

# The Impact of Activity Ratio Towards Firm's Performance of the Listed Healthcare Companies in Singapore Exchange (SGX)

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## Abstract

**Propose:** This research determines the impacts of activity ratio towards company's performance in healthcare industries that are listed on the Singapore Stock Exchange. Five independent variables used in this study are Total Assets Turnover (TATO), Fixed Assets Turnover (FATO), Working Capital Turnover (WCTO), Receivables Turnover (RTO), Inventory Turnover (ITO). The dependent variable used in this study is a company's financial performance which is measured by Return on Assets (ROA) and Net Profit Margin (NPM).

**Design/methodology/approach:** A total of 25 companies with complete data from the healthcare industries have been chosen. This study used secondary data derived from the financial statements over 6 years from 2017 – 2021. The data has been analyzed by using regression analysis in Statistical Package for Social Sciences (SPSS).

**Finding:** The findings revealed that TATO, ITO, FATO have no impact towards ROA while RTO and WCTO have impact towards ROA. However, all variables have an impact on a company's performance that is measured by NPM.

**Practical implications:** The paper recommends that companies pay attention to asset management and profitability ratios to improve their performance, and investors should consider these factors when investing in healthcare companies.

**Keywords:** Activity Ratio, Firm's Performance, Healthcare Industries, Regression Analysis

## Introduction

The research was conducted to determine the impact of activity ratios towards company's performance in Singapore healthcare industry. In a globalizing world, firms have faced fierce competition among themselves, which has forced them to improve their financial performance. Singapore has shown significant advancements in healthcare financing through various reforms (Mohammad et. al, 2016). Therefore, the management team and researcher have always been interested in evaluating the company's performance. Financial performance is a complete evaluation of how effectively a firm can utilize its resources to generate sales (CFI Team, 2022). It is useful for both internal and external users as this will influence the decision-making process.

Various studies conducted show that healthcare inflation rate in Singapore has resulted in a higher medical cost. According to Lim (2022) the cost of healthcare has increased by 54.8% over a period of 20 years and the average healthcare inflation rate was 2.21%. Singapore healthcare index shows positive correlation to Consumer Price Index (CPI) during periods of high inflation from 2000 - 2013. This shows that healthcare is beneficiary during this period which can affect the trend of healthcare expenditure. A business tends to increase its

inventories when they forecast inflation as the prices are low and this will cause a decrease in inventory ratio.

A firm's performance can be described as its outlook, growth potential, and likelihood of good development in the future (Dirvi, 2019). A firm's performance can be evaluated by using a broad range of indicators. Financial ratios can be used to compare a firm's performance with others in the same industry (Basu, 2019). Assessing activity ratio can show how efficiently a firm can manage its resources and how this affects its profitability ratio (Chron, 2020).

Activity ratio is a ratio that indicates a company's capacity and effectiveness in using its assets (Sinaga, et al., 2017). Activity ratio plays a significant role in evaluating how well the company's balance sheet components are used when managing the operations. International Business Machines Corporation (2022) stated that Singapore is one of the most successful healthcare systems in the world which required them to analyze data on related activity for cost reduction and improving quality of care. According to Fang (2022) population aging in Singapore caused an increase in national healthcare spending since elderly consumed more healthcare than the young. Due to population ages, the healthcare industry will gain a higher net income which will affect the industry's financial ratios.

Besides that, in net days in account receivable and cash collections as a percentage of net revenue. These companies must take steps to improve their cash flow to increase their liquidity ratio. According to Beasley (2020) in each hospital there must be an indicator called patient revenue indicator that includes bad debts percentage and net to gross percentage by payer class. The hospital must address whether the shifts in payer mix need to be addressed or not.

Net profit growth can affect the healthcare industry in Singapore. This can be proved based on Thomson Medical profit that increased due to larger average bill size, increase in patient load and Covid-19 related projects (Singapore Business Review, 2022). Raffles Medical records an increase in net profit by reducing the purchases and contracted services, together with lowering its inventories (Singapore Business Review, 2022). Other than that, returning local and international patients had increased the net profit growth of Raffles Medical by 54.4% (Singapore Business Review, 2022). The increase in net profit shows that the firm is profitable and will affect its financial ratio.

