

# The Impact of Activity Ratios among Industrial Sectors' Performance: Jordanian Case

Lina Warrad

Accounting Department, Faculty of Economic and Administrative Science, Applied Science University  
Jordan-Amman (11931), P.O. Box (166)  
E-mail: l\_warrad@asu.edu.jo

Dr. Rania Al Omari

Al-Asra University, Faculty of Economic and Administrative Science, Accounting Department  
Jordan-Amman (11622), P.O. Box (22.33)

## Abstract

Jordanian industrial sector is understood to be a primary key sector of the economy due to multitude of opportunities in this sector. It is known that the manufacturer who pursuing the legal compliances of the business constitute the frame of the industrial sectors. This study conducted to verify the impact of total asset turnover ratio and fixed asset turnover ratio on return on assets (ROA) among Jordanian industrial sectors. A simple liner regression used to test a period 2008- 2011 in order to conclude the extent of the impact of activity turnover ratios on Companies' performance among Jordanian industrial sectors. The study showed there is significant impact of total asset turnover ratio on Jordanian Industrial sectors' return on asset (ROA), thus changes in return on asset (ROA) have described by total asset turnover ratio. Also, there is significant impact of fixed asset turnover ratio on Jordanian Industrial sectors' return on asset (ROA), thus changes in return on assets (ROA) have described by fixed assets turnover ratio, finally, there is significant impact of activity turnover ratios on Jordanian Industrial sectors' performance. The study revealed also that the Textiles, Leathers and Clothing's sector has the lowest Total asset turnover ratio and the Tobacco and Cigarettes sector has the highest and Paper and Cardboard Industries sector has the lowest fixed assets turnover but the Tobacco and Cigarettes has the highest, on the other hand that the Glass and Ceramic Industries sector has the lowest return on assets and the Mining and Extraction sector has the highest.

**Keywords:** Total Asset Turnover Ratio, Fixed Asset Turnover Ratio, Return on Assets (ROA), Amman Stock Exchange (ASE).

## 1. Introduction

Most professional analysts and investors tend to focus on return on asset (ROA) as their primary measure of firm performance. Many managers and executives focus inventively on this profitability metric as well, recognizing that it is the one that seems to get the most attention from the investor community. (<http://blogs.hbr.org/>).

ROA is a better metric of financial performance than income statement profitability measures like return on sales (ROS). Return on asset explicitly takes into account the assets used to support business activities. It determines whether the company is able to generate an adequate profit on its assets rather than simply showing robust return on sales (ROS). (<http://blogs.hbr.org/>).

This paper aims to will try to discover the existence of an effect of operating performance expressed by turnover ratios such as total asset turnover and fixed asset turnover on profitability expressed by return on asset (ROA) during the period from 2008 to 2011.

## 2. Previous Studies

Determining the significant determinants of return on assets in Sri Lankan microfinance institutions was located by M.N.S.W. Dissanayake (2012) study which rest on 11 microfinance institutions in Sri Lanka, during period the period 2005-2010. profitability was expressed by return on asset ratio (ROA). Efficiency and productivity were expressed by operating expense ratio, personal productivity ratio and cost per borrower ratio. Financing structure was expressed by debt-to-equity ratio. Portfolio quality is expressed by write-off ratio. The researcher concluded that, operating expense ratio, cost per borrower ratio and debt-to-equity ratio are statistically significant predictor variables in determining return on asset ratio. Moreover, write off ratio is also another important predictor variable in determining return on asset according to the significance.

The relationship between the return on asset (ROA), return on equity (ROE) and return on investment (ROI) ratios together and separately in Jordanian insurance public companies share prices was investigated by Kabajeh M., et al. (2012) study which applied during the period from 2002 to 2007. The study showed a positive relationship between the return on asset (ROA), return on equity (ROE) and return on investment (ROI) ratios together with Jordanian insurance public companies share prices. The results also showed a positive but low relationship between each of return on asset (ROA) ratio separately and return on investment (ROI) ratio

separately with Jordanian insurance public companies share prices. However, the results concluded no relationship between the return on equity (ROE) ratio separately with Jordanian insurance public companies market share prices.

The assessment of the operational efficiency of the companies in the Indian organized retail industry was applied by Choudhary, et al. (2012) study which used a Panel data that collected from CMIE's Prowess database for the period from 2000 to 2010 for three retailers. ANOVA was used to inspect the significance of differences in the number of days of inventory on hand of the case companies, and for analyzing financial impact of the number of days of inventory on hand, regression analysis was used. The results showed a negative relationship between the number of days of inventory on hand and the financial performance ratios. Significant results could not be obtained for all the companies under study. The findings had strategy implications as the measures could be applied for improving the inventory management and thereby the financial performance by the retailers.

A multivariate discriminate model to differentiate between low efficiency and high efficiency community banks (less than \$1 billion in total assets) depends on the efficiency ratios were designed by Hays, et al. (2009), a study used a commonly financial performance measure that relates non-interest expenses to total operating income. The model included indexes for the banking regulatory CAMELS rating variables including: the equity capital to total asset ratio, net charge-offs to loans, salaries to average assets, return on average assets, the liquidity ratio and the one year GAP ratio. The model was tested using data for the period from 2006 to 2007 and 2008. This included good performance as well as bad industry conditions related to the financial crisis.

