

# Impact of the COVID-19 Pandemic on the Travelling Industry: A Comparison of Performances of Three Representative Companies

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**Abstract:** In order to find out how severe the impact the Covid-19 pandemics was by looking more closely at the stock's market value, we did research on stocks guided by professor Mick Swartz from USC, picking three of the representative companies——TripAdvisor, American Express, and Choice Hotel International—— and comparing their stock by analyzing the performance of each company from which we draw conclusions. By combining the indices of three companies into three main categories, profitability, liquidity & solvency, and asset utilization, we compare average value of the fluctuation of the normal period with that of the epidemic period longitudinally to answer the question that whether the performance of the industry has decreased due to the prevalence of the virus. As a further application, the strategy used to analyze the behavior of different types of investor, including value investors, growth investors, and momentum investors, is also used as an inference during the pandemics. We found out that the stock price of TRIP has been much more stable than other two stocks since the outbreak of COVID-19, though also subject to somewhat decline. Second, the capital structure varies greatly among three companies, with TRIP holding lowest debt ratio of around 0.4. Consider that all businesses are strictly suffering from severe liquidity constraints during COVID-19 and many of them went bankruptcy for extremely high debt risk, lower debt ratio might help businesses be able to absorb some liquidity risk. Taking a closer look at the profitability, TRIP does perform better than other two companies, with a highest PE ratio of 34.13 and PEG ratio of 7.44. As a conclusion, TRIP indeed performs better so far in terms of resisting risk, however, it's hard to say to which extent the COVID-19 would exert negative influence towards all tourism in the long run.

## 1. Introduction

Nowadays, travel exerts profound and extensive influences upon modern folks. People need travel to relax and experience different cultures [1-3]. Tourism contributes a lot to the development of a country's Gross Domestic Product (GDP) [4-7]. However, due to the seriousness and prevalence of Coronavirus, countries decided to regulate the quarantine policies, national Entry-Exit policies, and air traffic control [8, 9]; as a result, global travel industry has been severely influenced making significantly negative impacts on aviation companies, hotel companies, travel planning companies and so on [10]. Given that the impacts on companies in different segments of the industry should be different yet we don't know which is influenced the most, we wanted to analyze the influences of the pandemic to different companies in the tourism industry in the US. The intention of measuring the magnitude of the effect to tourism industry stimulate us to analyze three typical tourism firms, including AMERICAN EXPREE, TRIPADVISOR, and CHOICE HOTEL INTERNATIONAL. In order to judge and analyze the impact of the heterogeneity of companies in the tourism industry, on their ability to resist risks, we use value analysis to explore the value fluctuations of different companies during the epidemic from the perspective of investment. In order to provide a more comprehensive understanding of the impacts, we include concise, yet informative, descriptions for each targeted company.

### 1.1. TripAdvisor (TRIP)

TripAdvisor (TRIP) is the world's leading travel site, collecting reviews from and providing recommendations for travelers worldwide; its products cover hotels, attractions, restaurants, and airlines around the world, as well as travel planning and hotel, attraction, and restaurant booking functions. TripAdvisor and its websites have sub-stations in 49 markets around the world, with an average monthly visitor of 415 million. In December 2018, the World Brand Lab released the "2018 World Top 500 Brands" list, and TripAdvisor was ranked 469 [11]. Besides, due to the pandemics, TripAdvisor cuts 25% of workforce, which shows the influence of the pandemics on the company [12].

### **1.2. American Express (AXP)**

American Express (AXP) is the world's largest global travel services and comprehensive financial, financial investment and information processing company. It leads the credit card, traveler's cheque, travel, financial planning and international banking industries. In December 2018, the "2018 World Top 500 Brands" prepared by the World Brand Laboratory was announced, and American Express ranked 35th. In October 2019, Interbrand ranked 23 in the Global Top 100 Brand List [13]. Particularly, the company provides several perks for the costumers during the pandemics.

### **1.3. Choice Hotel International (CHH)**

Choice Hotel International (CHH) is the 17th-ranked restaurant franchise company in the world in 2020 [14]. The boutique originated from the reputable Quality Inn chain group, a pioneer in the hotel industry offering consistently high-quality services at moderate prices. Now, CHOICE HOTEL INTERNATIONAL have already expanded its business scope, from economic consumption to high consumption, from basic services to high-end entertainment enjoyment, all kinds of services are all-inclusive, and can meet the needs of people at all levels of society.