Profitability is an important element in measuring a company's performance because every company in the healthcare industry is competing with others to increase their profitability. It is important for a company to measure its performance using financial ratios (Anggarini, et al., 2022). ROA is commonly used to measure a firm's profitability which is basically affected by several ratios related to activity ratio (Annaria, 2021). Most researchers just used ROA to measure the firm's performance, however, ROA and NPM are the two best metrics to be calculated together in measuring the firm's performance in an industry (Chron, 2020).

Arsyad, et al. (2021) suggest adding other variables to the cash position, company size and NPM and using other industrial sectors in further research. A company's profitability is impacted by the chosen independent variables in research. Therefore, it is suggested to add more variables to determine factors that might affect a company's profitability (Larasati and Purwanto, 2022). Yulianti and Syarif (2021) suggest that further researchers expand to other

industries so that a comparison between industries can be made. Hence, this research is conducted to determine the impact of activity ratio towards firm's performance in Singapore's healthcare industry.

### **Research Objective**

The finalized research objectives of this current study are as follows:

1. To determine the impact of activity ratio towards ROA.
2. To determine the impact of activity ratio towards NPM.

### **Research Question**

To meet the objectives, the research questions are formulated as follows:

1. Is there any impact of activity ratio towards company's ROA.
2. Is there any impact of activity ratio towards company's NPM.

### **Literature Review**

Most professional analysts and investors choose to use activity ratio as a key indicator of company performance. It is helpful for analysing how a firm's performance is trending over time in a horizontal statement analysis or how it performs in comparison to its competitors in a comparable company analysis. Therefore, this research will involve understanding deeply about activity ratio, profitability ratio and the effect of activity ratio towards a firm's performance.

#### ***Activity ratio***

Activity ratio refers to activities that have been carried out by the company in its operation relating to its sales, purchases, and other activities (Harahap, 2009). It is also known as the productivity ratio that designated the quality and utilization of a company's assets (Larasati and Purwanto, 2022). According to Fahmi (2012) activity ratio is used to measure how the company utilizes its assets effectively to generate sales. This fact has also been supported by Herry (2016) which stated that activity ratio is used to evaluate how effectively a company uses its resources such as sales, inventory, and others.

TATO, FATO, ITO, RTO, and WCTO are the most often used activity ratios to determine a firm's performance. The higher the company's activity ratio, the higher the company's value will attract more investors (Ngurah, et al., 2020).

Dirvi (2019) used RTO, ITO, WCTO and TATO as indicators to measure activity ratio in evaluating company's performance. Magdalena M, et al. (2021) used WCTO, Cash Turnover (CTO), and ITO to determine the company's activity ratio. Research that has been done by Kashmir (2010) and Ngurah, et al. (2020) only used TATO to determine the company's activity ratio.

In the most recent year, TATO is still being adopted to measure the effectiveness of the company in managing its assets to generate profit (Arsyad, et al., 2021). From previous studies, TATO and FATO have been used to measure the company's ability to make profit from its assets (Warrad and Al Omari, 2015).

Kurniani (2021) used TATO to compare sales to total assets in order to determine how effectively a company's assets are utilised to support sales activities. Baraja and Yosya

(2018) and Budiharjo (2019) also considered TATO in computing activity ratio. This is also supported by HarisR, et al. (2018) as she used TATO and in addition with FATO to indicate the level of effectiveness of the company in using its assets.

### ***Profitability ratio***

Profitability is defined as the capability of a company to generate return by utilizing its productive assets in its capital during a certain period (Pelita and Sumatera, 2021). This statement is supported by Kashmir (2010), which stated that this ratio is used to evaluate a company's potential for profit-seeking. Besides, HarisR, et al. (2018) provided their thoughts on profitability as a tool for making profit projections. Noerwida Oktavia and Norita (2010) interpret profitability ratio to measure the effectiveness of a company's financial performance.

