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Effects of total asset turnover, current ratio, and debt-to-equity ratio on the profit margin ratios

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ABSTRACT

This study aims to examine how the profit margin ratios of industrial sector companies listed on the Iraqi Stock Exchange between 2018 and 2023 are affected by the debt-to-equity ratio, current ratio, and total asset return. In this study, a quantitative methodology was used to analyze audited data of financial lists using EViews 12 software. It aims to show the effects of each of the dependent variables of net profit margin (NPM) and gross profit margin (GPM) on the independent variables of debt-to-equity ratio (DER), current ratio (CR), and total asset turnover (TAT). The results based on panel data from 10 manufacturing sector firms indicate the inter-variable effect as follows: The net profit margin (NPM) is significantly impacted negatively by DER, while GPM is positively impacted by DER. This NPM effect indicates that financial effects further reduce profitability. Nevertheless, CR has a slight beneficial impact on GPM and a non-significant negative impact on NPM. In addition, TAT indicates operational inefficiencies by increasing GPM and significantly reducing NPM. To promote sustainable growth in the Iraqi industrial sector, the report recommends increasing asset efficiency, optimizing capital structure, and strengthening liquidity management. This study makes several recommendations for legislators, investors, and corporate executives.

Keywords: current rasio; debt-to-equity rasio; net profit margin; profit margin ratios; total asset turnover

1. INTRODUCTION

The manufacturing sector is one of the sectors that plays an important role in reshaping economic stability, which is the result of emerging industrial development, especially in emerging economies. Iraq is one of the economies that is growing, especially after 2018, as a result of ensuring political and economic stability and overcoming all obstacles to achieve it. In addition to efforts to improve market performance, the aim is to strengthen domestic production capacity. However, despite these efforts, many manufacturing companies are still limited in their ability to access the necessary capital, management skills, and type of capital structure. Therefore, determining the type of profit and its components for companies is a practical and scientific necessity.

The profitability ratio is considered one of the measures that can be used to evaluate the performance of managers in institutions. Financial reports can be used by users to evaluate the overall financial health of a company and determine its profitability and liquidity, and are helpful to company decision-makers (Heliani et al., 2022). Therefore, the company's financial manager needs to be aware of financial ratios, with knowledge of both financial stability and operational efficiency. The results obtained over the operating years indicate a significant change in the financial performance and profitability of companies over time (Charles & Uford, 2023). Therefore, the debt-to-equity ratio (DER), current ratio (CR), and total return on assets (TAT) are considered the most important financial ratios in the financial dictionary that the company pays special attention to. DER refers to the proportion of a company's use of debt in its capital structure. In addition, CR measures a firm's liquidity capacity to meet short-term obligations. In addition, TAT shows the efficiency of a company in investing capital to generate income over a period of time. Therefore, each of these ratios can be used as a measure of profitability. Sometimes, companies find it difficult to continue making profits for a long time. Research in this area has produced conflicting findings. Some believe that debt-to-equity and current ratios have a large impact on earnings ratios, while others identify total asset turnover as a key factor affecting earnings (Rachman et al., 2023). To survive and sustain themselves in today's ever-changing industrial world, companies must continually improve their profit margins. Profit is a sign of a company's success, which also affects shareholders' decisions (Rashid, 2019). In a competitive market, companies with high profit margins will succeed in attracting investor opinion and maintaining a positive company reputation (Lero et al., 2024).

Therefore, in emerging markets such as Iraq, which have received little research, this imbalance is evident. This is because researchers mainly focus on developed economies, especially large ones. This kind of attention creates a huge gap in an unstable financial and political situation, weak transparency, and limited institutional structures, and how each of the financial ratios affects the performance of companies. Previous studies often rely on cross-sectional data or simplified analytical methods, which may not capture differences or firm-specific changes over time that meet these objectives. In addition, there is a lack of robust empirical evidence on how capital structure, liquidity, and asset efficiency interact to affect profits.

The Iraqi Stock Exchange works by seeking to provide information, reform the labor market, provide a different environment, and monitor these relationships. Companies whose information is available on the stock exchange operate in a relatively active economic environment by increasing the degree of transparency and timely submission of information. Iraq went through a period of war, which represents a period of financial stability and new economic activities. The years 2018 to 2023 are particularly important for examining firm-level financial performance and highlighting key profitability drivers. Comprehensive panel-based assessments of profitability factors in Iraqi manufacturing firms remain rare despite the availability of financial data for this period.

This study attempts to fill this gap by examining the effects of the debt-to-equity ratio, current ratio, and total asset turnover on net profit margin and gross profit margin as measures of profitability. Manufacturing companies listed on the Iraqi Stock Exchange for the years (2018-2023). This study aims to provide more reliable insights into financial ratios and corporate performance evaluation using panel data techniques and selecting effective models. This study makes an efficient contribution to the existing literature by providing empirical results regarding an understudied emerging market such as Iraq.

Simultaneously, it is a key factor in improving the understanding of how each domestic financial factor affects profitability in emerging and transitional economies.

