
The Relationship Between Human Capital Efficiency and Asset Turnover in Iraqi Manufacturing Companies: An Analytical Study

Mohanad Hameed Yasir , Ammar Abd-Alzahrah Alameen

Mohandh.yser@uokufa.edu.iq, ammartango89@gmail.com

The University of Kufa, Faculty of Administration and Economics

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Abstract: The current study aims to know what human capital is and to determine the impact of human capital efficiency in achieving total asset turnover rates in Iraqi joint-stock companies. The analytical and statistical approach has been relied on in analyzing the companies' data, the study sample using the Eviews-9 program. In order to answer the questions of the current study and achieve its objectives, a sample of industrial companies participating in the study was tested, depending on the data available in the Iraq Stock Exchange for the period extending from (2011-2019), as the sample included (8) listed industrial companies. As the current research found a positive impact relationship for human capital efficiency (HCE) on the total asset turnover rate in the industrial companies sample of the study, as the efficiency of the human element affects the rates of asset turnover by raising operational performance and improving operations and thus the repeated use of assets and increase their turnover rates.

Keywords: human capital, asset turnover, Iraqi joint-stock companies

Introduction

In the era of globalization and the current technological progress, the world has witnessed many economic, financial, and political transformations that had a direct impact on production and service projects alike (Almagtome, Shaker, Al-Fatlawi, & Bekheet, 2019). The production problem has also become one of the biggest obstacles facing business organizations now, especially with the intensity of competition, so it was necessary for these organizations to search for a strategic resource that contributes to improving their performance and the long-term sustainability of their operations. The need to develop and manage human capital today has become a serious commitment at the national level and in the field of business, as human capital has become the source of competitive advantage at the present time. Business organizations no longer rely on material capital only, but rather the orientation towards knowledge has become an urgent necessity for these organizations (Al-Wattar, Almagtome, & AL-Shafeay, 2019). As the sustainable growth of the organization depends on how knowledge is established and converted into capital, so human capital in the knowledge-based industry is more effective than financial and physical capital in creating added value for business organizations (Amusawi, Almagtome, & Shaker, 2019). The human element is the main engine in the knowledge-based economy, as the main goal that organizations seek is to convert competencies, skills, and knowledge into value, as the efficiency of the human element is closely related to the organization's various resources and assets such as cash flows, liquidity, and asset management (HAMEEDI, AL-FATLAWI, ALI, & ALMAGTOME, 2021). Human capital through training, education, and development will positively reflect on the organization's various resources and assets and contribute to high asset turnover rates, thus helping organizations to maintain high-profit margins and increase their market share.

LITERATURE REVIEW

The study Hançerliogulları et al., (2016) revealed that companies that succeed in investing their human capital would achieve long-term financial benefits and sustainable operating performance, thus achieving higher turnover rates. While the study (Doong., 2011) found that investing in human capital reduces production costs and contributes to raising operational performance through innovation, improving processes, and the efficiency of using assets, as their frequent use means increasing their turnover rates. In contrast, the study (Lim et al., 2013: 303) confirmed that investment in teaching and experience assets adds a higher value in generating revenues with more liquid cash, which is reflected in the turnover of current assets such as accounts payable debt and inventory management. As for the study (Howorth & Westhead, 2003), it confirmed that small companies with higher returns on total assets are negatively related to adopting working capital management measures as they have fewer human capital resources. Intangible assets are considered to have a positive and important effect on the Company's performance through the return on assets, as the higher the intangible assets, the greater the companies' ability to achieve large returns due to the turnover of their assets (return on assets), so the intangible assets have a clear impact on (Current ratio, return on assets, and asset turnover ratios) (Gamayuni, 2015). From the foregoing, the research hypothesis can be developed as follows:

There is a significant positive significant relationship of human capital efficiency (HCE) on total assets turnover

