the cornerstone of reducing carbon emissions and carbon dioxide, which cause great harm to the environment (Andersson, et all, 2021: 1808)

Measuring sustainable energy performance:

Energy is measured through the use of Energy Performance Indicators (EPI), which is defined as a set of measures that are used to indicate the energy efficiency of the activities and processes that consume energy, based on typical indicators for comparing energy efficiency between the economic unit and other equivalent units in the same industry. & Assawamartbunlue , 2021 : 992) , and it is worth noting the conclusion - a study magtomee,et all,2020: 1040-1043) (Al To come up with a group of Indicators for measuring sustainable energy performance in economic units, based on the integrated reporting framework, as follows:

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Production capacity costs Production Energy Costs (PEC):-

This indicator measures the costs of all types of energy consumed in the production activity only during the year, as this indicator measures all costs of energy production of all kinds, whether electricity, oil , natural gas or others

Saving in Total Energy Costs (STEC):

This indicator measures the efficiency of managing and controlling energy costs in an economic unit and it is measured by the amount of savings in energy costs incurred in all activities of the economic unit, and the formula below reflects the method of calculation.

Savings in total energy costs = total energy costs consumed at the beginning of the period - total energy costs consumed at the end of the period

Energy Investments (EI):-

This indicator measures the efficiency of the economic unit in energy management as well as the amount of spending on investment in devices and equipment to improve energy efficiency.

Overall energy efficiency Total Energy Efficiency (TEE)

This indicator measures the total energy efficiency per economic unit and its success in reducing energy consumption. It is calculated by dividing the total cost by the number of units. The formula below reflects the calculation method.

Total energy efficiency = total energy costs ÷ number of units produced

Fourth Axis: The value of the economic unit

1. Concept of economic unit value

Acquiring something (Ali, 76: 2017). and know her (Machali & (Setiadharma) as a measure of the success of the management of the economic unit in increasing its credibility towards the shareholders if their needs are met (Setiadharma & Machali, 2017: 2) The value of the economic unit was also defined as the value of the stock market because the high value is what leads to the prosperity of the shareholders, meaning the higher the value The share price has increased the value of the economic unit. (Utami & Wahyuni, 2018: 4). See (Yang,et all,2019:87) There are several terms related to the concept of economic unit value, which are as follows:

Par value:

It is the value of the share that is determined in the contract of incorporation of the economic unit and remains fixed as long as there is no economic impact on the activity of the unit in the value of the share. On the number of issued shares to obtain the par value per share (Mansour, 2021 (63:

Book value (accounting value)

-Barajneh defined it as what the investor expects to obtain in the event of the liquidation of the economic unit, which can be calculated by knowing the difference between the unit's assets

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and liabilities, and then dividing this difference by the number of shares, meaning that the book value is equity or net assets as it appears in The economic unit records (Al -Barajneh, 2009: 35), which are illustrated by the following equation:

(Book value = total Assets - Total Liabilities = Total Equity).

It has faced many criticisms because it does not reflect the effects of important factors that are affected by the time period (such as the purchasing power of money, risk) and does not reflect the real value of the economic unit because it suffers from shortcomings in the application of evaluation criteria and the mismatch of its budget value with the current value Markauskas & Saboniene, 2015: 62

Fair Value

Fair value accounting has received great attention in academic research since the early 2000s (Bick, et. al., 2018: 1), because its use is more accurate, appropriate and reliable than the historical cost model because it enables the measurement of The extent of the economic unit's ability to optimally utilize and preserve its economic resources, as well as reflect the changes in the financial condition of the economic unit resulting from fluctuations in interest rates and exchange rates and their impact on stock prices , as well as improving the quality and accuracy of information related to incoming property rights . The financial statements and thus help investors to evaluate the strategic performance of the unit in managing their financial investments (Ismail and Saleh, 2016: 9)

Filter Value Liquidation:-

It is the value that is expected to be obtained as a share of the ordinary share in the event of liquidation of the economic unit after excluding the obligations arising from it, including the rights of preferred shareholders. That is, it is the value of the share of the economic unit at the start of the liquidation process, and it is equal to the market value of its assets minus all its debts and obligations, and dividing the result by the number of ordinary shares (Abdul-Sahib, 2019: 46)

Current value Current Value:-

It means the present value of the price that the buyer is willing to pay at the present for a set of benefits expected in the future" (Al-Mousawi 2017: 91).

