



Impact of Covid-19 on Liquidity, Profitability, and Financial Health: A case study of 3 sectors from Stock Exchange of Thailand

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Abstract

Purpose-To test the impact of Covid-19 pandemic on Profitability, Liquidity, and Financial Health on the selected 3 sectors which are Tourism and Leisure Sector, Transportation and Logistics Sector, and Health Care Service Sector of the Stock Exchange of Thailand. **Design/methodology/approach-**The author uses Wilcoxon MEAN and MEDIAN tests to test the statistically difference between the financial ratios from year 2019 and 2020. The 10 independent variables of financial ratios are ROA, ROE, Net Profit Margin, Acid Test, Current Ratio, Cash Ratio, Operating Cash Flow Ratio, Total Asset Turnover, Debt to Assets Ratio, Debt to Equity Ratio. **Findings-**The result confirms the hypothesis that there is a significantly different in the result of Tourism and Leisure Sector on ROA, ROE, Net Profit Margin, and Total Asset Turnover. Which represent the dramatically impact of covid-19 on the Profitability and Financial Health of the firm. While there are not significantly different in Transportation and Logistic Sector and Health Care Sector. **Research implications-**Researcher can use this Wilcoxon test in other sectors Thailand or in other country. The investors are not recommended to invest in the stock under the sector of tourism and leisure sector due to the financial performance which effected by the covid-19 pandemic. However, investors who concentrate on long-term investing in securities may get beneficial opportunities by using the information to forecast the firm's position and direction. The investors should not be so panic about the performance of companies in other sectors because the financial performances of the companies in those sectors have not been significantly changed from covid-19 pandemic.

Keywords-Thailand, Covid-19, Wilcoxon Test, Volatility, Profitability, Financial Health

Introduction

Covid-19 is one of the major factors that accelerate and make a huge change to the world. This led to the worst economic slowdown since World War II. Thailand was inevitably affected. Because when exploring into the proportions of the Thai economy, it is found that Thailand's majority revenue is from exports of both goods and services.

The SET index, which is the representative of the Thai stock market decreased 35% from the beginning of the year to its lowest point on 23 March 2020, led by petrochemicals, banks, real estate developers, hospitals, and tourism-related groups.

Since the lockdown of the major cities as a result of Covid-19 outbreak in Thailand has impacted companies from many sectors in Thai stock market. Performances of those companies have significantly dropped. This has led companies to face challenge with profitability, financial health, and liquidity issue.

Financial ratios from the financial statements can be used to measure the performance in term of profitability, financial health, and liquidity.

If Covid-19 has significantly affected the performance of the companies, then we should see the financial ratios must be significantly changed in the negative way.



Objective of the Problem

The aim of this study is to examine the impact of Covid-19 on Liquidity, Profitability, and Financial Health of Tourism and Leisure Sector, Transportation and Logistic Sector, and Health Care Service Sector in Thailand based on the Stock Exchange. The specific objectives include;

1. To test the impact of Covid-19 pandemic on Profitability, Liquidity, and Financial Health on the selected 3 sectors which are Tourism and Leisure, Transportation and Logistics, and Health Care Service Sectors of the Stock Exchange of Thailand.
2. To test whether the financial ratios which reflect profitability, financial health, and liquidity of the companies significantly change during covid-19 crisis or not

Limitation of the Study

1. This study selects 3 sectors from stock market of Thailand which are:
 - Tourism and Leisure Sector (13 firms)
 - Transportation and Logistic Sector (21 firms)
 - Health Care Service Sector (21 firms)
2. 10 independent variables are used which can implement into 3 group of use as follow:
 - Profitability Ratio: ROA, ROE, Net Profit Margin
 - Liquidity Ratio: Acid Test, Current Ratio, Cash Ratio, Operating Cash Flow Ratio
 - Financial Health: Total Asset Turnover, Debt to Assets Ratio, Debt to Equity Ratio
3. Use 2-year annual data (2019 and 2020)
4. Data collected from annual financial statement of each company in year 2019 and 2020
5. This study uses Wilcoxon MEAN and MEDIAN tests to test the statistically difference between the financial ratios from year 2019 and 2020.