## **2. Method and Methodology**

### **2.1. Profit Margins**

Profit margin analyzes the relationship between gross sales revenue and the direct costs of sales that always reflects the profitability of one company. The equation of profit margin is

$$\text{Profit Margin} = \text{Gross Profit} / \text{Total Revenue} \quad (1)$$

Gross profit is the amount calculated by earning revenue minus direct costs which excludes indirect expenses such as advertisement and marketing. This financial indicator shows how efficiently a company is producing its products [15].

### **2.2. Return on Equity (ROE) and Return on Assets (ROA)**

ROE and ROA are different measures of management effectiveness. Actually, In the absence of debt, shareholder equity is equal to the company's total assets, that is, ROE is as same as ROA. The equation of ROA is

$$\text{ROA} = \text{Net Income} / \text{Total Assets} \quad (2)$$

ROA tells investors and analyzers what earnings were generated from assets and helps investors measure how management is using its assets to generate more income. Instead, ROE helps investors gauge how their investments are generating income when they are making the decision to invest. The equation of ROE is

$$\text{ROE} = \text{Net Income} / \text{Shareholder Equity} \quad (3)$$

### **2.3. Liquidity and Solvency**

#### **2.3.1. Current Ratio**

The equation of Current ratio is

$$\text{Current ratio} = \text{Current Assets} / \text{Current Liabilities} \quad (4)$$

It measures a company's ability to pay short-term obligations or those due within one year.

### 2.3.2. Total Debt Ratio

The equation of Total Debt ratio is

$$\text{Total Debt Ratio} = \text{Total Debt} / \text{Total Assets} \quad (5)$$

The debt ratio measures the amount of leverage used by a company, implying greater financial risk. Nevertheless, leverage can be an important tool that companies need and use to grow. Many businesses find sustainable uses for debt [16].

## 2.4. Asset utilization

### 2.4.1. Asset Turnover

The equation of Asset Turnover is

$$\text{Asset turnover} = \text{Sales} / [(\text{Total Asset at the beginning} + \text{TA at the end}) / 2] \quad (6)$$

The asset turnover ratio can be used as an indicator of the efficiency demonstrating how well a company is using its assets to generate revenue.

### 2.4.2. Capital Intensity

Capital Intensity refers to the industries that require large amounts of investment to produce a good or service and thus have a high percentage of fixed assets. Thus, companies in capital-intensive industries are often marked with high levels of depreciation. The equation of Capital Intensity is

$$\text{Capital Intensity} = \text{Total Asset} / \text{Sales} \quad (7)$$

## 3. Results and Discussion

### 3.1. Data

The large data prediction model for the user's electricity consumption is implemented in the Clementine software.

### 3.2. Analysis of experimental results

To capture the features of stock price and returns over past several years, this paper utilized weekly stock price data between 01-01-2018 to 08-15-2020 with a total of 138 observations for each company to conduct empirical analysis. Table 1 indicates the descriptive statistics for price returns. The average return values of three stocks differ (0.06% (TRIP), 0.19% (AXP), 0.31% (CHH)). The stock prices of TRIP have been much more volatile than other two stocks. As can be seen from figure 1, CHH and AXP dropped greatly and consistently at the beginning of 2020, while TRIP has been just modestly declining on the first half of 2020, indicating a great differentiation of the influence of COVID-19 towards different tourism companies. To further explore the underlying mechanism of COVID-19's negative influence on tourism industry, financial analysis should be adopted.