Investment value Investment Value:-

It is the price that the investor is willing to pay in exchange for an asset (a specific share), and this value may differ from the market value of the share, which reflects the price at which the share is sold in the financial market (Saleh, 2021: 56).

2. Market entrance to measure the market value of the economic unit:

This entry defines the market value of the economic unit as the price or consideration that represents the value of the economic unit to the stakeholders, so the value of the shares reflects the image and value of the economic unit to the users , as well as the fact that the concept of

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market value is a good measure of the efficiency of Financial performance in economic units, where this value is based on shares and their value , as well as it is affected by many factors such as (supply and demand) on shares and the factors surrounding the economic unit, whether internal or external. There are many models used to measure the market value Including (the market value model of property rights to the book value, and the market value model that depends on market performance, such as the share price and the's Q ' model (Tobin, 2018: 131), and the market value is reached using the prices announced in the financial markets when It is provided by the following equation :

(Total of listed shares x their average price at the end of the financial period)

In the absence of such prices, the economic unit should use valuation techniques and collect available market information (Laux & Leuz, 2009: 4).

This approach is characterized by ease of use and ease of understanding by investors compared to other approaches, as it derives value estimates from relatively simple financial ratios, as well as its dependence on actual data through similar prevailing prices and not estimates, and thus the measurement can be verified. Independently. This approach is criticized for its high costs, as a financial analysis should be conducted for the economic unit subject to comparison with similar units, and therefore it requires a lot of time, effort and money, in addition to that it lacks flexibility and is not adaptable compared to the first assessment approaches. Others, and in the absence of information about similar economic units, this entry cannot be applied in the evaluation process (Twain, 2012:12-13). According to this entry, there are three A methods for measuring the value of the economic unit, which is the market value (closing price), the ratio of the market value to the book value of equity, Tobin's Q) (Pham et al, 2012: 84) .

3. Tobin'sQ Index (to measure the market value of an economic unit)

The Tobin's Q index is defined as the ratio between the market value of the assets of the economic unit and the replacement value of its assets. The market value of the unit is calculated as an algebraic sum of the market value of shares (MVS) as well as to the market value of debts (MVD), that is, the capital owned by the unit The Replacement Asset Value (RVA) is given by "the amount of cash needed to purchase available production capacity at the lowest cost" (Sauaia & Juniork2002: 303) The Tobin's Q ratio can be extracted by applying the following equation:

(القيمة الدفترية لالموجودات)/(القيمة السوقية لحقوق الملكية+ القيمة الدفترية لالمطلوبات)
=Tobin's Q)

(القيمة الدفترية لالموجودات)/(سعر الإغلاق لالسهم × سعر السهم+القيمة الدفترية لالمطلوبات)
=Tobin's Q)

A value less than one indicates that the market considers that the value of the economic unit is less than its total assets, while a value greater than one indicates that the market value of the unit is greater than its total assets due to some unregistered factors, such as trademark ownership rights. Thus, the higher ratios indicate that the market assumes superior performance of the economic unit (Butt et al, 2021: 3) sees (Al Farr, 2018: 35) as a measure of the ratio of

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the market value of the economic unit and is used in the fields of economics and financial sciences as a performance indicator as well as “the possibility of Measuring the value of the economic unit as an operating project higher than the cost of the assets needed to obtain the required flows. The (Tobin's Q) index is characterized as a measure for evaluating the performance of the economic unit, as well as "it shows the value created for investors and the possibility of evaluating long-term performance and future growth due to changes in cash flows, as well as" depicting future performance despite its dependence on historical data (Hejazi, et al, 2016:60) . On the other hand, this scale is criticized for the complexity of its mathematical operations in the process of calculating the ratio, as it requires financial analysts with a high level of skill and experience, as well as the need for a large number of financial information, which requires great time and effort to calculate it (Lee & Tompkin, 1999: 20).

The researchers believe that the Tobin's Q index is a measure of the performance of the economic unit, through which it is possible to know its market value and predict its future and thus its ability to continue and compete. The researcher also concludes that the market value approach is the most appropriate to study the subject of the research using the Tobin's Q index as it meets the requirements and objectives of the research.