Research Hypotheses

There are 30 testing hypotheses for this research. The research selected 3 sectors, which are Tourism and Leisure Sector, Transportation and Logistics Sector, and Health Care Services Sector, for testing, and there are 10 testing hypotheses for each sector. Detail of 10 hypotheses for each selected sector are listed as follow,

H1o: There is no significant difference between ROA before Covid-19 (2019) and ROA during Covid -19 (2020) of firms in the selected Sector.

H2o: There is no significant difference between ROE before Covid-19 (2019) and ROE during Covid -19 (2020) of firms in the selected Sector.

H3o: There is no significant difference between Net Profit Margin before Covid-19 (2019) and Net Profit Margin during Covid -19 (2020) of firms in the selected Sector.

H4o: There is no significant difference between Acid Test before Covid-19 (2019) and Acid Test during Covid -19 (2020) of firms in the selected Sector.

H5o: There is no significant difference between Current Ratio before Covid-19 (2019) and Current Ratio during Covid -19 (2020) of firms in the selected Sector.

H6o: There is no significant difference between Cash Ratio before Covid-19 (2019) and Cash Ratio during Covid -19 (2020) of firms in the selected Sector.

H7o: There is no significant difference between Operating Cash Flow Ratio before Covid-19 (2019) and Operating Cash Flow Ratio during Covid -19 (2020) of firms in the selected Sector.

H8o: There is no significant difference between Total Asset Turnover before Covid-19 (2019) and Total Asset Turnover during Covid -19 (2020) of firms in the selected Sector.



H9o: There is no significant difference between Debt to Assets Ratio before Covid-19 (2019) and Debt to Assets Ratio during Covid -19 (2020) of firms in the selected Sector.

H10o: There is no significant difference between Debt to Equity Ratio before Covid-19 (2019) and Debt to Equity Ratio during Covid -19 (2020) of firms in the selected Sector.

Literature Review

Covid-19 Pandemic

Coronavirus disease 19 (COVID-19) is a highly contagious and highly pathogenic viral infection. It is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which originated in Wuhan, China and has spread around the world. Genome studies discovered that SARS CoV-2 is phylogenetically related to the Severe Acute Respiratory Syndrome (SARS)-like bat virus, so bats may be a possible primary reservoir. The intermediate source of origin and human transmission is unknown. However, rapid human-to-human transmission has been widely confirmed. Since this pandemic has a huge effect on the global level of public health service, it also has been an important issue of many fields include economies. The pandemic of covid-19 is concerned as it affects entire human life and economic activities to global simultaneous shocks. (Shereen et al., 2020)

(WHO, 2020) warned that, the patients will surely be elder people and those who experience respiratory illness, and essentially, patients in the group of diabetes and cancer respiratory disease compare with other people. The spread of infectious diseases continues to rise. Although people and governments of different countries will try to control the epidemic such as quarantine, personal protective measures Hydro-chloroquine and other drugs that have not been clinically tested are permitted. The incubation period for Covid-19 is between 2-14 days, confirming the cause of the high level of transmission of the virus to

individuals worldwide as a result of the symptomatic and asymptomatic nature. (Omaliko et al., 2021)

However, the (CDC, 2021) reports that those infected with COVID-19 Symptoms range from mild to severe. Symptoms may appear 2 days to couple weeks after exposure to the virus. Anyone can have mild to serious symptoms. For example, those who have these possible symptoms; fever or chills, cough, trouble breathing or difficulty breathing, tiredness, temporary loss of taste or smell, sore throat, runny nose, vomiting and diarrhea. Currently, although the vaccines and medicines from many medical companies have been released as treatment and prevention, it still not covered globally and cannot support the recovery of world economic and many developing countries, Thailand for instance, had economic freeze.