This study indicates how the financial ratio affects the profitability of the manufacturing sector in Iraq. The results are expected to provide information to researchers, investors, and corporate managers on how to increase profit margins, assess financial performance, identify risks, and make appropriate decisions. Hence, the company's management can use the results to enhance operational efficiency, manage liquidity, improve profit margins, and enhance financial transparency. Along with identifying important financial factors, this study supports the overall economic stability of financial performance in the Iraqi stock market, especially in the manufacturing sector. This study fills a significant knowledge gap and provides useful information for financial decision-making in an important sector.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Literature Review

The results show how return on equity as a dependent variable is affected by the current ratio and the debt to equity ratio, and simultaneously by the discount to total assets and net profit ratio, with each of these as independent variables. It used the rate sampling method to obtain data from the Jakarta Stock Exchange from 2005 to 2009. To analyze the extracted data, we relied on the audited financial lists of companies using multiple linear regression and least squares analysis. Within the framework of several hypotheses using fractional t-test and simultaneous F-test, based on the obtained result of R-test, the significance level of 0.05 has been tested. The results obtained in the present study indicate that each of the variables CR, DER, TAT, and NPM has a significant positive effect on the dependent variable ROE of manufacturing firms. An R-squared revision result of 97 was obtained. four predictive factors of ROE are 97.9%.

The conclusion of Juliani et al. 's (2023) study indicates the significant effect of the debt to equity ratio, current ratio, and total asset turnover on the financial performance of manufacturing firms listed on the Indonesian stock exchange from 2016 to 2020. The financial lists audited by the auditors for all companies were used for ten years. Taking advantage of the statistical methods of purposive sampling to analyze the proposed hypotheses, linear regression analyses were used with the help of the SPSS 21 program. The results of this study indicate the existence of a statistically significant negative effect of total asset turnover on financial performance variables in firms. Simultaneously, these results indicate a statistically significant positive effect of each debt equity ratio and current ratio on financial performance as the dependent variable.

The aim of the study by Affandi et al. (2019) was to show the effect of the independent variables on the dependent variables and simultaneously determine the level of the effect of revenue generated, return on equity, institutional ownership, liquidity ratio, ratio of debt to equity, and net profit ratio on dividend The payout ratio is an indicator of manufacturing companies on the BEI Stock Exchange over a six-year period ranging from 2011 to 2016. To collect data on the generation cluster, a purposive sampling method was applied to 19 companies. F-test, adjusted R-square, t-test, multiple linear regression analysis, and classical test were used in the analysis of the obtained data The data referred to is the data used within this paper. The obtained results indicate that each of the return on equity, corporate ownership and debt conversion as independent variables showed a statistically significant positive effect on the dividend ratio. However, at the same time the results of this study indicate that neither the liquidity ratio nor the net profit ratio had a statistically significant effect on the dividend ratio.

Rahmawati et al. (2024) studied mining companies from 2017 to 2022 according to the Sharia Share Index (ISSI). To indicate the effect of the independent variables of total asset turnover and return on assets on the dependent variable of profit growth in the mentioned companies. The study used a quantitative methodology. Purposive Sampling was used, and a total of 11 companies were sampled. EViews 12 software was used for the linear regression data analysis. The results indicate that profit growth does not have a statistically significant effect on total asset turnover. However, higher returns imply higher profit margins.

However, according to Anggarani et al. (2024), who analyze whether currency exchange and total assets affect PT Bank Jabbar Banten Syariah'"s net profit margin for the period 2013-2022. This study provides a scientific motivation owing to the imbalance between theory and reality observed during the work. SPSS Statistics 26 purposefully uses sampling techniques to analyze secondary data from PT BJB Syariah quarterly financial reports from 2013 to 2022 using descriptive statistics, classical hypothesis testing, and according to the used multiple linear regression analysis. The findings indicate that each net profit ratio has a statistically significant negative effect on both timber exchange and total asset turnover.

2.2. Hypothesis Development

2.2.1. Debt to Equity Ratio (DER)

One measure, the debt-to-equity ratio, refers to the amount of capital owned by a company that can be used to repay debts, whether short- or long-term, over a given period of time (Gunawan et al., 2022). Consequently, the ratio of debt to equity is referred to by the company. How can the company's management use it to repay debts without affecting the company's investment activities? This should reduce the cost of capital over time (Heliani et al., 2023). Simultaneously, this ratio is one of the most important economic ratios that indicates how much debt is currently in the company's capital structure against shareholders' equity (Putri & Murti, 2024). According to Kinasih and Ardianingsih (2022), this ratio shows how much debt each business contributes to its capital structure to finance its projects against the capital it owns, known as shareholders' equity. In addition, how successfully a company can do business and how attractive its shares are to investors in the debt ratios have a complete impact on the capital structure, playing an active role in shaping capital structure patterns (Sunggoro, 2024). Therefore, the debt-to-equity ratio is considered one of the most important criteria in research for evaluating the financial statements of companies and comparing the changes that have occurred in the capital structure between debt and shareholders' equity during a financial year (Sinamo et al., 2024). Numerous ratios are used to evaluate a company's financial environment in economic terms, each of which has a specific purpose. Simultaneously, a particular aspect is evaluated. Therefore, to assess the proportion of debt involved in the capital structure of the company, it is measured by an economic ratio called the debt-to-equity ratio (Christianty & Latuconsina, 2023). The debt-to-equity ratio (DER) is a direct indicator of a company's capital and its ability to meet commitments to repay debt because each type of debt is an inevitable obligation on the company within a specified period under the debt contract. Therefore, the DER is used to compare the value of debt to shareholders' equity. This is an indicator for evaluating the capacity of a business to meet its commitments to repay debt within a specified period (Siregar & Harahap, 2021). To introduce this ratio and obtain information from the financial statements of manufacturing companies, it is calculated as follows:

$$\boldsymbol{DER = \frac{(Total\ debt)}{(Total\ equity)}}$$

H1a: The debt-to-equity ratio significantly impacts the net profit margin.
H1b: The debt-to-equity ratio significantly affects the gross profit margin.