Table.1. Descriptive statistics Statistics weekly stock price returns

	mean	std	median	kurtosis	skewness
CHH	0.31%	5.31%	0.51%	14.39	1.03
TRIP	0.06%	7.84%	0.51%	3.21	0.54
AXP	0.19%	5.63%	0.53%	9.76	0.16



Figure 1. Weekly stock price for three tourism companies (2018.1.1-2020.8.15)

### 3.2. Estimation Results

#### 3.2.1. Profit Margin

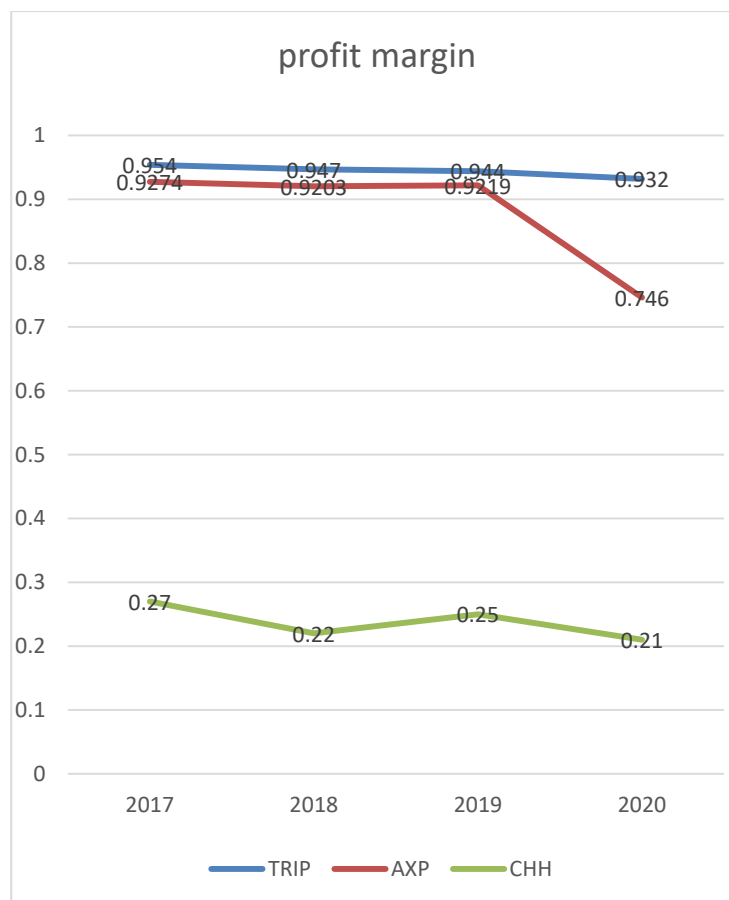


Figure 2. Seasonally profit margin for three tourism companies (2017.3.30-2020.3.30)

The first indicator is the profit margin, which indicates the percentage of sales turning in to profits. From Figure 2, we can see a clear trend of this indicator between two periods—before the prevalence of Covid-19, which is presented by the data from each of the first season of 2017, 2018, and 2019, and during the pandemic, which is roughly the first season of 2020—we can see that the profit margin of TripAdvisor changes from 0.954, 0.947, 0.944, to 0.933. The average amount of decrease during the first three years is 0.005 per year, but between 2019 and 2020, the decrease is as much as 0.012, more than two times of the average decrease in the past three years. However, the change is not very significant, demonstrating a good capacity for the TRIP to adapt to the recession caused by the virus. Moreover, from the change of the profit margin of American Express, we can see a much clear difference between the decreases: the slope of the line slope between 2019 and 2020 is apparently steeper than that of the line among previous years. Although the influence of the

epidemics of the amount of decrease in the Choice Hotel international is not as obvious as what we see in Figure 1, the overall trend of the profit margin of CHH is still descendant, changing from 0.27 in 2017 to 0.21 in 2020. Comprehensively, the smallest difference between the average amount of drop in 2017 to 2019 and the decrease between 2019 to 2020 appears in the firm TRIP, only 0.007 comparing to 0.173 of AXP and 0.03 of CHH, which means that it demonstrates has the best capability to maintain business operations during the Pandemic Crisis in terms of earning net income for each dollar of sales generated.

### 3.2.2. Return on Equity and Return on Assets

The second and the third indicators are Return on Assets and Return on Equities. These ratios provide an idea of how efficient a company's management is at using its assets and equities to generate earnings. From Figure 3, we can deduce the information that during the influence of the epidemics, only the values of ROA of TRIP and AXP have declined more than the amount decreasing from 2017 to 2019 per year, with a surprisingly sharp fall to -0.007 of TRIP. Surprisingly, the ROA of CHH increases to 0.033 in the first season of 2020, even though before the prevalence of the COVID-19, the ROA of CHH decrease 0.002 per year on average. Therefore, we can believe that CHH has a strong capability in maintaining and improving its assets management even when facing an inescapable global economic issue. By contrast, looking at ROEs from Figure 4, there is an extremely sharp descend from 2019 to 2020 of the slope of CHH. The average decrease is only 0.032 before COVID-19, but the change between 2019 and 2020 is 1.098, 1.066 more than that before the prevalence. It might serve as an evidence showing that CHH sacrifices its arrangement on equities to earn more profit on its assets. While other two firms follow acceptable patterns of decrease during the pandemic crisis.