Human capital emerged as an important economic concept in the late 1950s and 1960s, as economists (Gary Becker 1964) used it to refer to the stored value of knowledge and skills for members of the American workforce (Manzari et al., 2012). According to (Sianipar 2012), human capital reflects education, knowledge, and skill, which may turn out to be one of the main successes of the organization because it provides a competitive advantage in the future as it is linked to the value of personal knowledge and commitment to the goals of the organizations. As explained by Khaliq et al. (2011: 343) that human capital is a major source of added value in organizations, and it depends on the skills, knowledge, experience, competence, and intellectual agility of individuals. On the other hand (Albertini & Berger-Remy, 2019: 216-249) explained that human capital refers to the explicit or implicit knowledge of individuals such as attitudes, experiences, skills, abilities, experience, and knowledge. The tacit knowledge leaves the organization at night when the employees go home, and thus it does not fully belong to the organization (A. H. Almagtome, Al-Yasiri, Ali, Kadhim, & Bekheet, 2020). In comparison, explicit knowledge is what can be acquired, explained in words, traded, or sold. This knowledge remains with the organization when the employee leaves. Organizations must make tacit knowledge explicit by formalizing it, improving it, or sharing it and thus converting it into value-added assets (Kaya et al., 2010: 153-160). This knowledge is an asset to the organization that represents the competitive advantage of that organization (Harris, 2000: 22-37), and thus if knowledge personnel is not used appropriately, the knowledge and skill they have cannot be activated or converted into measurable market value (Rahimnia & Najminia, 2014: 179-186). (Andreeva & Garanina, 2017: 11) also emphasized that human capital is not just a resource of the organization, but rather is the extent of that organization's ability to economically benefit from the potential of its employees embodied in their knowledge, skills, experience, and ability to learn through its internal and external interactions.

SAMPLE, METHODOLOGY, AND VARIABLES

The research sample included (8) industrial companies listed on the Iraq Stock Exchange for the period (2011-2019). The data were obtained from the official website of the Iraq Stock Exchange, which issues a comprehensive report on the companies' activity during the fiscal year, and a sample of (8) was chosen. Therefore, the data of (8) companies were relied upon only, which means that there is no missing data.

METHODOLOGY

The financial and statistical analysis was relied upon in analyzing the data of industrial companies, the sample of the study using the (Eviews-9) program for the purpose of showing the multiple regression analysis. The mean and standard deviation were also examined to find out the rates of indicators in the researched companies during a certain period of time, in addition to using measures of central tendency (Maximum, minimum, warp, flattening, and argue-bera) which provide information on the smoothness and validity of the data for analysis. Based on the basic steps that begin with the development of the research hypothesis and discussing it in theory and practice, then the process of collecting, measuring, and analyzing the data obtained from the Iraq Stock Exchange website begins, and then the results that have been reached that will accept or reject the hypothesis of the research, While the last step was to draw conclusions and recommendations, the research consists of two variables, namely the independent variable (human capital efficiency) and the dependent variable (the total asset turnover).

Independent variable (human capital efficiency)

The human capital theory assumes that some workers are more productive than others, depending on the nature of the investment in training and developing the workforce in the same way that a machine is more productive if more investment is made in it. Like any other commercial investment, investing in building the skills and capabilities of the workforce will be more profitable (Harris, 2000: 22-37). The indicators of measuring human capital are represented by the efficiency of employees through (strategic leadership of management, employee attributes, employee learning ability, employee training efficiency, employee ability to participate in decision-making and training of key technical and administrative staff) and employee position through (recognition of the organization's values, degree of satisfaction, and turnover rate). Work and average service life of employees) and employee creativity, including (the employee's creative ability and the ability to develop employees' original ideas) (Sharafi & Sharafi, 2012: 147-160). Human capital is a matter of survival and success in all organizations, so retaining the knowledge and awareness of knowledge workers are important issues for companies to preserve their human capital. The most important results of increasing human capital are increasing organizational performance, enhancing basic competence, increasing the success of organizations, maintaining the competitive advantage of the organization, and having significant positive effects on financial performance and strategic renewal (Manzari et al., 2012: 2255-2270). HCE also refers to human capital efficiency in creating added value, which is equivalent to the total human costs spent by the organization, that is, the sum of all employee expenditures in addition to human capital efficiency. it is extracted by the following equation (Al-Musali & Ku Ismail, 2014: 201-207):

$$HCE = VA/HC$$

whereas :

HCE	human capital efficiency is the creation of value
VA	Represents the added value
HC	It represents the human costs that the organization spends on its employees

Added value (VA): It is the value that is created by relying on all the resources of the organization and is calculated during a, fiscal year as follows:

$$VA = OUT - IN$$

whereas :

VA	Represents the added value of the organization
OUT	Outputs include (all products and services sold in the market)
IN	Includes inputs (all expenses incurred in earning revenue excluding manpower costs)

Outputs represent total income from all products and services sold during the given fiscal year. In contrast, the inputs represent the total costs and expenses incurred by the organization during the specified fiscal year (excluding labor expenses, which are compensation for employees and all expenses related to their training and development, as these expenditures in this model are considered an investment and not a cost) (Abdulsalam et al., 2011: 88-96).