2.2.2. Current Ratio (CR)

This ratio is considered a liquidity measure to show the extent to which a company can use its assets to meet short-term obligations in the time allotted. This is one of the factors that ensures lenders' confidence (Arifin, 2024). Therefore, debt repayment, inventory turnover rate, and comparison of total liabilities to current assets ratio are considered to be factors that can affect the current ratio of companies (Siregar & Harahap, 2021). According to Damayanti and Chaerudin (2021), one of the most important measures used to assess a company's financial ability to meet its short-term obligations is the current ratio. This ratio indicates the extent to which the company's assets are available for reuse in its debt. From the consumers' perspective, this ratio is of particular importance, as it helps determine the company's

potential. Therefore, the higher this ratio, the more it indicates the company's ability to repay its short-term debts within a specified period (Minggus et al., 2020). If companies can meet their short-term obligations on time, they do not have liquidity problems. Simultaneously, this ratio affects stock prices and investors in the future (Kinasih & Ardianingsih, 2022). The current ratio evaluates a company's ability to meet short-term obligations using its current assets (Salih et al., 2024). Therefore, the higher the results, the more confidence lenders have in their ability to repay loans within a specified period. A high ratio indicates that the company can easily meet its obligations (Kinasih & Ardianingsih, 2022). The formula for the current ratio is as follows:

$$CR = \frac{Total\ Current\ Asset}{Total\ Current\ Liabilitie}$$

H2a: The current ratio has a significant impact on the net profit margin.
H2b: The current ratio significantly impacts the gross profit margin.

2.2.3. Total Assets Turnover (TAT)

Another ratio used by companies is the total asset turnover. This ratio is an important indicator of the extent to which a company can manage its assets. That is, to what extent will this reuse of assets increase profitability while re-achieving the planned objectives, and measures the effectiveness of total asset utilization in terms of the amount of production and sales; higher values indicate that the company is on target. He also measured company turnover and calculated the results it could achieve. It is imperative that companies effectively monitor their assets and make informed decisions to achieve their goals (Azizah et al., 2023). Hence, total asset turnover is defined as the asset management ratio, which is calculated from sales per dinar of assets and the turnover of all assets of companies (Muhani et al., 2022). Therefore, a type of financial ratio analysis that falls under the activity ratio category is (TAT). Therefore, this ratio indicates the ability of the company to turn over its assets in a year to earn a planned amount of profit. Therefore, this ratio indicates effective asset management. The more efficiently a company uses its assets, the more expertise it will have in sales. Therefore, it is the financial ratio that assesses how successfully a company's total assets generate income (Kanzunfuadi et al., 2024). The following formula is used to calculate Total Asset Turnover:

$$TAT = \frac{NTotal\ Sale}{Total\ Asset}$$

H3a: Total asset turnover has a significant impact on the net profit margin.
H3b: Total asset turnover has a significant impact on the gross profit margin.

2.2.4. Profit Margin Ratio

Profit margin is considered one of the indicators of a company's success., which is relied upon by investors when making decisions in order to make a wise decision (Mirgen et al., 2017). Therefore, the company aims to achieve profitability, and profitability is considered a key criterion for evaluating the performance and capital management of a company with high efficient capacity in the manner in which the company has formulated the objective (Firman & Salvia, 2021). A change in assets does not necessarily cause a change in profit. However, in contrast, any change in profit is mainly due to a change in the company's assets. Therefore, the change in assets must reflect the activities carried out by the company. This is because any change in the profit margin results from a change in operating efficiency (Esmael KAREM et al., 2021). Therefore, an increase or decrease in the profit margin directly affects the efficiency of the firm (Fairfield & Yohn, 2001).

2.2.5. Net Profit Margin (NPM)

The amount of profit earned as a result of the sale of units produced within a given period. This ratio is also represented by the net profit margin (NPM). Simultaneously, high net profit margin values indicate an increased ability to achieve a high profit margin and management effectiveness (Jania & Hernawan, 2022). The net profit margin (NPM) is the amount of profit earned as a result of the sales ratio after deducting all expenses incurred to obtain a particular product (Rashid, 2021). Therefore, showing better financial performance indicates a high profit margin during a financial year (Anggarani et al., 2024). Therefore, this ratio indicates the company's ability to generate net profit from the number of products sold. In other words, some of the revenue from the products sold is considered net profit (Sunggoro, 2024). Hence, the ratio called shows how much the net profit margin of a business can reduce expenses while still making a profit from a given amount of operations (Fairfield & Yohn, 2001). The Net Profit Margin (NPM) significantly influences share prices, as a high NPM indicates strong performance and efficient operations. This entices investors to invest in the company, leading to increased stock prices on the stock exchange (Sunggoro 2024). The formula is:

$$NPM = \frac{Net\ Income}{Revenues} * 100$$

2.2.6. Gross Profit Margin (GPM)

According to Hakim et al. (2023), the gross profit margin (GPM) is a financial measure that evaluates how well a business produces items and how efficient it is. The gross profit margin is regarded as a crucial indicator because it not only produces profits but also offers details on the business's financial health. Therefore, the volume of a company's sales, part of which is considered profitable, is known as the gross profit margin. Therefore, a higher profit margin is a positive indicator of successful management performance (Fauzi et al., 2024). Businesses can cover costs such as taxes, debt interest, depreciation, and administration, indicating good performance and potential investor attraction, thereby increasing revenues (Nariswari & Nugraha, 2020). Therefore, the comparison between total sales and total costs can be known as the profit margin, which assesses a business's ability to pass on price increases and control operating expenses (Ahmed, 2022). It evaluates the selling prices, production efficiency, and post-sale earnings. A positive margin indicates that a business can sell goods at cost and avoid losses, thereby influencing net profit (Fauzi et al., 2024). The formula is:

$$GPM = \frac{Net\ Seles - COST}{Net\ Seles} * 100$$

For more details, refer to Figure 1.

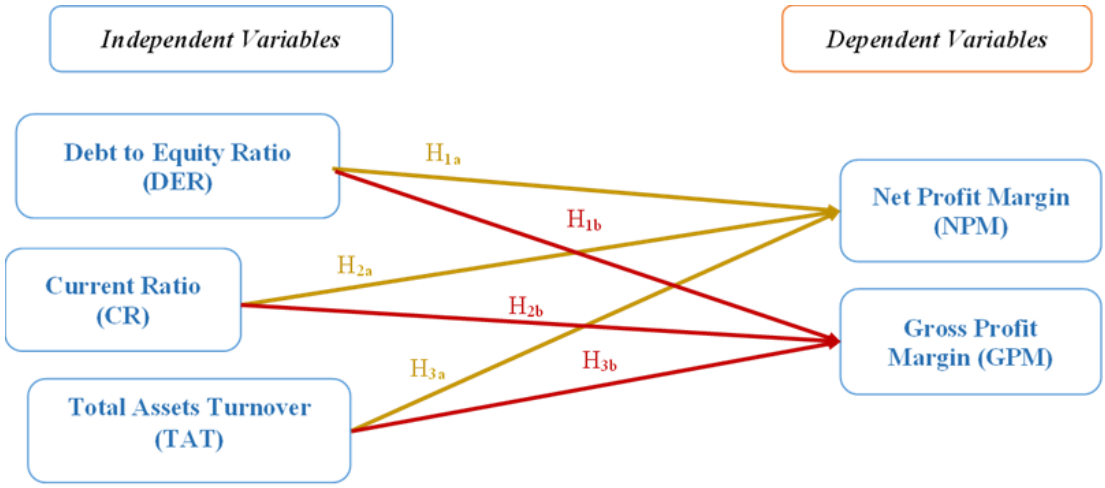

Figure 1. Form For Research

3. METHODOLOGY

3.1. Number of Companies and Sample Size

This study used a quantitative research design and panel data analysis to examine the effects of the debt to equity ratio, current ratio, and total wealth change on profit margin. Therefore, panel data are suitable for this type of study because they combine cross-sectional and time-series dimensions. Simultaneously, it can control unmonitored data across companies. The Iraqi Stock Exchange (www.ISX-iq.net) was used as a financial intermediary to obtain the annual reports of manufacturing companies after auditing their financial reports by external audit institutions for the year (2018-2023). The data consisted of secondary data for 10 manufacturing companies. This is a six-year example of the Iraqi stock market (see Table 1).

Table 1. Names of companies

No.	Name of company	International numbering code
1	Al -Khazer for Construction Materials	IQ000A0M9DB4
2	AL- Kindi of Veterinary Vaccines Drugs	IQ000A0M7T41
3	Ready Made Clothes	IQ000A0M9C89
4	Baghdad for Packing Materials	IQ000A0M7TW0
5	Iraqi Engineering Works	IQ000A0M7TX8
6	Modern Sewing	IQ000A0M7T66
7	Baghdad Soft Drinks	IQ000A0M7TT6
8	Fallujah for Construction Materials	IQ000A0M7TY6
9	Al Mansour Pharmaceuticals Industries	IQ000A0M7TZ3
10	Iraqi For Tufted Carpets	IQ000A0M7T33

Source: Retrieved from the researcher of the Iraqi Stock Exchange (www.isx-iq.net)

3.2. Method of Data Collection

Using financial listings of companies in the manufacturing sector in Iraq, after verifying secondary data of 10 companies that were sources of information on financial listings listed on the Iraqi Stock Exchange (ISX) for the years 2018-2023, the study used a quantitative research methodology. Reliability and transparency were guaranteed because the data were obtained from the official ISX website (www.isx-iq.net). While to measure profitability each of metrics like Net Profit Ratio NPM, Gross Profit GPM, are derived from Net Income, Revenue and Cost of Products Sold, Financial Ratio Debt to Equity Ratio DER, Current Ratio, CR, and Total Return on Assets, TAT), is derived from net income, revenue, cost of products sold, and calculated using data from the balance sheet and income statement. Companies with consistent and comprehensive financial disclosures were used to select the companies through the use of a purposive sampling technique. EViews version 12, which facilitated the performance of descriptive statistics, correlation analysis, and fixed effects regression models for hypothesis testing, was used to transform the data into panel data. Multicollinearity was addressed using the robustness test and differential inflation (VIF) as a testing factor. The accuracy and validity of the findings were guaranteed using this methodological technique.

