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## The Impact of Activity Ratios on Change in Earnings (Case Study:Based on Jordanian Food Companies)

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### Abstract

*The purpose of this article is to assess whether the change in earnings of Jordanian food companies influenced by activity ratios evaluated TATR and FATR. Prior authors rely on various metrics to estimate activity ratios, however, relied on two indicators in this article (total assets turnover ratio and fixed assets turnover ratio) as independent variables and used (change in earnings) as dependent variable. To fulfill this objective, the study's population comprises the food companies sector. The sample, on the other hand, comprises 7 firms that are actively operating in Jordan and are listed on the Amman Stock Exchange. This sample is considered as panel data, encompassing the period from 2015 to 2019, the data for this study was acquired from the annual financial reports submitted by these firms. The results reached reveal that a positive influence of TATR and FATR on change in earnings achieved by Jordanian food companies. The results outlined above are in line with the current literature reviews integrated into this study, providing further support for the theoretical discussions on the interaction between TATR and FATR, as well as their impact on earnings changes.*

**Keywords:** Total assets turnover ratio, fixed assets turnover ratio, change in earnings, Jordanian food companies, Panel Data.

### Introduction

The food sector stands out as a critical component in every country's economy, driving its growth and resilience. Hence, it becomes the shared responsibility of governments and investors to accord it the attention it deserves, because of its impact in the short and long term on the economy (Nawaiseh et al. 2019).

Managing operational activities effectively in companies is extremely important because it represents how it affects the financial performance of the company and investor satisfaction. The most important issues facing corporate management are whether the company is able to manage its operational activities and generate revenues effectively by relying on available resources. (pang et al. 2023). Activity ratios are a fundamental factor in determining the efficiency of financial management. Whereas it signifies the capability to rotate assets effectively, utilization of its fixed assets, ensuring no idle capacity, and effectively leverages its investments in machinery, equipment, and other fixed assets in order to maximize

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sales revenue.

As the mismanagement of the activity ratios will lead to incurring costs and negatively affecting revenue volume and overall firm profitability, this is because the company is not able to fulfill the orders from their specific customer segment, which can result in unsatisfied customers, decreased loyalty and lost sales opportunities.

## **Research Problem**

As a result of the growing number of clients who have expressed interest in engaging and interacting with food companies and conducting business with them, consequently, this resulted in a rise in the assets of these companies, enabling them to fulfill the orders from their specific customer segment. Furthermore, this led to an increase in investments in fixed assets to facilitate and support operational activities and daily activities. Successful management is characterized by making decisions that contribute to the optimal utilization of these assets. Effectively managing these assets is a crucial aspect that requires a thorough examination by managers due to its significant influence on the financial situation of the firm. Management will possess the ability to make the right decisions as per the circumstances. (Frihat et al. 2023). It will facilitate to ascertain the optimal levels of fixed assets and other assets holdings necessary to maximize the profitability of Jordanian food companies. The main issue addressed in this paper is the failure to fully utilize all assets, especially fixed assets, which can result in incurring costs and negatively affecting revenue volume and overall firm profitability (Nawaiseh, M. E., Bader, A., & Nawaiseh, H. N. 2019).

## **Research Objectives**

The aim of this article is to prove the influence of activity ratios on change in earnings. The main goal of potential and current investors is how to reach the desired revenue level through investments. This article encompasses an analysis of the impact of activity (efficiency) ratios on change in earnings in Jordanian food firms. Also, this study aims to provide useful information that helps investors to make appropriate decisions related to investment activities.

## **Research Questions**

1. Will the firm's earnings be impacted by the activity ratio?
2. Which is the appropriate degree of total assets to be kept to attain the targeted earnings?
3. Which is the appropriate degree of fixed assets to be kept to attain the targeted earnings?

## **Literature Review**

Wang (2023) The focus of this research is to analyze how the turnover of property, plant and equipment, and working capital affects profitability. The study's sample comprises 14 publicly listed Indonesia Companies, covering the period started 2014 to 2018. The findings reveal that the turnover of property, plant and equipment has a positive and statistically significant effect on profitability (Bani Ahmad, et al. 2023) while the working capital turnover ratio was found to have an insignificant impact on profitability. (Allahham, et al., 2024) the authors concluded that the combined effect of both variables positively and significantly affects profitability.

Khan, et al (2023) The aim of this paper is to analyze the impact of various financial ratios on profitability. Specifically, the study will focus on the cash ratio (CR) to assess liquidity, debt to equity ratio (DER), and the total assets turnover ratio (TATR). By investigating these ratios, the researcher aims

to understand how they influence the profitability of the companies under study. (Ahmad, et al., 2024) The researcher utilized a sample comprising 18 manufacturing that publicly listed Indonesia Companies covered the period started 2012 to 2017. The study's results reveal that profitability is positively influenced by the (CR), (DER), and (TATR).