Liquidity

Financial liquidity is defined as the ability of transferring goods or assets into cash. The high liquidity indicates ability to quickly turn assets back into cash. Or it can be said, Liquidity indicates whether the entity is able to meet its short-term financial obligations. The ability to pay debt indicates the ability to meet financial obligations over the long term. Liquidity is also seen as a result of the financing activities that companies have. Loans to raise cash for operations. (Leonard, O. M., & Ngozi, 2020)

Liquidity is the ability of a company to fund an increase in assets and meet its obligations when they are due. Without causing unacceptable losses while effective liquidity risk management ensures that the company is able to meet its cash flow obligations. Which is uncertain because it is affected by external events and the behavior of other agents Liquidity risk management is extremely important. This is because a lack of liquidity in a single institution can affect the entire system. (Omaliko et al., 2021)

The economic crisis may cause the company to face liquidity problems. Declining economic growth has a decreasing effect on people's purchasing power. As a result, many customers' debtors are unable to collect

payments. This reduced the company's cash flow. Conversely, the economic crisis also caused a surge in consumer goods. When liquidity is measured using the liquidity ratio, the liquidity ratio increases, an increase in the liquidity ratio is not a good idea. (Devi et al., 2020)

Profitability

Profitability is often expressed by different financial ratios, such as return on assets (ROA), return on equity (ROE), net profit margin, and acid test. The effectiveness of management is often described through a subjective assessment of the management system such as Organizational Discipline, Control System, Employee Quality, and much more. (Omaliko et al., 2021)

The economic crisis undoubtedly affected the profitability of the company. A decrease in the purchasing power of the people will decrease the demand for the company's products or services. In the short term, the decline in sales is not accompanied by lower expenses. Therefore, the effect is to reduce the profits of the company. (Devi et al., 2020)

Financial Health

Financial health is a term used to describe the state of firms' financial venture. Financial health has many dimensions, including the amount of savings. The amount the firms keep and the income the firms spend on fixed or non-discretionary expenses.

When evaluating stocks Investors often find one important metric. They can find by looking at a company's financial statements. But finding a company that ticks every box isn't easy. To accurately assess a company's long-term financial health and sustainability. Several financial indicators must be considered in parallel. There are four main areas of financial health that should be examined: liquidity, debt serviceability, profitability. However, out of these four, the best measure of a company's health may be its level of profitability. (Maverick, 2021)

Theoretical Framework

The theoretical framework is designed based on past research and existing literature representing impact of Covid-19 on liquidity, profitability, and financial health.

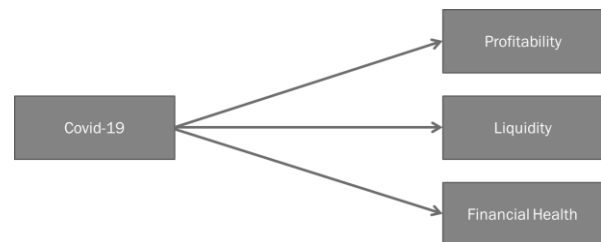


Figure 1: Theoretical Framework

Data Analysis and Results

Research Model

Profitability Ratio: A ratio used to measure the profitability of a business

- $ROA = \frac{Net\ Profit}{Total\ Asset}$
- $ROE = \frac{Net\ Profit}{Equity}$
- $Net\ Profit\ Margin = \frac{Net\ Profit}{Sales}$
- $Acid\ Test = \frac{Current\ Asset - Inventory}{Current\ Liabilities}$

Liquidity Ratio: Ratios that represent financial liquidity or the ability to pay debts of the firms

- $Current\ Ratio = \frac{Current\ Asset}{Current\ Liabilities}$
- $Cash\ Ratio = \frac{Cash + Cash\ Equivalent}{Current\ Liabilities}$
- $Operating\ Cash\ Flow\ Ratio = \frac{Operating\ Cashflow}{Current\ Liabilities}$

Financial Health: represents the capability of the firm and analyze the survival of the firm



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

$$\bullet \quad \text{Debt to Assets Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholder's Equity}}$$

Data Analysis

The annual financial data was collected the listed companies in Stock Exchange of Thailand (SET Thailand, 2021) from year 2019 and 2020.

This study uses Wilcoxon MEAN and MEDIAN tests to test the statistically difference between the financial ratios from year 2019 and 2020.

Wilcoxon test essentially calculate the difference between sets of pairs and analyze these differences to establish if they are statistically significantly different from one another.

Results

The data needed for this study was shown on *table 1* to *table 3* and were used to analyze data in this study.