The dependent variable (total asset turnover)

Assets are the main factor in the financial well-being of a business (the financial health of the organization). Their composition and efficiency of use directly affect the outcome of the organization's economic activity. Effective management of assets can improve financial sustainability and increase competitiveness. Therefore, to ensure financial sustainability and competitive advantage in the long term, it is imperative to meet the challenge of continual improvement in managing these assets (Kovalchuk & Verhun, 2019: 61-66). Asset turnover ratios indicate how efficient the organization is in operating its assets to generate cash (Warrad & Al Omari, 2015: 77-85), and it aims to measure the efficiency of the organization is using its assets to generate sales or revenues, and the higher the total asset turnover rate, the greater the efficiency of these assets. (Ablanedo-Rosas et al., 2010: 349-362). According to (Patin et al., 2020: 19-29), the total asset turnover ratio is calculated by dividing the total value of the organization's sales revenue (net sales) by the value of its total assets, which include physical assets, inventory, and receivables, and according to the formula below:

$$\text{Asset Turnover} = \text{Net Sales} \div \text{Total Assets}$$

The organizations analyze the total asset use ratios to determine the efficiency of the organization's work in relation to its competitors, and the higher the ratios, the more efficient the organization from the operational side of its competitors, and the higher sales enhance the total asset turnover ratio and achieve higher profits, which enables the organization to maximize the wealth of its shareholders. The majority of organizations that improve total asset turnover ratios have a higher total return to shareholders (capital gains and dividends) compared to those with lower total asset turnover ratios.

RESULTS AND DISCUSSION

1- Financial analysis of human capital efficiency

Table (1) shows the results of the financial analysis on human capital efficiency for the period from (2011) to (2019) for (8) joint-stock companies in the Iraq Stock Exchange. Table (1) provides standard tests for the study sample data during a certain period of time, as the mean and standard deviation were examined to find out the rates of indicators in the researched companies during a certain period of time, while the statistics of the maximum, minimum, torsion, flattening and Jarque-Bera provide information on the extent of homogeneity and validity. Data for analysis. The results indicate that all Skewness & Kurtosis values fall within the permissible range for both the upper and lower limits of the normal distribution (-3, +3), as the results ranged between (-1.349) and (2.993) (Chahal & Bakshi, 2015: 383), in addition to that, the Jarque-Bera test which is used to find out the extent to which the data are distributed normally by measuring the level of significance (0.05). If the values are greater than the level of significance, this means that the data are normally distributed. Table (1) distributed naturally, as it is greater than the level of significance of (0.05), as the results ranged between (0.873) and (2.579), meaning that the level of significance is greater than (0.05), indicating that all company data in the study sample are homogeneous and valid for analysis.

Table (1) shows that the general industrial rate reached (2.066) and that the standard deviation was (0.772), and that the companies that achieved rates greater than the public sector average were (Al-Mansour Pharmaceutical Industries) at a rate (4.331) and (Baghdad Soft Drinks Company) at a rate of (While the rest of the companies achieved rates lower than the general average as follows: (Modern Sewing Company) at a rate of (2.020), (Readymade Clothes Production Company) at a rate (2.006), (Modern Chemical Industries Company) at a rate of (1.378), (National Company for Industries) Chemicals and plastics) at a rate of (1,290), (the Iraqi Carpet and

Furniture Company) at a rate of (1,221), (Baghdad Company for Packaging Materials Industry) at a rate of (1,060).

The results indicate that Al-Mansour Pharmaceutical Industries creates (4,331) Iraqi dinars as an added value for every Iraqi dinar invested in the Company's human capital, which is the largest value compared to the values of the rest of the shareholding companies in the sample of the study.

Figure (1) also shows the market rates curve for (VA / HC), as the horizontal axis represents the time period extending from (2011) to the year (2019), which amounts to (9) years, while the vertical axis represents the values of (VA / HC). HC for joint-stock companies is the sample of the study, as it is evident that the linear regression according to Figure (1) is positive, meaning that the rates increase with the passage of time, which may indicate the existence of a fixed mechanism for measuring and evaluating human capital efficiency in these companies.