3.3. Model Design

Model 1:

$$\boldsymbol{NPM = a_0 + +\beta 1 * DER + \beta 2 * CR + \beta 3 * TAT + e}$$

Model 2:

$$\boldsymbol{GPM = a_0 + +\beta 1 * DER + \beta 2 * CR + \beta 3 * TAT + e}$$

Description:
NPM : Net Profit Margin (Dependent variables)
GPM : Gross Profit Margin (Dependent variables)
DER : Debt-to-Equity Ratio (Independent variables)
CR : Current Ratio (Independent variables)
TAT : Total Assets Turnover (Independent variables)
a : Constants
β1, β4 : Regression using Partial Coefficients
e : Error

4. RESULTS AND DISCUSSION

4.1. Results

4.1.1. Statistics Descriptive

According to Table 2, the results presented for each variable are based on the descriptive statistics. The mean result of 0.16 for the debt-to-equity ratio indicates low performance. This result in an emerging economy such as Iraq suggests that Iraqi companies have used lower debt-to-equity ratios. Or, on the other hand, banks are reluctant to provide large amounts of loans to companies due to financial, economic and political instability. This explains why companies' growth is limited because they rely heavily on domestic capital in their capital structure. Therefore, according to the Pecking Order Theory (POT), managers prefer to use domestic financial resources rather than large amounts of debt, which reduces their cost of capital. Meanwhile, total assets turnover resulted in a mean indicator of 0.52, with the result of maximum and minimum values (4.56, 0.00). The mean result, the net profit margin (0.478), shows. Given that the mean gross profit is negative, this imposes a high cost on firms. Therefore, this result indicates that some firms have a higher ratio of debt, with maximum and minimum values of 41.21 and -34.66. With that, the mean result makes gross profit margin -9.389, with a maximum and a minimum of (0.996, -278.657). This result indicates that the cost of products is higher than the selling price because there are no restrictions on domestic production in Iraq. However, this result may be due to the age of the production equipment, which is not able to compete with foreign products.

In contrast, the current ratio results in a mean of 7.535, with a maximum and a minimum of (50.458, 0.591). A significant standard deviation, a broad range of current rates, and a considerable fluctuation in asset turnover are all present. A small percentage of enterprises have extremely high debt, indicating strong positive vulnerability, whereas most have little debt. Statistical significance was demonstrated with a probability value of 0.0000. The data were based on 60 observations, which offered a suitable sample size for the analysis.

Table 2. Descriptive statistics

	DER	CR	TAT	NPM	GPM
Mean	0.161209	7.534998	0.523198	0.477542	-9.388625
Median	0.099545	4.427915	0.116300	0.082610	0.086648
Maximum	1.227000	50.45799	4.556190	41.21227	0.996181
Minimum	0.009500	0.590500	0.000000	-34.65626	-278.6573
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	60	60	60	60	60

Source: EViews Version 12 data processing

4.1.2. Results of Correlation

According to the analysis results in Table 3, which presents the relationship between each of the independent variables and the dependent variable, using the correlation and probability matrices for the financial ratio. The results indicate a significant negative relationship between net profit margin and gross

profit margin, as the two dependent variables, with a correlation coefficient of -0.699 and a p-value of 0.000. This suggests that Iraqi companies do not have a problem with profitability, but managers should focus more on administrative and financial costs. This negative result indicates differences in valuation strategies and capital structure problems. Meanwhile, the (DER) results show that it has a very weak negative correlation with (NPM), with a value of -0.000284 and a p-value of 0.0083. However, for (GPM), the result indicates a weak positive relationship with a value of 0.085484 and a p-value of 0.0161. Such effects on manufacturing companies in Iraq indicate a margin where the cost of capital is currently higher than the output of capital, which results in changing the direction of growth into a major source of bankruptcy. This result also indicates that there is little, perhaps absurd, demand for higher gross profit margins, concurrently with an increase in the debt-to-equity ratio. However, the (CR) with each of the (NPM) and (GPM) results indicates a non-significant positive relationship, with values of 0.0075 and 0.082 and p-values of 0.95 and 0.53. This very low result indicates that the profitability of a company, which is measured by the net profit margin, is essentially the effect of changes in the liquidity position of that company, as shown by the current rate. Despite the positive result, the number is so close to zero that it is practically not useful for predicting NPM and GPM based on CR and is statistically insignificant. However, it shows a weak positive correlation of 0.106689 between (NPM) and (TAT). Moreover, with (GPM) weakly correlated with a correlation of -0.071322. The results suggest that while profitability may increase with asset efficiency, the correlation is too weak to be considered significant or reliable for independent decision making. However, a more effective use of assets may have a small positive impact on profitability. Meanwhile, it does with increasing asset turnover, but the relationship is insignificant. This result also suggests that managers management efficiency and asset utilization generally do not significantly influence the management system that affects the gross profit margin. This indicates that there is a small and perhaps insignificant tendency for the gross profit margin to rise concurrently with the increase in the debt-to-equity ratio.