Baraja and Yosya (2018) This research aims to investigate the correlation between various financial ratios and changes in earnings for consumer goods manufacturing companies in Indonesia during 2014 to 2017. The article will analyze the correlation among the following ratios: current ratio serves as the measure for liquidity, net profit margin serves as the measure for profitability, total assets turnover serves as the measure for activity, and debt to equity ratio serves as the measure for solvency. (Daoud et al. 2023) By examining these ratios, the researchers seek to understand how they relate to the changes in earnings for consumer goods manufacturing companies in the specified time frame. The findings reveal that the profitability ratio has a meaningful positive influence on the changes in earnings. Conversely, the remaining ratios do not exhibit any influence on the changes in earnings.

Lin (2023) examine how the profitability of ten energy firms in Istanbul was influenced by the liquidity ratio, financial structure ratio, and productivity ratio during the period started 2008 to 2015. The findings reveal a positive correlation between Total Asset Turnover Ratio, Liquidity Ratio, and profitability. However, the ratios related to financial Leverage, and Fixed Asset Turnover have a detrimental effect on profitability, showing a negative impact.

Warrad (2015) aims to investigate whether profitability is influenced by two activity indicators: Total Asset Turnover Ratio (TATR) and the Fixed Asset Turnover Ratio (FATR). The study will focus on the Jordanian industrial sectors and analyze data for the period from 2008 to 2011. By examining the correlation among activity metrics and profit achieved by this firms, the researchers seek to understand if there is any correlation between (TATR) and (FATR) with the profitability of companies operating in the Jordanian industrial sectors during the specified time frame. (Ahmad et al. 2024) The study intends to provide insights into how efficiently companies are utilizing their assets to generate profits. The findings reveal that both (TATR) and (FATR) have a statistically significant influence on earnings, any change in activity ratio thus led to change in net income.

## Research Hypotheses

**H0:** There is no significant relationship among activity ratio and change in earnings.

Sub hypotheses:

**H0.1:** There is no significant relationship among total assets turnover ratio and change in earnings.

**H0.2:** There is no significant relationship among fixed assets turnover ratio and change in earnings.

## Population and Sample

In this article, Jordanian food companies are regarded as the population under consideration, In accordance with this, the sample consisting of 7 food companies that operated in Jordan, was specifically chosen from the Amman Stock Exchange over the period spanning from 2015 to 2019. A total of 35 observations were derived from the annual reports available on the websites related to this firms. The data will be elucidated through descriptive analysis, correlation analysis will be utilized to examine the association among activity ratio and changes in earnings .

## Variables Selection and Measurements

**Dependent Variable**

**\*\*Change in earnings:** it measured by calculating the difference between the profit of the current year and the profit obtained in the previous year (William, et al, 2024).

Change in earnings is calculated as the following:

$$\text{Change in earnings} = \frac{\text{Net income}_t - \text{Net income}_{t-1}}{\text{Net income}_{t-1}} \dots(1)$$

**Independent Variables**

**\*\*Total assets turnover ratio:** it is defined as net sales divided by the total assets of a company. This ratio provides insight into ability of the company's to use its assets effectively for sales generated. It measures how effectively the assets are being employed to generate revenue for the business. (Munawar 2019)

calculated through the following ratio

$$\text{Total assets turnover ratio} = \text{Sale} / \text{Total assets} \dots(2)$$

A higher total assets turnover ratio generally indicates better asset utilization and more efficient operations.

**\*\*Fixed assets turnover ratio:** It quantifies the effectiveness of a company's utilization of fixed assets, including machinery, equipment, and property, in generating revenue ( mustafa et al. 2023).

calculated through the following ratio

$$\text{Fixed assets turnover ratio} = \text{Sale} / \text{Net fixed assets} \dots(3)$$

any increases of FATR signifies that the company is efficiently using its fixed assets to generate sales. This suggests that the company is making effective use of its machinery, equipment ( yahiya et al. 2023) and other fixed assets to produce goods or provide services, resulting in increased sales and potentially higher profitability. A high fixed assets turnover ratio is generally considered a positive indicator of operational efficiency and effective resource utilization ( warred 2015 ).