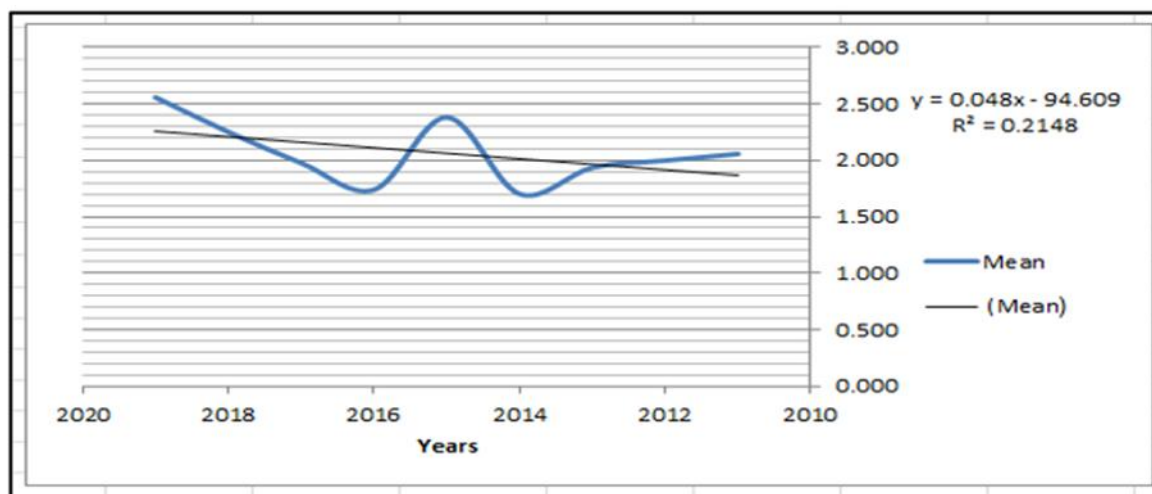


Figure (1) the market rate curve for (VA / HC) for the study sample companies

Source / prepared by the researcher depending on the output of the electronic computer

Table (1). Results of the financial analysis of human capital efficiency for industrial companies Study sample for the period from (2011) to (2019)

Source / prepared by the researcher depending on the output of the electronic computer

Measurement tools	The Company's name								The overall rate
	Modern sewing company	Baghdad for soft drinks	Baghdad for the manufacture of packaging materials	Production of ready-made clothes	Al Mansour Pharmaceutical Industries	Iraqi carpets and furnishings	Modern Chemical Industry	National Company for Chemical and Plastic Industries	
2.066	2.020	3.226	1.060	2.006	4.331	1.221	1.378	1.290	Mean
	1.908	3.168	1.014	2.194	4.264	0.847	1.145	0.949	Median
	3.024	5.228	1.508	3.132	6.897	3.941	1.970	3.486	Maximum
	1.047	1.749	0.691	1.060	2.529	0.651	1.049	0.690	Minimum
0.772	0.595	1.152	0.248	0.714	1.181	1.036	0.371	0.882	Std. Dev.
	0.073	0.421	0.316	0.169	0.995	2.826	0.876	2.348	Skewness
	-0.169	-0.684	0.037	-1.349	2.993	2.214	-0.878	2.893	Kurtosis
	1.283	1.264	1.051	2.196	2.320	0.873	2.579	2.216	Jarque-Bera
	0.527	0.532	0.591	0.123	0.115	0.646	0.000	0.045	Probability

2- Financial analysis of total assets turnover

Table (2) shows the results of the financial analysis for the total assets turnover for the period from (2011) to (2019) for (8) joint-stock companies in the Iraq Stock Exchange. Table (2) provides standard tests for the study sample data during a certain period of time, as the mean and standard deviation were examined to find out the rates of indicators in the researched companies during a certain period of time, while the statistics of the maximum, minimum, torsion, flattening and Jarque-Bera provide information on the extent of homogeneity and validity. Data for analysis.

The results indicate that all the values of (Skewness & Kurtosis) fall within the permissible range for both the upper and lower limits of the normal distribution (-3, +3), as the results ranged between (0.349) and (2.899), in addition to that, the Jarque test -Bera) which is used to find out the extent to which the data is distributed naturally by measuring the level of significance (0.05). If the values are greater than the level of significance, then this means that the data are normally distributed, as it can be observed that the results of Table (2) are naturally distributed being greater than The level of significance is (0.05), as the results ranged between (0.788) and (14.311), meaning that the level of significance is greater than (0.05), which indicates that all company data in the study sample are homogeneous and valid for analysis.