Table 3. Pearson correlation

Covariance Analysis: Ordinary					
Correlation	NPM	GPM	DER	CR	TAT
NPM	1.000000				
GPM	-0.698645	1.000000			
DER	-0.000284	0.085484	1.000000		
CR	0.007457	0.082059	-0.294045	1.000000	
TAT	0.106689	-0.071322	0.248379	-0.130704	1.000000
Probability					
NPM	-----				
GPM	0.0000	-----			
DER	0.0083	0.0161	-----		
CR	0.9549	0.5331	0.0226	-----	
TAT	0.0172	0.0081	0.0057	0.3195	-----

Source: EViews Version 12 data processing.
Notes:
*Significant at the 1% level.
**Significant at 5% level; and
***Significant at 10% level.

The results of the variance inflation factor (VIF) are presented in Table 4. Including the measurement of the extent of multicollinearity with other independent variables would enhance the regression coefficients. Assessing the impact of individual predictors can be challenging when multicollinearity is significant, as indicated by high VIF values. that the VIF results should be below the common 5 levels. Therefore, according to this result, multicollinearity is of no concern, and the regression analysis of the variables is justified.

Table 4. Variance Inflation Factors (VIF)

V	VIF.	Interpretation
DER	1.20	No multicollinearity concern
CR	1.17	No multicollinearity concern
TAT	1.01	No multicollinearity concern

Source: EViews Version 12 data processing

According to Table 5, the ANOVA test for the presented data sheds light on how the means of different groups change when analyzing the net profit margin and gross profit margin. The results suggest that the ANOVA F test has values of (3,236, 4,295), the results of generating a probability (p value) indicate (0.0000, 0.0014). A p-value result that is less indicative than the 0.05 alpha level implies a statistically significant difference between each of the group means. However, the Welch F test reveals a more significant difference, achieving (P value) 0.0000, further demonstrating that the presence of a significant difference. Of particular note is the use of the Welch F-test, which accounts for unequal differences between firms some of which have substantially increased levels of growth while others use a constant skew and gives more reliable results in situations where conventional ANOVA assumptions may not apply. All things considered, these results indicate that there are significant differences in mean GPM values between at least one pair of groups, calling for further investigation into the exact causes of these changes.

Table 5. Test for Anova

	Model 1 (NPM)		Model 2 (GPM)	
Method	df	Probability	df	Probability
Anova F-test	(3, 236)	0.0000	(4, 295)	0.0014
Welch F-test*	(3, 101.318)	0.0000	(4, 120.667)	0.0000

Source: EViews Version 12 data processing.
* Test allows for unequal cell variances.

The results in Table 6 present the effect findings of fixed tests that assessed the cross-sectional and temporal fixed effects of the dataset using the generalized aggregates for each of the first and second models. At the 5% significance level, the "Cross-section F" statistic (2.3932, 2.555) with the probability value (p-value) (0.0273, 0.0193) shows a significant difference between cross-sectional units. indicating a meaningful change in the total unit. Given that the p-value is greater than 0.05, the "Cross-Section/Period F" statistic (6.8, 7.789) with the p-value (0.2360, 0.1682) indicates that the temporal differences are not statistically significant. With a p-value (0.0400, 0.0393) and a cross-sectional/interval F statistic of (2.0189, 2.025), there may be a significant interaction between the cross-sectional and interval effects. In both models, the importance of considering both types of fixed effects is illustrated by the "Cross-Section/Period Chi-square" statistic of (30.876, 30.954) with p-value (0.0058, 0.0056), showing strong evidence against the null hypothesis and suggesting that the combined effects of cross- and temporal factors are significant. This finding (p=0.236) suggests that the Iraqi manufacturing sector uses a "center management" performance model. This suggests that variations in profit margins are rooted in markets rather than being the result of transient economic shifts or yearly market volatility. Fundamental choices regarding capital structure and asset utilization are made at the firm level. Profitability and survival remain the primary concerns.

Table 6. Tests For Fixed Effects

	Model 1 (NPM)			Model 2 (GPM)		
Effects Test	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.
Cross-section F	2.3932	(9,42)	0.0273	2.555	(9,42)	0.0193
Cross-section Chi-square	24.839	9	0.0032	26.197	9	0.0019
Period F	1.008	(5,42)	0.4250	1.165	(5,42)	0.3425
Period Chi-square	6.8	5	0.2360	7.789	5	0.1682
Cross-Section/Period F	2.0189	(14,42)	0.0400	2.025	(14,42)	0.0393
Cross-Section/Period Chi-square	30.876	14	0.0058	30.954	14	0.0056

Source: EViews Version 12 data processing.