According to Baraja and Yosya (2018), it states that profitability ratio is a class of financial measures that are used to evaluate a company's capacity to create profits in relation to its revenues, operating costs, balance sheet assets, and shareholders' equity over time. Lastly, Kashmir (2010) revealed profitability is the component that can bring impact to the value of a company. When the manager can effectively manage the business, the company will incur fewer costs, increasing the size of the profit.

There are a few ways to determine profitability ratio, including ROA. According to Munawir (2014) this ratio is the most critical ratio among the current profitability ratios. Based on previous research, ROA is used to determine profitability, so they can measure the firm's ability to utilize its assets to generate profit. Study from Ngurah, et al. (2020) adopted ROA to determine profitability. In addition, Noerwida Oktavia and Norita (2010) and Surya Abbas (2019) also used the same method which is ROA to compute the effectiveness of the company in maximizing profitability. Lastly, Ngurah, et al. (2020) uses ROA which will help them to measure efficiency and the company's ability to generate profit in the past.

NPM also can be used to calculate the profitability ratio to assess the efficiency of overall management, which is reflected in the size of the profit level realised from sales and investments (Yulianti & Syarif, 2021). Based on the research that has been done by Baraja and Yosya (2018), the profitability ratio is determined by NPM, the ratio is used to compute the percentage of net margin in a company against net sales. We also find that Widyastuti (2019) used three methods which are NPM, ROA and Return on Equity (ROE) to calculate profitability ratio. However, there is one research that has been done by Arsyad, et al. (2021) that used Return on Investment (ROI) as an indicator to find profitability ratio.

### ***Activity and Profitability Ratio***

Numerous researchers have studied the effects of activity ratio towards the firm's performance. Hasbiah (2022), studies the effect of activity ratio towards company's profitability by using WCTO. In this study, WCTO has positively and significantly affected the company's profitability. Warrad and Al Omari (2015) used TATO and FATO as activity ratio which resulted in a significant impact on ROA.

According to Magdalena M, et al. (2021), the research concluded that WCTO, CTO, and ITO have a significant effect on a company's profitability. Surya (2019) proved that RTO has positive significant effect and ITO has a negative significant effect on company's profitability. However, in this study, WCTO and TATO concluded that there was no

significant effect on ROA. Baraja and Yosya (2018) revealed that TATO has a negative impact on the company's profitability that is measured by NPM.

Based on the study done by Widyastuti (2019), FATO, TATO and WCTO have insignificant effects on ROA, ROE, and NPM. However, Efendi (2019) and Siregar and Romula (2021) believed that TATO has a significant effect on ROE based on the results obtained in each study. HarisR, et al. (2018) revealed that TATO has a significant effect on the company's profitability (ROA). Shahniah, et al. (2020) found that changes in TATO have no effect on ROA. These results are different from the findings done by Sholihah (2019) and Herman (2016) which shows that TATO has a significant effect on ROA. M. Thoyib (2018) also proved that TATO has a positive significant effect on ROA.

### **Theoretical Framework**

The research aims to determine the impact of activity ratio towards firm's performance with TATO, FATO, WCTO, ROA, ITO as intervening variable in the industry that has been chosen for the research. The result shows that the firm's performance was directly impacted by the activity ratio or not.

### **Method**

The major purpose of Chapter 4 is to provide a brief explanation of the approach used to complete this research in-depth. The required data was gathered during the research. The research design, data collection, sample of data, theoretical framework, data analysis method, and model specification are all provided and defined in this chapter.

### **Research Design**

A quantitative research design was used in this research. According to Cresweel (2003) quantitative research design is defined as research in which the researcher predominantly uses post positivist claims to generate knowledge. This method was employed to acquire numerical data to obtain patterns and average, make prediction and generalize result to wider population (Bhandari, 2020). Furthermore, this method is utilized to determine activity ratio and profitability ratio.

### **Data Collection**

Data collection is the process of acquiring data for study, planning, and decision making (Stedman and McLaughlin, 2022). Secondary data was employed in this study to ensure that analytics findings and research results are valid. The data for this study was collected from the financial statements of selected healthcare companies listed on Singapore Exchange Limited over a 5 period (from 2017 to 2021). The variables that have been used in this study are TATO, FATO, ITO, RTO, WCTO, ROA and NPM

### **Sample of data**

In the early part of this study, 37 healthcare organizations were initially selected as samples for the study's data, however now that the issues have been resolved, 25 organizations are available as the data are complete. The data review spans the years 2017 to 2022.