To further illustrate, both of the firms TRIP and AXP have ROEs that are greater than ROAs respectively throughout the four years, which means that this two companies have a certain amount of debts.

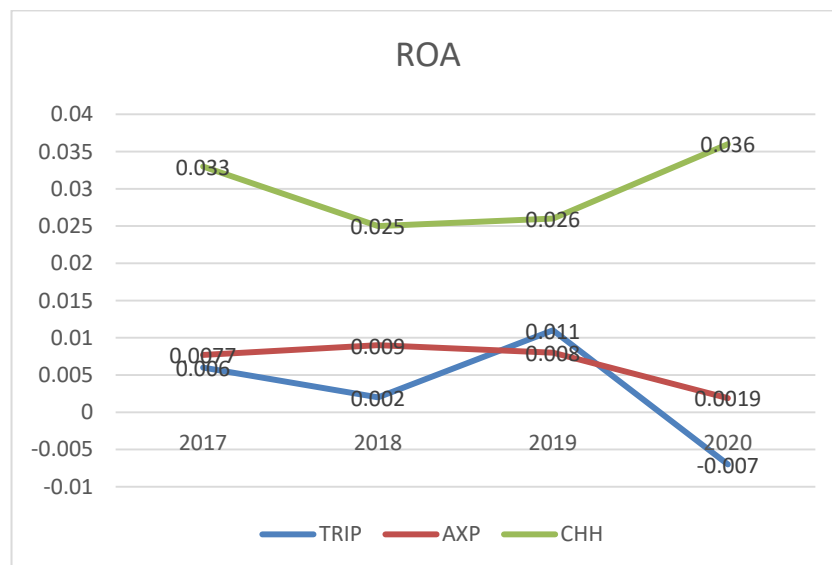


Figure 3. Seasonally ROA for three tourism companies (2017.3.30-2020.3.30)

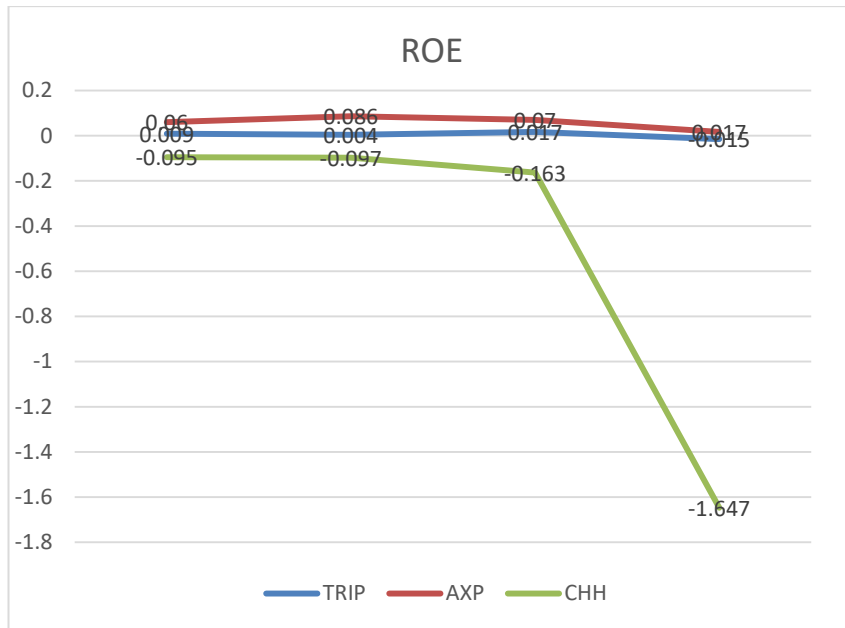


Figure 4. Seasonally ROE for three tourism companies (2017.3.30-2020.3.30)