Whether and how CEO turnover in Ukrainian firms is effect its performance was viewed by Muravyev A., et al. (2009) study which applied on Ukrainian joint stock companies during the period from 2002 to 2006. The results found a negative significant relation between the past performance of firms expressed by return on sales (ROS) and return on asset (ROA), and the potentially of managerial turnover. While does not seem to have relationship depends on the other factors such as managerial ownership and supervisory board size, no significant entrenchments was found of effects associated with ownership by managers. Overall, the analysis suggested that corporate governance in Ukraine operates with a certain degree of efficiency, despite the well-known lacunas in the country's institutional environment.

The impact of inventory turnover on the performance of the retail firm was investigated by Aghazadeh S. (2009) study which its hypothesis tried to approve that inventory turnovers are directly correlated to the performance of the company. The results showed that the variance of annual inventory turnovers of a company can best explain variations in company performance in the retail industry. Also, showed the shifts in the annual inventory ratios of companies are used as indicators to predict future stock performance. The ability of a company to control its annual inventory turnovers variance is a good indicator as to the quality of that management in other areas of the retail firm. Finally, the maintenance of the inventory turnover ratio is analyzed related to how it is applied in various firms that are included in the sample of data.

### **3. Hypotheses**

#### **3.1 Main hypothesis**

For studying the impact of total asset turnover ratio and fixed asset turnover ratio on return on assets (ROA) among Jordanian industrial sectors the researcher test the following hypotheses:

**H0:** There is no significant impact of activity turnover ratios on Jordanian Industrial Sectors' performance.

#### **3.2 Subsidiary hypothesis**

**H01:** There is no significant impact of total asset turnover ratio on Jordanian Industrial Sectors' return on assets (ROA).

**H02:** There is no significant impact of fixed asset turnover ratio on Jordanian Industrial Sectors' return on assets (ROA).

### **4. Research Methodology**

This section presents research methodology adopted in this study. It explains sample selection criteria, variables of the study and research model, hypotheses.

#### **4.1. The Research Sample**

*The study examines financial reports for 11 Jordanian Industrial sectors listed on the Amman Stock Exchange (ASE) for the period from 2008 to 2011*

## 4.2. Variables of the Study

### 4.2.1. Dependent Variable- Return on Assets (ROA)

**Return on Asset (ROA):** Return on asset is a mmeasure of afirm’s ability to utilize its assets to generate profits by comparing income with the assets that generate the profits.

It can be calculated as follow:

$$\frac{\text{Net Income}}{\text{Average Total Assets}}$$

Practically, the ROA measure is sometimes computed using either net income or earnings before tax (EBT) as the numerator.

### 4.2.2. Independent variables- Total Asset Turnover Ratio, Fixed Asset Turnover Ratio

**Total Asset Turnover Ratio:** Asset turnover ratio is a measure of how well the assets of a business are being used to generate sales, a high asset turnover ratio means that the company is generating a lot of sales, but to do this it might have to keep its price down and so accept a low profit margin per \$1 of sales.

It can be calculated as follow:

$$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Average Total Assets}}$$

**Fixed Asset Turnover Ratio:** Fixed asset turnover is a measures a firm's ability to generate sales by investing in fixed assets A higher fixed asset turnover ratio means that the company has been more effective in using the investment in fixed assets to generate sales.

It can be calculated as follow:

$$\text{Fixed Asset Turnover} = \frac{\text{Sales}}{\text{Average Fixed Assets}}$$

## 4.3. Research Model

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

$$\text{Return on asset (ROA)} = -10.630 + 25.359\text{TATR} + e$$

$$\text{Return on asset (ROA)} = -9.639 + 8.768 \text{FAT} + e$$

$$\text{Return on asset (ROA)} = -11.018 + 8.818\text{TATR} + 6.455 \text{FAT} + e$$

### 4.3.1. Liner Regressions

To test the research hypotheses SPSS program was used to prepare the table of analysis of variance (ANOVA table) as shown in table below:

**Table (1) Total assets turnover**

Variable	R	R Square	Adjusted R Square
Total assets turnover	.668	.446	.433

ANOVA (table) as shown in table below:

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1343.842	1	1343.842	33.807	.000 <sup>a</sup>
Residual	1669.539	42	39.751		
Total	3013.380	43			

- Predictors: (constant), Total asset turnover
- Dependent Variable Return on asset (ROA)

By reviewing the table above the researcher find that the P value = (000) < 5% is significant, and this supports the reject of main null hypothesis. There is no significant impact of total asset turnover ratio on Jordanian Industrial sectors’ return on asset (ROA). And accept the alternative hypothesis; there is significant impact of total asset turnover ratio on Jordanian Industrial Sectors’ return on asset (ROA). Whereas the adjusted r-squared of test is (.433), thus changes in return on asset (ROA) have described by total asset turnover ratio.