The fifth axis:- Statistical analysis, hypothesis testing and discussion of the results:-

1. About the National Company for Metal Industries and Bicycles - Mixed Joint Stock

The company was established under Certificate of Incorporation No. (1243) on 9/28/1964 with a capital of (3,000,000) dinars. The company’s headquarters is located in the province of Baghdad in the district of Mahmudiya, and it is subject to the provisions of the Companies Law No. (21) of 1997 as amended and in the form specified by the instructions Accounting System for Companies No. (1) for the year 1998, Chapter Three, issued by the Central Agency for Companies Registration / Trade Regulatory Committee. The company aims to contribute to the support and development of the industrial movement in Iraq and the strengthening of the national economy in line with national development plans (Annual Report of the National Company for Metal Industries and Bicycles - Mixed Contribution, 2019, 25).

2. Energy and value data analysis for the National Company for Metal Industries and Bicycles

In order to achieve the objectives of the research and based on the accounting information system represented in the financial statements of the research sample company, sustainable energy performance indicators were applied, by analyzing the information related to energy contained in the list of commodity requirements and the management report and as shown in Table (1), whereby the application was applied Indicator of total production energy costs by collecting production energy costs (fuel, oil and electric energy costs) used in the company that was studied, as well as applying an indicator to measure savings in total energy costs by applying the following equation:

Savings in total energy costs = total energy costs consumed at the beginning of the period - total energy costs consumed at the end of the period

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The overall energy efficiency index was also applied by applying the following equation:

Total energy efficiency = total energy costs ÷ number of units produced

Which represents the per unit share of the energy costs consumed, and therefore the decrease in the unit share of energy costs indicates an increase in energy efficiency and vice versa.

Table (1) Energy and value data for the National Metal Industries and Bicycles Company - mixed contribution for the period (2009-2019)

The years	Total cost of production capacity	Total energy savings			overall energy efficiency		
		Initial energy costs	End-of-term energy costs	Savings in total energy costs	Total energy costs	Number of units produced	overall energy efficiency
2009	124577117	208966089	157596030	51370059	157596030	38601	4082.69
2010	117568385	157596030	142096571	15499459	142096571	34238	4150.26
2011	75988614	142096571	105840660	36255911	105840660	25573	4138.77
2012	59617184	115558335	75062689	40495646	75062689	191656	391.65
2013	45849588	75062689	65652478	9410211	65652478	7052	9309.77
2014	39463517	65652478	56035787	9616691	56035787	4566	12272.4
2015	28600806	56035787	35262176	20773611	35262176	48311	729.9
2016	20398949	35262176	34552699	709477	34552699	784	44072.32
2017	22187809	34552699	25626109	8926590	25626109	1270	20178.04
2018	10680500	25626109	15789090	9837019	15789090	2541	6213.73
2019	9713114	15789090	23922486	-8133396	23922486	4278	5591.98

Source: Prepared by the researcher based on the statistical program (SPSS_25) and the financial statements of the National Company for Metallurgical Industries - mixed contribution and bicycles for the period (2009-2019)

And in order to study the dependent variable (the value of the economic unit), it was relied on the (Tobin's Q) index to measure the market value of the economic unit , through studying and analyzing the list of the financial position of the research sample company, as shown in Table (2) and by applying the following two equations :-

(الـ ق يمة الـ دف تري ة لـ لمطـ لوبـ ات)/(الـ ق يمة الـ سوق ية لـ حـ قوق الـ مـ لـ كـ ية+ الـ ق يمة الـ دف تري ة لـ لموجودات)=Tobin's Q

(الـ ق يمة الـ دف تري ة لـ لمطـ لوبـ ات)/(سعر الإغـ لاق لـ لـ سهم × سعر الـ سهم+الـ ق يمة الـ دف تري ة لـ لموجودات)=Tobin's Q

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Table (2) Measuring the market value based on the (Tobin's Q) index

The years	The market value of the economic unit	total debt	Market value of equity			book value of assets	Tobin's Q
			closing price	Number of Shares	Market value of equity		
2009	16947875615	3447875615	2.7	5000000000	13500000000	10648224990	1.59
2010	1.83137E+11	3063737970	3.05	5000000000	15250000000	8664004073	2.11
2011	12508872142	3058872142	1.89	5000000000	9450000000	7661967550	1.63
2012	9332810095	2832810095	1.3	5000000000	650000000	7089664769	1.32
2013	5987097311	2837097311	0.63	5000000000	3150000000	5811292540	1.03
2014	7254324382	2754324382	0.9	5000000000	450000000	4570293933	1.59
2015	6463899042	3013899042	0.69	5000000000	3450000000	3382969528	1.91
2016	5988827980	3488827980	0.5	5000000000	2500000000	2706453494	2.21
2017	0.74958892	3945889203	0.71	5000000000	3550000000	2405392229	3.12
2018	13618302834	4868302834	1.75	5000000000	8750000000	2314500123	5.88
2019	16464500123	2314500123	2.83	5000000000	14150000000	2263484646	7.27