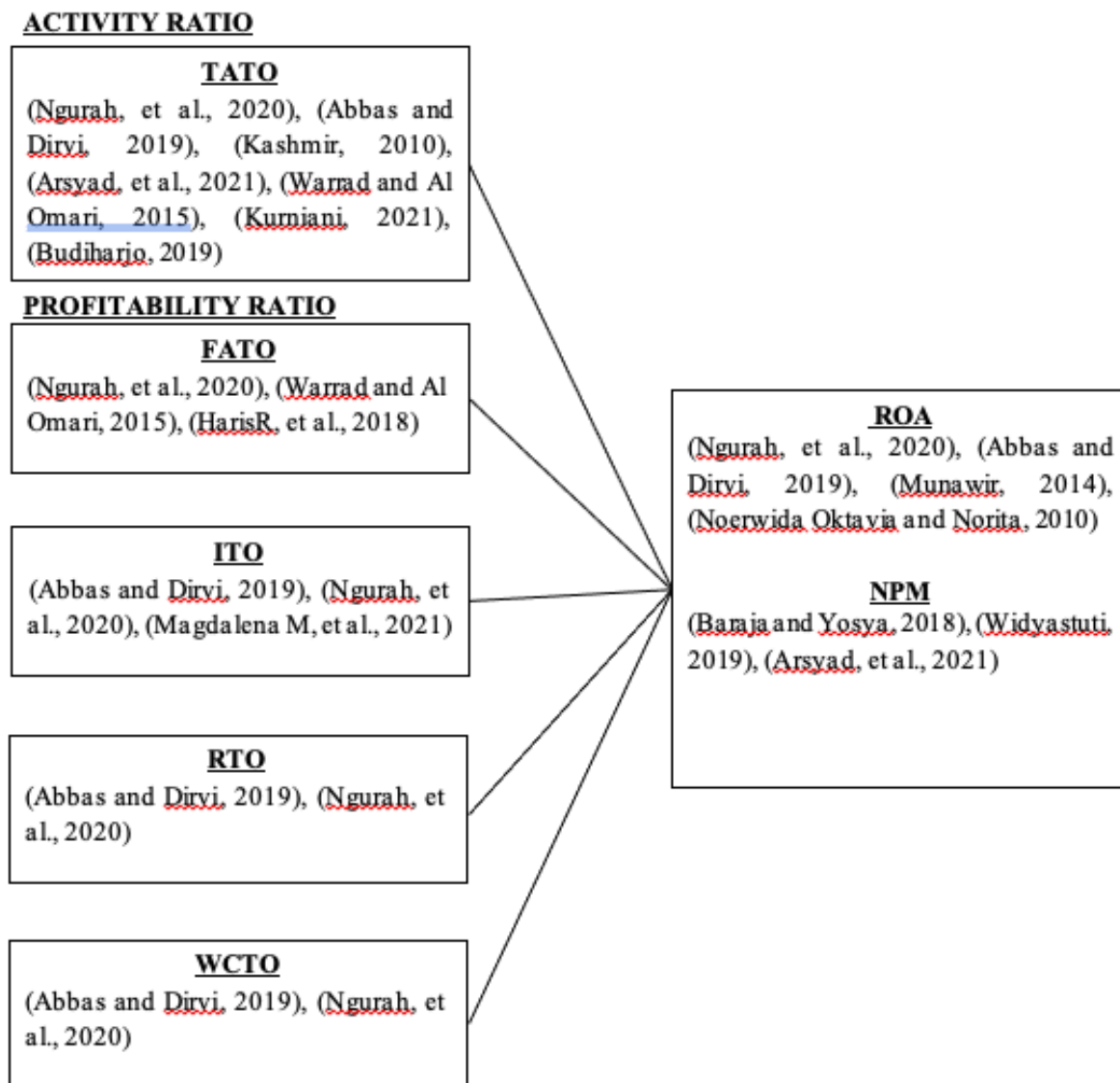


Figure 1: Theoretical Framework

### Data Analysis Method

The method used in this research is quantitative analysis. Quantitative analysis is a form of analysis using numbers and statistical calculations to analyze a hypothesis and requires several analytical tools. Quantitative analysis can be used to help solve problems with tools related to statistics and mathematics so that the resulting decisions can be justified (Hasbiah, 2022). The data analysis process summarizes the information gathered from many resources.