$$\text{Return on asset (ROA)} = -10.630 + 25.359\text{TATR} + e$$

**Table (2)**

Variable	R	R Square	Adjusted R Square
Fixed asset turnover	.722	.521	.509

(ANOVA table) as shown in table below:

ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1569.435	1	1569.435	45.650	000 <sup>a</sup>
Residual	1443.946	42	34.380		
Total	3013.380	43			

a. Predictors: (constant), Fixed asset turnover

b. Dependent Variable return on asset (ROA)

By reviewing the table above we find that the P value = (000) < 5% is significant, and this supports the reject of main null hypothesis. There is no significant impact of fixed asset turnover ratio on Jordanian Industrial Sectors' return on asset (ROA). And accept the alternative hypothesis; there is significant impact of fixed asset turnover ratio on Jordanian Industrial sectors' return on asset (ROA). Whereas the adjusted r-squared of test is (.521), thus changes in return on assets (ROA) have described by fixed assets turnover ratio.

$$\text{Return on asset (ROA)} = -9.639 + 8.768 \text{ FAT} + e$$

**Table (3)**

Model	R	R Square	Adjusted R Square
1	.734 <sup>a</sup>	.583	.516

(ANOVA table) as shown in table below:

ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1622.699	2	811.803	23.920	000 <sup>a</sup>
Residual	1390.681	41	33.919		
Total	3013.380	43			

a. Predictors: (constant), Fixed asset turnover, Total asset turnover

b. Dependent Variable Return on asset (ROA)

By reviewing the table above we find that the P value = (000) < 5% is significant, and this supports the reject of main null hypothesis. There is no significant impact of activity turnover ratios on Jordanian Industrial sectors' performance. And accept the alternative hypothesis; there is significant impact of activity turnover ratios on Jordanian Industrial sectors' performance.

$$\text{ROA} = -11.018 + 8.818 \text{ TATR} + 6.455 \text{ FAT} + e$$

## 5. Statistical Analysis

This section presents the results of descriptive statistic for the study variables.

### Independent variables:

Total Asset Turnover Ratio

Fixed Asset Turnover Ratio

Table (4)  
 The rank of the mean for Independent variable Total Assets Turnover Ratio And Fixed Assets Turnover

Sector Name	Total Assets Turnover Ratio	rank	Fixed Assets Turnover	rank
Chemicals	0.54	7	1.37	6
Glass and Ceramic Industries	0.34	3	0.65	2
Paper and Cardboard Industries	0.24	2	0.46	1
Pharmaceutical and Medical Industries	0.42	4	1.79	9
Tobacco and Cigarettes	0.89	11	2.62	11
Engineering & Construction	0.53	6	1.21	5
Printing & Packaging Sector	0.61	8	1.19	4
Electrical Industries Sector	0.51	5	1.50	7
Food and Beverages	0.71	9	1.60	8
Mining and Extraction	0.75	10	2.04	10
Textiles, Leathers and Clothing's Sector	0.24	1	1.03	3

By reviewing the table above the researcher find that the Textiles, Leathers and Clothing's sector has the lowest Total asset turnover ratio and the Tobacco and Cigarettes sector has the highest and Paper and Cardboard Industries sector has the lowest fixed assets turnover but the Tobacco and Cigarettes has the highest.

#### Dependent variable

Table (5)  
 The rank of the mean for dependent variable Return on Assets

Sector Name	Return on Assets (ROA)	rank
Chemicals	1.70	6
Glass and Ceramic Industries	-10.55	1
Paper and Cardboard Industries	-3.71	2
Pharmaceutical and Medical Industries	3.20	8
Tobacco and Cigarettes	12.62	10
Engineering & Construction	0.46	4
Printing & Packaging Sector	6.54	9
Electrical Industries Sector	-2.45	3
Food and Beverages	1.58	5
Mining and Extraction	17.47	11
Textiles, Leathers and Clothing's Sector	2.66	7

By reviewing the table above we find that the Glass and Ceramic Industries sector has the lowest return on assets and the Mining and Extraction sector has the highest.

#### 6. Summary and Conclusion

This study is achieved to approve if there is a significant impact of activity turnover ratios expressed by total asset turnover and fixed asset turnover among Industrial sectors' performance expressed by return on asset (ROA).

The study approved a significant impact of total asset turnover ratio on Jordanian Industrial sectors' return on asset (ROA), thus changes in return on asset (ROA) have described by total asset turnover ratio. Also, there is significant impact of fixed asset turnover ratio on Jordanian Industrial sectors' return on asset (ROA), thus changes in return on assets (ROA) have described by fixed assets turnover ratio, finally, there is significant impact of activity turnover ratios on Jordanian Industrial sectors' performance.

The study conclude also that the Textiles, Leathers and Clothing's sector has the lowest Total asset turnover ratio and the Tobacco and Cigarettes sector has the highest and Paper and Cardboard Industries sector has the lowest fixed assets turnover but the Tobacco and Cigarettes has the highest, on the other hand that the Glass and Ceramic Industries sector has the lowest return on assets and the Mining and Extraction sector has the highest.

The study results are going with the results of some past studies such as Kabajeh M., et al. (2012), Hays, et al. (2009) and Muravyev A., et al. (2009).

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