Source: Prepared by the researchers based on the financial statements of the National Company for Metal Industries and Bicycles - mixed contribution for the period (2009-2019)

1) confirms that the total annual production capacity costs of the research sample company recorded its highest levels during the study period in 2019 at (124577117), while 2010 recorded its lowest level at (9713114) . Energy management and the weakness of the procedures and means that would work to raise energy efficiency in the production process and the obsolescence of the machines and equipment used by the company, the research sample, as despite the production of (34,238) units in 2010, it is noticeable that the total decrease Production capacity costs, and on the contrary, when production decreased to (4,278) units in 2019, the total costs of production capacity increased. Shows the table (1) The savings in the total annual energy costs of the company, the research sample, recorded its highest levels during the study period in 2009, at 51370059 . While the year 2019 recorded the lowest level of savings in the total annual energy costs of the National Company for Metallurgical Industries and Bicycles, at (-8133396 -) the reason is due to the lack of the company's management, the research sample, to adopt an effective policy in energy management and the weakness of procedures and means that would work to raise the efficiency of Energy in the production process and the obsolescence of machinery and equipment used by the company. Table (1) confirms that the total annual energy efficiency of the research sample company recorded its lowest level during the study period in 2016 at (44072.32), while the year 2012 recorded the highest level of total annual energy efficiency of the research sample company (391.65) , and the reason is due to the lack of adoption The company sample research procedures and measures that will raise energy efficiency. Table (2) confirms that the value of the economic

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unit measured by the company's annual Tobin's Q index recorded its highest level during the study period in 2019 at (7.27), as shown in Figure (1), while 2013 recorded the lowest level of the economic unit value measured by Tobin's Q index, at (1.03) The reason is due to the decrease in the closing price in 2013 to (0.630) dinars per share, and the market value of property rights was (3150,000,000), while the closing price increased in 2019 to (2.830) dinars per share, and the market value of equity reached (14150,000,000).

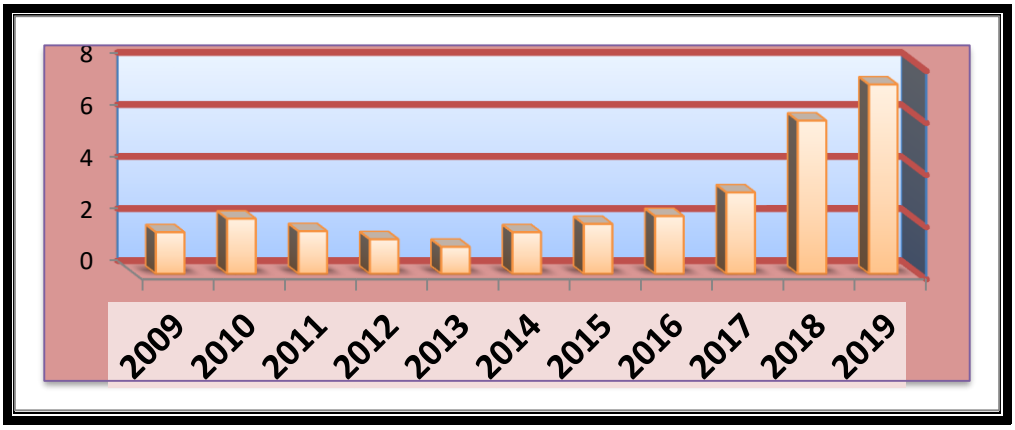

Figure (1) The value of the economic unit measured by the annual Tobin's Q index of the National Company for Metal Industries and Bicycles, a mixed contribution for the period (2009-2019)

Source: Prepared by the two researchers based on the statistical program (SPSS.V25) and the annual reports of the National Company for Metal Industries and Bicycles for the period (2009-2019)

3. Analysis of the correlation between (total production energy costs, savings in total energy costs, total energy efficiency) combined and the value of the economic unit in the National Company for Metallurgical Industries and Bicycles.