4.1.3. Results of Regression

Model 1, whose results are presented in Table 7, indicates the value of debt to equity ratio statistically has a fairly significant negative effect on the net profit ratio, which results indicating a coefficient of -1.489. In the event of an increase in the debt-to-equity ratio by one unit in value, substituting for the other variables, it will result in a decrease in the net profit margin by 1.489. Meanwhile, the debt-to-equity ratio in the second model has a significant positive effect on the gross profit margin ratio of 2.939. That is, if the debt-to-equity ratio increases by one unit, the gross profit ratio decreases by 2.939. Nonetheless, the current ratio results for either model do not provide strong evidence of a significant effect on either NPM or GPM. Meanwhile, total asset turnover has a statistically significant negative impact on the net profit ratio, resulting in a coefficient of -0.239857 in the first model. That is, holding all other variables constant, a one-unit increase in total asset returns leads to a decrease in the net profit margin (0.24). Moreover, the results of the second model on the gross profit ratio show a significant positive effect. Introducing the value of 21.50123, so subject to all other variables being fixed and a one-unit lead to an increase in total assets. turnover, which in turn causes a decrease in the gross profit margin by the value of (21.50).

The results make it clear that with approximately R-squared (0.41, 0.42) for both models. That is, 41-42% of the variations in NPM and GPM are explained by the independent variables. Considering the number of predictors, the modified Adjusted R-squared value of 48.47% indicates that the model has a fairly significant explanatory power.

Table 7. Regression analysis

Method: Panel Least Squares				
	Model 1 (NPM)		Model 2 (GPM)	
V.	Coefficient	t-Statistic	Coefficient	t-Statistic
C	1.507648 (0.0057)	0.609166	-30.74479 (0.0097)	-2.122865
DER	-1.489 (0.0224)	-0.225816	2.938453 (0.0397)	0.076154
CR	-0.088198 (0.5630)	-0.582967	1.278443 (0.0561)	1.444044
TAT	-0.239857 (0.0364)	-0.080222	21.50123 (0.0259)	1.228907
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.409652		0.419611	
Adjusted R-squared	0.470701		0.484692	
F-statistic	1.714380		1.786195	
Prob(F-statistic)	0.008404		0.003959	

Source: EViews Version 12 data processing
Dependent Variable: NPM, GPM
Independent Variable: DER, CR, TAT

Model 1

NPM = 1.50764781543 - 1.48899973149*DER - 0.0881982209812*CR - 0.239857032244*TAT

Model 2

GPM = 2.93845316712*DER + 1.27844280226*CR + 21.5012283689*TAT - 30.7447879048

4.2. Discussion

4.2.1. Hypothesis Test (H1a)

According to the results in Table 7, as leverage increases, net profit decreases, according to the negative coefficient of DER on NPM with a probability of 0.0224. This is probably because when all expenses and obligations are considered, more debt lowers bottom-line profitability by increasing the interest costs and financial risk. According to this result, the net profit ratio is statistically significantly negatively affected by the independent variable of the debt-to-equity ratio, which is considered one of the variables. Because its Prob is smaller than 0.05, this leads to acceptance of the hypothesis (H1a) and rejection of H0. This negative result for NPM in the context of manufacturing companies in Iraq indicates that the cost of capital is high, despite economic instability, which leads to a decrease in net profit, which in some cases may lead to an increased risk of bankruptcy. However, Juliani et al. (2023) and Al-Hashimy et al. (2022) found a significant positive effect of DER on profitability in Indonesia's stock market. In contrast, the results of this study for the Iraqi stock market show a negative result.

4.2.2. Hypothesis Test (H1b)

According to the results indicating a positive effect of DER on GPM, the probability is 0.04, which is smaller than 0.05. This may facilitate certainty and increased scale or capital intake, both of which enhance overall profitability. As revenue is more directly of interest to investors than production costs. Debt may be invested in capital efficiency or productive capacity, increasing the overall debt-to-equity ratio before interest and other charges are considered. This type of result helps improve the production process and enhance the sales level, which in turn increases revenue. However, this increase in revenue eventually loses its true character because of increased administrative and financial costs. According to the results presented in Table 7, the debt-to-equity ratio of the independent variable, acting as one of the variables, has a significant positive effect on the gross profit margin. Because its Prob is smaller than 0.05, this leads to acceptance of hypothesis (H1b) and rejection of H0. This result is inconsistent with the results of Juliani et al. (2023) and Gunawan et al. (2022).

4.2.3. Hypothesis Test (H2a)

Short-term commitments in firms are measured by the current rate (CR), at which feasibility is demonstrated. An increase in this ratio, on the other hand, is not considered a condition for an increase in the net profit margin. At times, it may even indicate inefficient use of capital, leading to lower net profit margins, as suggested by the lack of correlation or negative effect of CR on NPM, with a probability of 0.563. According to this result, another variable is the current ratio, whose results showed a non-statistically negative impact on the net profit ratio, as its probability is larger than 0.05. This result is a major reason for accepting hypothesis H0 and vice versa while rejecting (H2a). This result is similar to that of Affandi et al. (2019), who found that the liquidity ratio has no statistically significant effect on the profitability ratio. Therefore, this result was so low in manufacturing companies in Iraq that it proved that its cash position on the forecast of net profit in this sector was equal to zero.

4.2.4. Hypothesis Test (H2b)

Simultaneously, there is an almost significant positive effect of the current rate on the gross profit margin with a probability of 0.0561. This implies that a more current rate can help achieve efficient inventory management and productivity, ultimately leading to higher total profit. Consequently, liquidity has a larger impact on performance, reflected in gross profit margins, than on net profit levels, whose impact is mitigated by other elements, including financial costs, taxes, and operating expenses. On the other hand, the current ratio as another variable that has a positive but statistically insignificant effect on the gross profit margin. Because its Prob is larger than 0.05, this leads to the acceptance of the null hypothesis, contrary to the results leading to the rejection of (H2b). The results of Arifin (2024) and Salih et al. (2024) support this.