### 3.2.3 Liquidity and Solvency

#### 3.2.3.1 Current ratio

The first indicator of liquidity and solvency is Current ratio, evaluating the ability of a company to pay short-term obligations. From Figure 5, we observe that both TRIP and CHH demonstrate a growing ability to maximize its current assets to pay back the current debt and other payables, which is proved by the increase in current ratio of 1.3 and 1.48 respectively between the average increase before and during the epidemics. More noticeably, the trends before the epidemic situation of both two firms are decreasing, but during the prevalence of COVID-19, they both increase a lot in terms of the current ratio. For CHH, its current ratio increases from 0.82 to 2.08, indicating that this firm has achieved a quality leap. In general, what is brought by the pandemic in terms of liquidity is positive and helpful. The epidemic stimulus both firms to embody better capacities to protect the bank holders or the bank that lend them money.

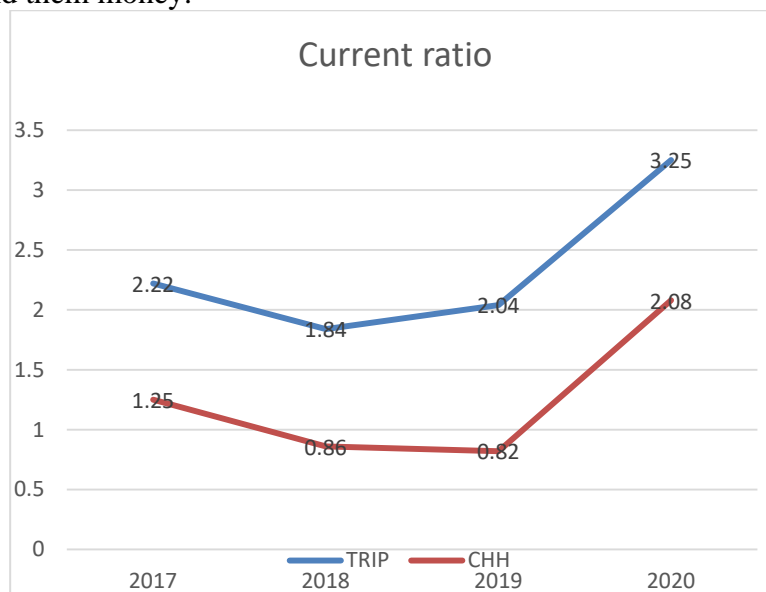


Figure 5. Seasonally Current Ratio for two tourism companies (2017.3.30-2020.3.30)

#### 3.2.3.2. Total Debt ratio

The second indicator is the Total Debt ratio. It is the ratio that measures the extent of a

company's leverage. The patterns of changes of three companies are different. There is a clear increase from 2019 to 2020 relative to the rise from 2017 to 2019; the difference between two periods is 0.22. The relatively big difference shows that the epidemic situation increases its debt funded by its assets, and the firm loses its power when dealing with loan issues. Nevertheless, the value of the total debt ratio of AXP roughly remains the same no matter what stage it's in, and there is only a 0.0002 increase from 2019 to 2020, which indicates that AXP has a better capability adjusting to the new situation. For CHH, there is an overall decreasing trend from 2017 to 2020, and during the prevalence of COVID-19, the ratio even falls more, proving by the decrease of 0.13 comparing to the average decrease from the previous three years of 0.08. However, noticing all of the values of the total debt ratio in CHH are larger than 1, we have to admit that the firm still has huge risks of defaulting on loans if their interest rates were to rise suddenly.