Type of variable	variable name	Variable description	Symbol	Assessment
Dependent Variable	Change in earnings	Change in earnings	CE	$\frac{\text{Net income}_t - \text{Net income}_{t-1}}{\text{Net income}_{t-1}}$
Independent variable	Total assets turnover ratio	Total assets turnover ratio	TATR	Sale /total assets
Independent variable	Fixed assets turnover ratio	Fixed assets turnover ratio	FATR	Sale /net fixed assets

**Study Model**

$$CE_{x,t} = \alpha + \beta_1 TATR_{x,t} + \beta_2 FATR_{x,t} + \epsilon_{x,t} \dots(4)$$

Where:

CE<sub>x,t</sub>: change in earnings of the firm (x) at time (t).

α: constant.

$TATR_{x,t}$ : Total assets turnover ratio held by the firm (x) at time (t).

$FATR_{x,t}$ : Fixed assets turnover ratio held by the firm (x) at time (t).

$\epsilon_{x,t}$ : error of estimation.

In order to test the study hypotheses, the research models can be designed as follows:

$$\text{Change in earnings (CE)} = 1.460 + 0.671 \text{ TATR} + e$$

$$\text{Change in earnings (CE)} = 4.320 + 0.780 \text{ FATR} + e$$

$$\text{Change in earnings (CE)} = 0.273 + 0.545 \text{ TATR} + 0.623 \text{ FATR} + e$$

## Descriptive analysis

The descriptive analysis table below illustrates the association between (TATR) and (FATR) as the independent variables, with change in earnings (CE) as the dependent variable:

Table 4-1 descriptive analysis

	<b>CE</b>	<b>TATR</b>	<b>FATR</b>
Mean	0.120	0.042	3.103
Median	0.101	0.043	2.829
Min	0.02	0.029	1.365
Max	0.380	0.060	5.320
Std. Dev	0.205	0.08	1.290
Observations	<b>35</b>	<b>35</b>	<b>35</b>

Note: the CE stands for the change in earnings. TATR represent total assets turnover ratio. FATR is an Symbol for fixed assets turnover ratio.

Regarding to the CE, the outcomes illustrate that the mean change in earnings of Jordanian food companies is 0.120. The minimum change in earnings is 0.02 . Meanwhile, the highest value is 0.38. The median value is 0.10. The spread of values from the average for the CE is 0.205. This suggests that, each Jordanian food company carries a 20.5% risk of income change deviation from the arithmetic mean associated with this sample.

Regarding to the TATR, the outcomes illustrate that the average mean for each dollar held in assets in order to generate sale revenue of Jordanian food companies is 0.042 . The minimum sale generated based on total assets held by Jordanian food companies is 2.9 % . Meanwhile, the highest value is 6%. The median value is 4.3%. The spread of values from the average for the TATR is 8 % .The increases in this ratio means the management of firm uses and manages its assets with high efficiency and achieves desired revenues that satisfy investors.

Regarding to FATR, the findings indicate that the average mean for each dollar invested in fixed assets that operating in businesses that generate sale revenue of Jordanian food companies is 3.10 \$ . Moreover, the minimum sale generated based on property, plant and equipment held by Jordanian food companies is 1.36 . Meanwhile, the highest value is 5.32 . The median value is 2.82 . The spread of values from the average for the FATR is 1.29 .The increases in this ratio means the fixed assets that are invested by the firm and used in operational activities that help to increase the company's revenues and thus maximize its profits.

## Correlation Coefficients

Table 4-2 correlation matrix

	<b>CE</b>	<b>TATR</b>	<b>FATR</b>
<b>CE</b>	<b>1</b>		
<b>TATR</b>	<b>0.588</b>	<b>1</b>	
<b>FATR</b>	<b>0.608</b>	<b>0.394</b>	<b>1</b>

Note: the CE stands for the change in earnings. TATR represent total assets turnover ratio. FATR is an Symbol for fixed assets turnover ratio.

The correlation Outcomes illustrates a total assets turnover ratio exhibits a positive and favorable correlation with changes in earnings, with 0.588 as coefficient parameter, a change of 0.588 in the (CE) variable is expected for every one-unit change in the (TATR) variable, and this change is in the same direction. The increases in assets turnover ratio means the company is efficiently utilize of resources to generate sales , which leads to enhance income.

In addition, there is a positive correlation can be noted between fixed assets turnover ratio and change in earnings, with 0.608 as coefficient parameter. a change of 0.608 in the (CE) variable is expected for every one-unit change in the (FATR) variable. The increases in fixed assets turnover ratio this indicates that a company has effectively used investment in machinery, equipment, and other fixed assets to generate sales revenue and this lead to growth in earnings.