This study will be using Multiple Linear Regression Analysis. Regression analysis is concerned with the dependant variable's dependence on one or more independent factors in order to estimate or predict the population mean or average value of the dependant variable based on the known independent value (Abbas and Dirvi, 2019). A study using the multiple regression method examines the interaction between multiple independent variables and dependent variables (Irman, et al., 2020). This method will examine TATO, FATO, ITO, RTO and WCTO to profitability and activity ratio by adopting multiple regression analysis with a significant level of 5 percent to find correlation between these five variables and

profitability. There are two formulas created in ROA and NPM. Test the model is follow by the formula below:

**Model Specification**

The choice of which control variables are included or removed from a regression equation is referred to as model specification. The following is the model specification for this study.

Return on Asset (ROA):

Where:

Y	=	ROA
X1	=	TATO
X2	=	FATO
X3	=	ITO
X4	=	RTO
X5	=	WCTO
$\beta_0$	=	Intercept which indicates profitability
$\beta_1 / \beta_2 / \beta_3 / \beta_4 / \beta_5$	=	Coefficient of Activity Ratio
e	=	error

Net Profit Margin (NPM):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where:

Y	=	NPM
X1	=	TATO
X2	=	FATO
X3	=	ITO
X4	=	RTO
X5	=	WCTO
$\beta_0$	=	Intercept which indicates profitability
$\beta_1 / \beta_2 / \beta_3 / \beta_4 / \beta_5$	=	Coefficient of Activity Ratio
e	=	error

**Findings**

The dependencies of NPM and ROA were used to analyze the results from the analytical data acquired by the SPSS in this chapter.

**Regression Analysis**

According to Grabowski (2016), a test result that is statistically significant (P 0.05) indicates that the test hypothesis is incorrect or should be rejected, whereas a test result with a P value higher than 0.05 indicates that no effect was seen.

Table 1: Return on Assets

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	.055	.006			9.293	.000
TATO	-.022	.007	-.119		-3.223	.002
ITO	-.007	.001	-.791		-10.890	.000
FATO	-.502	.025	-2.760		-20.276	.000
RTO	.022	.001	3.280		21.665	.000
WCTO	.161	.009	.891		17.196	.000

TATO and ITO show a negative relationship between ROA thus, these did not have any impact to the company's performance. Efficiency of assets is essential for generating sales and ensuring that results do not affect industry performance. High or low ITO rate cannot give any impact to the industry's performance. Besides, FATO also has a negative relationship and provides no impact on company performance. The effectiveness of a company in generating revenues from its current fixed assets cannot have any bearing on the performance of the sector.

However, RTO and WCTO result in a positive relationship and give impact on company performance since the p-value is less than 0.05. The t-value shows a positive relationship as well as the p-value is significant then ROA and WCTO are a solid indicator. This shows RTO and WCTO have a significant impact on firm's performance

Table 2: Net Profit Margin

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	.002	.001			2.136	.035
TATO	.004	.001	.004		2.900	.004
ITO	.000	.000	.005		2.051	.042
FATO	.920	.005	.902		190.494	.000
RTO	.004	.000	.112		21.311	.000
WCTO	.085	.002	.083		46.261	.000

Regression analysis was used to observe the impact of activity ratio towards firm's performance in Singapore healthcare industry. TATO, ITO, FATO, RTO and WCTO were used to measure activity ratio while NPM was a dependent variable.

The table shows that there is a significant impact of TATO, ITO, FATO, RTO, and WCTO on NPM in the healthcare industry. The p-values for all five variables are less than 0.05 (t-value < 0.05), indicating statistical significance. In addition, the t-values for each variable show a positive relationship with NPM, further supporting the significance of these variables. These results suggest that TATO, ITO, FATO, RTO, and WCTO are all solid indicators of a



firm's performance in the healthcare industry. Therefore, we can conclude that there is a significant impact of TATO, ITO, FATO, RTO, and WCTO on NPM in the healthcare industry.