The correlation effect rejects the secondary hypothesis that There is a significant statistically significant correlation between (total production capacity costs , savings in total energy costs, total energy efficiency) combined and the value of the economic unit in the National Company for Metal Industries and Bicycles { which confirms the acceptance of the second hypothesis emanating from the first main hypothesis and with a confidence rate (90%), as the calculated T value was (1.295), which is not significant , while the value of the correlation coefficient was recorded between (total energy costs, savings in total energy costs, total energy efficiency) combined and the value of the economic unit (0.647) to establish that there is a correlation strong expulsion between (Total costs of production capacity , savings in total energy costs, total energy efficiency) combined and the value of the economic unit according to the data of the studied company .

4. Analysis of the impact of the independent dimensions (total production capacity costs, savings in total energy costs, total energy efficiency) combined on the value of the economic unit in the National Company for Metallurgical Industries and Bicycles.

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The effect analysis investigates the rejection of the secondary hypothesis that There is a significant effect of statistical significance for the independent dimensions (total costs of production capacity , savings in total energy costs, total energy efficiency) combined on the value of the economic unit in the National Company for Metal Industries and Bicycles { which confirms the acceptance of the second hypothesis emanating from the second main hypothesis and with a confidence percentage (90). %), as the calculated F value was (1.677), which is not significant , while the value of the coefficient of determination was recorded to show the effect of the independent dimensions. (Total production energy costs, savings in total energy costs, total energy efficiency (combined in economic unit value) 41.1%) to document that the changes that occur in the value of the economic unit due to changes in the three independent dimensions and by (41.1%) According to the studied company data .

5. Comparison between the costs of conventional energy and renewable energy represented by the solar energy system:

Table (2) A comparison between the costs of fuel and oil to run diesel generators compared to the cost of the solar energy system

electric power capacity	Cost of fuel and oil	The cost of the solar energy system	The difference between the two costs
150 kva	91581178	105000000	(-13418822)

The National Company for Metal Industries and Bicycles - mixed contribution for the period (2015-2019) and the estimated costs of the solar energy system prepared by the Central Bank of Iraq

Table (2) shows the high energy costs of the solar energy system that operates with lithium batteries that have a validity period of (5) years compared to the costs of traditional fuel to operate diesel generators alternating with the electric current for a period of (5) years, as the cost of purchasing a solar energy system with a capacity of (150 KVA) is estimated at (105,000,000) dinars, while the cost of the traditional fuel used amounted to (91581178) dinars, and despite the high costs of renewable energy represented by solar energy in the short term, it is more feasible in the long term as well as the use of solar energy It provides many environmental and social benefits.

Sixth Axis: Conclusions and Recommendations

1-Conclusions:-

أ- There is a non-significant medium effect relationship, as the effect ratio was 41.1%.

ب- Non the application of the company that has been studied the means and procedures that will contribute conserving energy and reducing waste and waste by reducing fuel consumption and raising energy efficiency.

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ت- The dependence of the industrial company on the research sample on traditional energy sources, which are one of the most important causes of environmental pollution and the resulting harm to the health of society, in addition to the fact that traditional energy is subject to depletion due to its overuse.

ث- The presence of deficiencies in the energy management system in industrial companies, the research sample, and their failure to pay sufficient attention by the companies' administrations, and neglecting their prominent role in raising and maintaining energy efficiency.

ج- The high costs of the solar energy system compared to the costs of traditional energy in industrial companies, the research sample.

2-Recommendations:-

أ- Requiring industrial companies to follow measures and means that would raise energy efficiency by providing machines and industrial equipment with the means that reduce fuel consumption and in line with the company's production plan, as well as "use exhaust filters to reduce emissions that raise environmental pollution rates."

ب- Work to enhance the effectiveness of sustainable energy support plans, update their strategies in line with related programs and policies, and take the necessary measures to ensure improvement in energy performance and increase its effectiveness.

ت- Encouraging studies and research that enhance government efforts to support the work of traditional energy alternatives by adopting globally adopted policies and programs to avoid energy waste and reduce environmental pollution within a phased and strategic planning.

ث- Requiring industrial companies to disclose in detail the amount of energy they consume in non-monetary units such as (kilowatts, liters), as well as requiring companies to disclose the amount of pollutants emitted as a result of energy consumption in order to show the efficiency of companies in addressing emissions and reducing pollution

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