Table 4-3 variance inflation factor

<i>Variable</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>VIF</i>	<i>Tolerance</i>
TATR	0.588	0.345	0.334	1.528	0.654
FATR	0.608	0.446	0.431	1.805	0.553

The coefficient determination is reflected by the R-squared value, based on the above table, the value of the adjusted R square related to TATR is 0.334, which mean the change in earnings is explained and clarified by the independent variable TATR by 33.4 %, whereas explained and clarified by FATR by 43.1%.

The VIF test presented above assists in understanding whether a relationship exists between the independent variables to make sure if multicollinearity exists or not. Drawing conclusions from the data presented in the table above, the VIF test results were less than 10. This indicates that the independent variables do not affect each other, which means that there is no multicollinearity between the variables (Brien 2007).

## Regression Analysis

Table 4-4 displays the regression outcomes employing fixed effects as the analytical tool

	<b>CE</b>
C	0.273
TATR	0.545***
FATR	0.623***
F – statistic	3.618 ***
Likelihood ratio	68.27 ***

Note: "" indicates a p-value at a 10% significance level, "" signifies a p-value at a 5% significance level,

and "" denotes a p-value at a 1% significance level.

The result that was acquired related to TATR illustrate signifies a P-value around 0.01, offering compelling support for the alternative hypothesis, which asserts that there is a significant relationship among total assets turnover ratio and change in earnings. This implies that the change in earnings has positively influenced by TATR. As this ratio rises, it provides evidence of the company is able to utilize and rotate its total assets effectively, this lead to efficient operations and maximize sales revenue without increases of share outstanding. Overall, any increase in this ratio signifies an enhancement in the company's financial performance. This improvement enables the company to increase the returns earned by its investors. The results of this study related to this hypothesis are in line with the research performed by Munawar (2019), APAN and İSLAMOĞLU(2018), and Warrad(2015). In contrast, the findings of this paper diverge and do not align with the research performed by Baraja and yosya (2018).

The result that was acquired related to FATR, illustrate signifies a P-value around 0.01, offering compelling support for the alternative hypothesis, which asserts that there is a significant relationship among fixed assets turnover ratio and change in earnings. This implies that the change in earnings has positively influenced by FATR. As this ratio rises, it provides evidence that the company maximizes the utilization of its fixed assets, ensuring no idle capacity, and effectively leverages its investments in machinery, equipment, and other fixed assets to generate sales revenue, and this lead to growth in earnings. The results of this study related to this hypothesis are in line with the research performed by Puspita et al. (2021) and Warrad(2015). In contrast, the findings of this paper diverge and do not align with the research performed by Baraja and yosya (2018) and APAN and İSLAMOĞLU( 2018 ).

Table 4-5 outcomes of hypotheses test

Hypothesis	
There is no significant relationship among total assets turnover ratio and change in earnings.	Reject
There is no significant relationship among fixed assets turnover ratio and change in earnings.	Reject

## Conclusion

In preceding years, numerous studies have analyzed the performance of food companies, evaluating factors such as Net profit margin, ROA, ROE, and changes in earnings, along with the contributing elements. The results of these studies have revealed diversity and variability, which can be partly attributed to variations in sample sizes among different research studies.

This research seeks to explore the potential presence of a relationship among TATR, FATR, and the profitability of Jordanian food companies, assessed by changes in earnings. This research employed a sample collected from 7 Jordanian food companies, spanning from 2015 to 2019.

The conclusions drawn in this paper illustrate that the profit achieved by these firms in term of change in earnings is positively impacted by both the total assets turnover ratio and the fixed assets turnover ratio.

## Recommendations

This study suggests that management in Jordanian food companies should prioritize activity ratios, rotate assets effectively, and make decisions that facilitate the optimal utilization of these assets, Particularly

with regard to machinery, equipment, and other fixed assets, which can result in cost reduction, enhanced financial performance, and increasing the returns obtained by investors. Due to the substantial impact of activity ratios, they exert a significant influence on the earnings achieved by these firms. Additionally, optimizing activity ratios is crucial for enabling these firms to meet the demands of their specific customer segments and to support their day-to-day operational activities. Thus, activity ratios represent a crucial aspect that should not be disregarded within any institution.

## **Limitations**

This research faced several constraints, primarily related to the accessibility of the dataset. Obtaining data on Jordanian food companies posed a challenge, as not all financial statements were readily accessible through websites. As a result, certain Jordanian food companies had to be omitted from the sample because of financial statements that are no longer current or up to date. Moreover, the study's limited coverage period from 2015 to 2019 constrained the analysis to a particular timeframe, potentially overlooking various economic cycles or phases. Additionally, the study's sample size was confined to only seven firms. It is essential to recognize and take into account these limitations when interpreting the results and forming conclusions based on the study.

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