**Result Summary**

INDEPENDENT VARIABLE	ROA	SOURCES
TATO	No Impact	(Dirvi, 2019), (Warrad and Al Omari, 2015)
ITO	No Impact	(Annaria, 2019), (Dirvi, 2019)
FATO	No Impact	(Warrad and Al Omari, 2015), (Maria,2019)
RTO	Impact	(Dirvi,2019), Santhi (2014)
WCTO	Impact	(Hasbiah, 2022)

INDEPENDENT VARIABLE	NPM	SOURCES
TATO	Impact	(Wei-Chung Lin, 2017), (Elzanty, 2017), (Puspitasari, 2018)
ITO	Impact	(Gulzar et al,2018), (Mahmoud,2019)
FATO	Impact	(Yang et al,2019),
RTO	Impact	(Fernandes & Rebeiro, 2018), (Jaafar & Amin, 2017)
WCTO	Impact	(Bhaduri & Barua, 2017), (Hasan, et al., 2017)

**Discussion and Conclusion**

***Impact of Activity Ratio on ROA***

RTO and WCTO result in a positive relationship and have impact on company performance since both p-value are less than 0.05. The t-value shows a positive relationship as well as the p-value is significant then ROA is a solid indicator. A high level of receivables turnover indicates that the company can maximize receivables management so that the working capital invested in receivables is low, which means the company is able to convert receivables into cash in a short time and earn a profit. This result can be supported by Dirvi (2019) which shows RTO has a significant impact on a firm's performance. Companies with higher RTO are often seen as more creditworthy by lenders and investors, which can help them to secure funding at lower interest rates. This can ultimately improve the company's ROA by reducing its cost of capital (Karim, Rahman, & Islam, 2021). A higher RTO can improve the liquidity of the company, which can allow it to meet its short-term obligations more effectively. This can also help the company to secure loans and other forms of financing more easily, which can further improve its profitability and ROA. In addition, the result of WCTO is in line with Hasbiah (2022) which significantly affects the company's profitability. However, it is contrary to Annaria (2021) and Dirvi (2019) which have no impact on ROA. If a healthcare company can generate more cash from its working capital, it may be able to reinvest that cash into growth opportunities such as new facilities, research and development, or acquisitions.

Moreover, TATO and ITO have a negative relationship towards ROA. This result can be supported by Dirvi (2019) and Warrad and Al Omari (2015) in which a healthcare company is not significantly affected by its asset utilization efficiency. It is because in the healthcare industries, they provided services rather than direct sales such as goods and property. In this

case, a healthcare company's profitability may depend more on other factors such as pricing strategies, market demand or competitive pressures, and management efficiency by investing in research and development, and improving their market positioning and brand recognition (Khalid, M., & Irshad, M., 2017).

Finally, FATO shows that there is no significant impact on ROA. These results are consistent with Warrad and Al Omari (2015) and Maria (2019) shows that the FATO may not be affected by the efficiency of its fixed asset use such as pricing power or operational efficiency which may be more important in determining the healthcare industry's profitability. Healthcare's fixed assets usually have a longer useful life which may be less pressure on companies to constantly upgrade or replace their fixed assets such as machinery and equipment. This could prevent higher cash flows which will affect the company's profitability. This proved that FATO does not have a significant impact on company's performance measured by ROA.

### ***Impact of Activity Ratio on NPM***

Based on the table, TATO produces a positive relationship between NPM thus, this did give significant impact to the company's performance. A positive relationship to the TATO can help a healthcare company to increase their revenues while keeping its asset relatively stable which can translate into higher TATO. The results are reinforced by research conducted by Wei-Chung Lin, (2017), Elzanty, (2017) and Puspitasari, (2018) which also found the significant impact of TATO towards NPM. This can lead to improved financial performance, increased investor confidence, and better access to financing, which can all contribute to the company's growth and success. Therefore, TATO has an impact towards healthcare company's NPM in Singapore.