Table (2) shows that the general industrial rate reached (0.505) and that the standard deviation was (0.353) and that the companies that achieved rates greater than the public sector rate are (Ready Clothes Production Company) at a rate (1.756), (Baghdad Soft Drinks Company) at a rate of (1.066), (Modern Chemical Industries Company) at a rate of (0.518), while the rest of the companies achieved rates lower than the general average as follows (Al-Mansour Pharmaceutical Industries) at a rate of (0.329), (The National Chemical and Plastic Industries Company) at a rate (0.160), (Baghdad Company) For the manufacture of packaging materials (at a rate of (0.136), (Modern Sewing Company) at a rate of (0.069), (Iraqi Carpet and Furniture Company) at a rate (0.009).

The results indicate that the ready-to-wear Company has the highest turnover rate for the total assets of the Company, which is the largest value compared to the values of the rest of the joint-stock companies in the study sample, while the Iraqi Carpet and Furniture Company is the lowest turnover of total assets compared to the rest of the joint-stock companies in the study sample.

Figure (2) also shows the market rates curve for the rate of total assets turnover, as the horizontal axis represents the time period extending from (2011) to the year (2019), which amounts to (9) years, while the vertical axis represents the values of the total assets turnover rates for companies. Contribution is the sample of the study, as it is evident that the linear regression according to Figure (2) is negative, meaning that the rates decrease with the passage of time, which may indicate a decrease in the total assets turnover rates for the joint-stock companies in those periods.

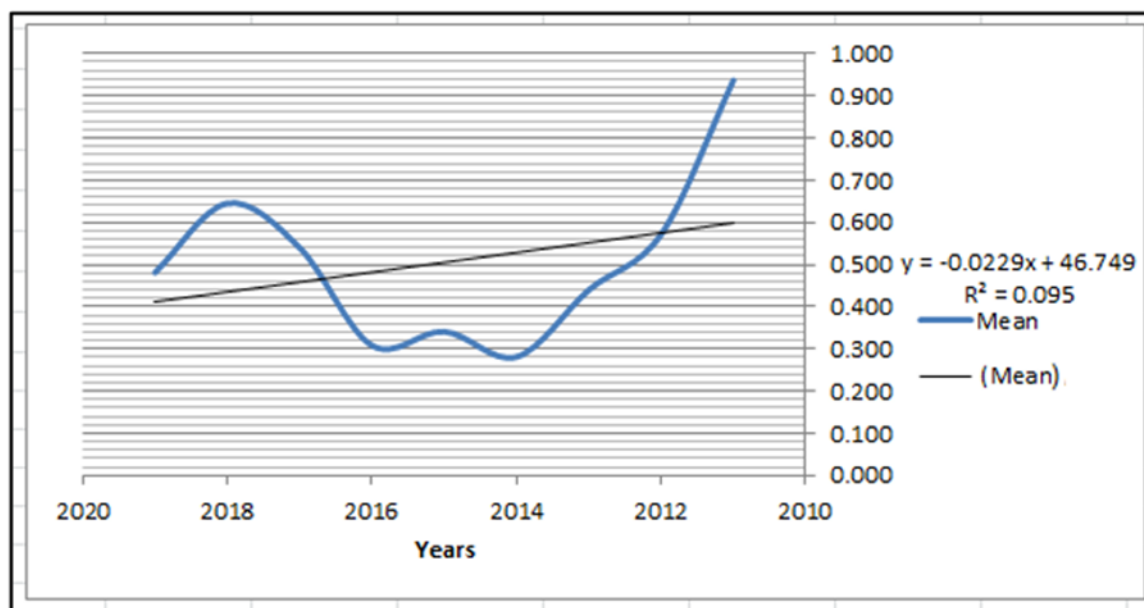


Figure (2). Market rate curve for total assets turnover for companies, the sample of the study
Source / prepared by the researcher depending on the output of the electronic computer

Table (2): Results of the Financial Analysis of Total Assets Turnover for Industrial Companies Study Sample for the Period from (2011) to (2019)

Source / prepared by the researcher depending on the output of the electronic computer