Variables	MEAN (p-value)	MEDIAN (p-value)	Ho
ROA	0.0013	0.0007	Reject
ROE	0.0448	0.0021	Reject
Net Profit Margin	0.0002	0.0006	Reject
Acid Test	0.7021	0.6444	Failed to reject
Current Ratio	0.7132	0.4728	Failed to reject
Cash Ratio	0.4360	1.0000	Failed to reject
Operating Cash Flow Ratio	0.0610	0.0313	Partly Reject
Total Asset Turnover	0.0064	0.0048	Reject
Debt to Assets Ratio	0.6575	0.5727	Failed to reject
Debt to Equity Ratio	0.9278	0.4119	Failed to reject

Table 1: The data summary of significant values on 10 measurements in term of p-value on Tourism and Leisure Sector

Variables	MEAN (p-value)	MEDIAN (p-value)	Ho
ROA	0.2885	0.5294	Failed to reject
ROE	0.2281	0.5973	Failed to reject
Net Profit Margin	0.0834	0.6689	Failed to reject
Acid Test	0.7625	0.9599	Failed to reject
Current Ratio	0.6683	0.8405	Failed to reject
Cash Ratio	0.7180	0.7628	Failed to reject
Operating Cash Flow Ratio	0.8204	0.9799	Failed to reject
Total Asset Turnover	0.4293	0.2472	Failed to reject
Debt to Assets Ratio	0.5723	0.5886	Failed to reject
Debt to Equity Ratio	0.5804	0.7247	Failed to reject

Table 2: The data summary of significant values on 10 measurements in term of p-value on Transportation and Logistic Sector

Variables	MEAN (p-value)	MEDIAN (p-value)	Ho
ROA	0.1279	0.1160	Failed to reject
ROE	0.2372	0.1903	Failed to reject
Net Profit Margin	0.1034	0.1870	Failed to reject
Acid Test	0.7201	0.8159	Failed to reject
Current Ratio	0.6748	0.7196	Failed to reject
Cash Ratio	0.2680	0.5094	Failed to reject
Operating Cash Flow Ratio	0.9142	0.4728	Failed to reject



Total Asset Turnover	0.0932	0.1377	Failed to reject
Debt to Assets Ratio	0.5345	0.7415	Failed to reject
Debt to Equity Ratio	0.4160	0.7859	Failed to reject

Table 3: The data summary of significant values on 10 measurements in term of p-value on Health Care Service Sector

Discussion

From the result, Profitability of Tourism and Leisure business sector was significantly affected by Covid-19 pandemic. As the p-value of both MEAN and MEDIAN of ROA, ROE, and Net Profit Margin are less than 5 percent or 0.05 for Tourism and Leisure sector, as shown on the table 1. Moreover, the Tourism and Leisure sector was partly influenced in Operating Cash Flow Ratio, p-value of MEADIAN is 0.0313 which less than 0.05, and importantly effect Total Asset Turnover, p-value of MEAN and MEDIAN are 0.0064 and 0.0048, respectively, which represents financial liquidity problems of the businesses in this sector. While other sector as Transportation and Logistic Sector and Health Care Service Sector do not have any significant value of p-value in both MEAN and MEDIAN (or it can be said that p-value not equal or less than 5 percent or 0.05 as the Hypothesis is tested at 5% level of significance).

Conclusion and Recommendation

Conclusion

The result shows that there are not significantly different financial performances of firms in Transportation and Logistic Sector and Health Care Sector. This seems to contradict to many complaints from several firms in those related sectors during the covid crisis. Negative impact on stock prices of firms in those sectors should not mainly relate to the financial structures, but it can come from other factors, such as psychological factor. However, there is a significantly different in the result of Tourism and Leisure Sector on ROA, ROE, Net Profit Margin, and

Total Asset Turnover. Which represent the dramatically negative impact of covid-19 on the Profitability and Financial Health of the firm. On Operating Cash Flow Ratio, there is partially drop which represent the barely impact of covid-19 on the liquidity of the firms during pandemic. This can confirm the bad impact of this crisis to the Tourism industry, and that may require some authorities to support firms in this Tourism Sector.

Recommendation

Researcher can use this Wilcoxon test in other sectors of Thailand or in other country. The investors are not recommended to invest in the stock under the sector of tourism and leisure sector due to the financial performance which effected by the covid-19 pandemic. However, investors who concentrate on long-term investing in securities may get beneficial opportunities by using the information to forecast the firm's position and direction. For instance, investors can buy stocks in the low price and sell for profit in the future.

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