The result of ITO from the table shows significant impact on NPM since the p-value is 0.042 which is less than 0.05. This is because a high ITO indicates that the company can sell its inventory quickly, which can result in higher the cost which can be suppressed so that the greater the profitability of a company. The t-value shows a positive relationship as well as the p-value is significant, then NPM is a solid indicator. The re-explains is consistent with Mahmoud (2019), that explain there is a positive relationship which effect the healthcare companies to improve operational efficiency and cost control with increase cash flow and liquidity as these we can correlates with inventory of the company. Gulzar et al (2018), stated that they attract investors and retain talented employees due to sustainable financial performance within the company.

The result of FATO from the table shows significant impact on NPM since the p-value is lesser than 0.05 (t-value < 0.05). This result is in line with previous research with (Yang et al,2019) which stated the healthcare organizations that have higher NPM which shows FATO had been able to generate greater profits from their investments in fixed assets. Also, good financial performance may allow healthcare companies to invest in better technology equipment and staff which can ultimately lead to improved patient care. This can lead to higher profitability as the company is able to generate more revenue with fewer fixed assets, resulting in lower fixed costs and higher profit margins. The ability to efficiently use fixed assets can also result in a competitive advantage for healthcare companies as they can provide quality healthcare services at lower costs, attracting more patients and investors.

ITO, RTO, and WCTO, have a significant impact on NPM. ITO has a p-value of 0.042, which is less than the threshold of 0.05, indicating that a high ITO can lead to increased cash flow and lower holding costs, ultimately resulting in higher NPM. This finding is consistent with previous studies by Mahmoud (2019) and Gulzar et al. (2018), which also found a positive relationship between ITO and NPM, highlighting the importance of operational efficiency and cost control. Similarly, RTO has a significant impact on NPM, with a p-value less than 0.05.

The results match Fernandes and Rebeiro (2018) and Jaafar and Amin (2017) who found that a stable NPM can lead to faster receivable turnover and improved cash flow from operations, ultimately resulting in higher NPM. Lastly, WCTO also has a significant impact on NPM, with a p-value of less than 0.05. Bhaduri and Barua (2017) and Hasan et al. (2017) found that higher NPM can indicate better management of working capital and improved efficiency in generating sales revenue with less investment in working capital. In a nutshell, we can summarize that these findings show the ratios can have positive impact on the financial performance of healthcare companies by generating more cash flow and improving profitability.

### **Recommendations**

This paper contributes to the literature that is interested in analysing the impact of activity ratios on a firm's performance. The study's findings might affect policy in at least the following ways. Firstly, the company must do the planning and supervision of asset management as it influences the company's performance and decision-making process. Next, the healthcare industry in Singapore needs to increase the value of the company so that the company's performance will improve, measured by NPM and ROA. Lastly, investors should pay attention to activity and profitability ratios in investing funds as the results show that variables are able to affect a company's performance.

### ***Impact on Industry***

Companies in the healthcare sector significantly affect NPM when evaluated by activity ratios. Activity ratios, on the other hand, do not significantly affect ROA, although NPM does. The measurement of liquidity in the healthcare sector will have some impact on NPM but little impact on ROA due to the nature of the industry, which is related to services. It is good for companies in the business to have a greater emphasis on activity ratios, since this will have an impact on NPM. As healthcare companies consider activities, profitability plays an important role for ensuring the company's going concern in the long run.

### ***Recommendation for future research***

Future researchers could expand this research by exploring the impact of activity ratios on firm performances in other industries, increase the number of variables that might give a big impact at the company profitability and investigate the impact of other financial ratios on performance. This study is anticipated to serve as a reference for others who will perform further research on it and add to the body of existing literature.

### **Conclusion**

The study found that activity ratios have a significant impact on NPM in the healthcare industry in Singapore, but not on ROA. The paper recommends that companies pay attention to asset management and profitability ratios to improve their performance, and investors should consider these factors when investing in healthcare companies. The findings also

suggest that future research could explore the impact of activity ratios on firm performance in other industries and investigate the impact of other financial ratios on performance.

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