Measurement tools	The Company's name								The overall rate
	Modern sewing company	Baghdad for soft drinks	Baghdad for the manufacture of packaging materials	Production of ready-made clothes	Al Mansour Pharmaceutical Industries	Iraqi carpets and furnishings	Modern Chemical Industry	National Company for Chemical and Plastic Industries	
0.505	0.069	1.066	0.136	1.756	0.329	0.009	0.518	0.160	Mean
	0.040	1.050	0.110	1.870	0.280	0.000	0.430	0.060	Median
	0.210	1.270	0.300	5.070	0.690	0.030	1.730	0.900	Maximum
	0.030	0.900	0.050	0.240	0.060	0.000	0.020	0.020	Minimum
0.353	0.059	0.145	0.083	1.536	0.176	0.013	0.534	0.280	Std. Dev.
	1.768	0.349	1.008	1.040	0.706	1.150	1.306	2.396	Skewness
	1.662	1.599	2.703	1.393	2.330	2.497	2.004	2.899	Kurtosis
	5.725	0.919	1.557	1.679	0.788	2.080	2.938	14.311	Jarque-Bera
	0.057	0.632	0.459	0.432	0.674	0.354	0.230	0.001	Probability

3-Statistical analysis and testing hypothesis of the study

The study assumes the existence of a statistically significant impact relationship human capital efficiency on the Total Assets Turnover Index (AT), according to the results of the Eviews-9 program, which showed the results of multiple regression analysis in Table (3). According to determining the results of multiple regression, assuming that there is a significant relationship between the real value of the human capital variables in the Total Assets Turnover Index (AT), which can be expressed by the following equation:

$$AT = \beta_0 + \beta_1 HCE$$

As this equation shows that the total assets turnover rate is a function of the real value of the human capital indicators because the estimates of this equation and its statistical indicators have been calculated on the level of the time series extending from (2011) to (2019), while the multiple regression equation of the relationship between The human capital variables in the total assets turnover index is as follows:

$$AT = (0.534) + (0.852) HCE$$

Table (3) results of the test of the relationship of the effect of human capital efficiency on the total assets of the industrial companies, the study sample

Source: Prepared by the researcher using the outputs of the Eviews-9 program

the decision	Prob.	t-Statistic	Std. Error	Coefficient	Dependent Index	Independent indicators
Accepted hypothesis	0.000	5.531	0.154	0.852	AT	HCE
Method: Pooled Least Squares $AT = (0.534) + (0.852)HCE$					0.534517	Fixed C
					0.588118	The determination coefficient (R ²)
					3.907879	F-statistic
					0.000049	Level of significance (F)

It is clear from Table (3) that the constant is (C = 0.534), and this means: that there is a ratio of total assets turnover of (0.534), when the added value of human capital is equal to (zero), and the results of Table (3) indicated that The value of the coefficient of determination (R²) is (0.588), which means: The added value of human capital explains the percentage (0.588) of the variance in the turnover of total assets, which is an acceptable indicator when comparing the calculated value of (F) of (3.907). Results of the significance level of (F) amounted to (0.000); That is, it is less than the level of significance specified by the researcher (0.05). Through these results, the hypothesis is acceptable.

Table (3) showed that the value of the marginal propensity of human capital efficiency (HCE) reached (_1 = 0.852) and is associated with (HCE), as it indicates that a change of one unit in human capital efficiency (HCE) will lead to a positive change in the amount of (0.852) in the total assets turnover rate, and the calculated value of (t) reached (5.531), according to the results of the level of significance for the value of (t), which reached (0.000), that is, less than the level of significance that the researcher determined (0.05), through These results are acceptable hypothesis.

CONCLUSIONS

The current research tries to analyze the type of relationship between two variables, namely human capital efficiency and the rate of total assets turnover. The data of (8) companies listed on the Iraq Stock Exchange for the period (2011-2019) were relied on. As the research reached a conclusion that human capital efficiency has a slightly positive impact on the turnover of total assets, which reflects the presence of human capital that is not optimally invested in Iraqi companies, the study sample, the reason for this may be due to the deterioration of the general economic and political situation, which Reflected in turn on the industrial companies contributing in Iraq, so the government must support these companies and pay attention to their development, and managers in the Iraqi manufacturing sector should focus more on the role of human capital by increasing investment in their human resources through continuous learning, training, and accreditation. On the talents and competencies to advance the current industrial reality.

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