4.2.5. Hypothesis Test (H3a)

Furthermore, the net profit ratio has a negative result on total asset turnover in the opposite direction. This suggests that asset turnover may be related to factors that decrease net profitability, although it increases operating efficiency, as seen in the gross profit margin. Simultaneously, increasing operating costs, such as taxes, interest, or administrative costs, will increase net loss. Price-cutting techniques to increase sales volume may result in higher asset turnover, which can increase net margins. However, the result indicates that total asset turnover has a statistically significant negative impact on the net profit margin. because their results showed a probability smaller than 0.05. Consequently, the proposed hypothesis was accepted, and the alternative hypothesis was rejected. However, Juliani et al. (2023) and Anggarani et al. (2024) indicate a negative impact on both financial performance and net profit margin.

4.2.6. Hypothesis Test (H3b)

The positive coefficient in Model 2 for total asset turnover suggests that an increase in asset utilization significantly increases the gross profit margin. This implies that the effective use of assets directly reduces the productivity or cost of goods supplied, thereby increasing gross profit. This indicates that the asset is effectively used in the production process. A faster turnover of assets seems to lead to more effective management of inventory, production, and sales, boosting total gross margins. However, at the same time, the total asset turnover variable has a significant positive effect on total profitability as their results show a probability smaller than 0.05. As a result, H0 was rejected, while the hypotheses (H3b) are accepted. This result is similar to those of Azizah et al. (2023) and Muhani et al. (2022). However, in contrast, Rahmawati et al. (2024) found that profit growth had no statistically significant effect on TAT.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This study indicates how profit margin ratios in Iraqi industrial enterprises from 2018 to 2023 are affected by (DER), (CR), and (TAT). The results of the above analyses indicate that DER hurts (NPM), indicating that the financial impact reduces profitability. simultaneously. (DER) has a positive effect on (GPM); the high DER results in Iraqi manufacturing firms indicating that in the capital structure, more debt is used than equity. Although debt can promote capital efficiency and growth, it can also skew the effects of operating cost overruns, underscoring the importance of a sound financial plan when using it for expansion. However, CR had a favorable marginal correlation with GPM. Total asset turnover has a large positive effect on GPM but a negative effect on NPM, indicating that while the effective use of assets increases revenue, operational inefficiencies may prevent this from being directed to better net profit. The differences in firm performance are confirmed by fixed effects analysis, which emphasizes different elements of the firm as important determinants of profit margin ratios. The TAT results show a significant negative effect on the net profit margin (NPM). Although asset recovery may increase operating efficiency, as shown by an increase in the gross profit margin, it may ultimately reduce net profit due to underlying factors such as lower prices, taxes, and increased costs, potentially leading to lower gross profit margins. In addition, TAT has a significant positive impact on the net profit margin (NPM). In other words, when

companies make more money per dime from their assets, they operate efficiently and manage their resources well. Gross profit margins are enhanced as a result of the effective use of assets, reducing costs in relation to sales. The implications of these findings are particularly relevant to the Iraqi industrial sector, which faces major challenges owing to economic instability. To make wise decisions that promote financial stability and growth, stakeholders, including investors, legislators, and managers, must understand the dynamics of these financial statistics. To improve their profitability in the face of the difficulties facing the Iraqi economy, companies must proactively manage their debt levels, maintain liquidity, and maximize asset utilization. Finally, this study adds insightful information on the financial performance of the Iraqi industrial sector and emphasizes the need for continued research to improve financial strategies that support the sector's long-term stability and profitability. Understanding these financial dynamics is becoming increasingly important for sustainable development and economic recovery in the region. One of the sectors that plays an important role in the development of the Iraqi economy is the manufacturing sector, because this sector can maintain economic independence and survival of any entity for a longer period. Simultaneously, it will be a factor in increasing national income within a certain framework.

5.2. Recommendation

The study suggests enhancing asset utilization, balancing debt and equity finance, and strengthening liquidity management to improve productivity and profitability in the manufacturing sector. It also recommends that policymakers support asset efficiency initiatives and financial stability measures. Future studies should consider additional variables and profitability measures for a more detailed analysis.

Ethical approval

Not Applicable

Informed consent statement

Not applicable.

Authors' contributions

SA conceptualized the study, developed the research design and variables (liquidity, solvency, profitability, and company value), compiled the 2019–2023 panel data from Indonesia Stock Exchange retail sub-sector firms, conducted the purposive sampling and SPSS-based multiple linear regression analysis, and drafted the manuscript. APEP contributed to data verification and cleaning, supported the operationalization of indicators, assisted in interpretation of statistical outputs, and improved the structure of the results and discussion sections. AKS assisted in literature review and theoretical framing, reviewed the methodology and robustness of the analysis, and performed critical revision and final editing. All authors have read and approved the final version of the manuscript.

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No potential conflict of interest was reported by the author(s).

Data availability statement

The data presented in this study are available on request from the corresponding author due to privacy reasons.

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