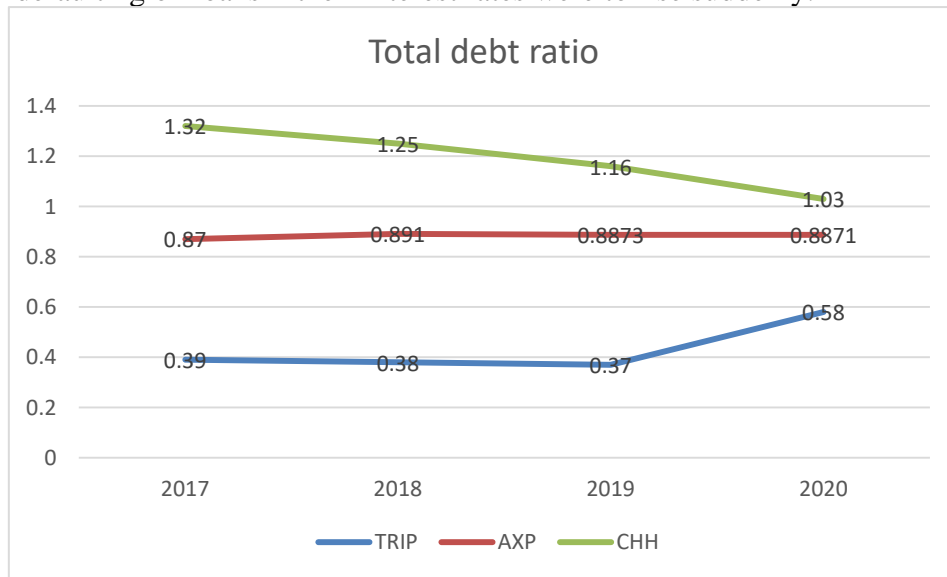


Figure 6. Seasonally Total Debt Ratio for two tourism companies (2017.3.30-2020.3.30)

### 3.2.4. Asset utilization

#### 3.2.4.1. Total assets turnover

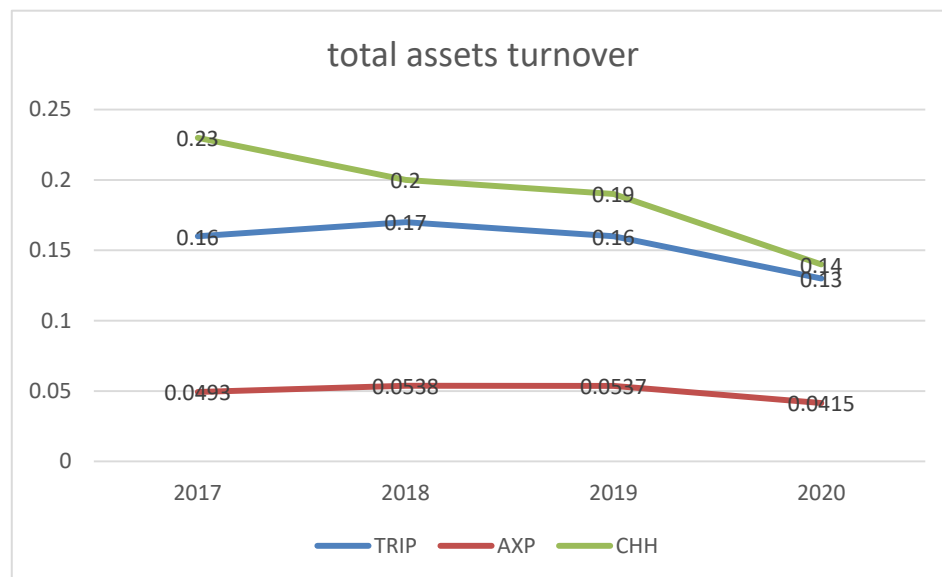


Figure 7. Seasonally Total Assets Turnover for three tourism companies (2017.3.30-2020.3.30)

The first one is the Total Asset Turnover. From the diagram, we can see that all of these three firms have a similar decreasing pattern. Although AXP has a lower turnovers in general than those of other two firms, the change is the least dramatic, decreasing from 0.053 to 0.04 during the

prevalence of the epidemics. However, for TRIP, the value of turnover descends from 0.157 to 0.115 from 2019 to 2020, but the average annual decrease from 2017 to 2019 is only 0.0015. For CHH, the total assets turnover falls 0.06 during the epidemics situation, which is a huge change comparing with the falling of only 0.015 per year before the prevalence of COVID-19. Therefore, it is apparent that the virus weakens the abilities in using assets to generate revenue among these three firms, which might can also be applied to the whole traveling industry.

### 3.2.4.2. Capital intensity

The second indicator is the Capital intensity. It reveals how much a company's dollar return on investment is. From the line chart, we can see that similar to what is shown on the graph indicating the total assets turnovers, these three companies share a common changing pattern. However, at this time AXP has the highest level of operating leverage, proving by its highest value of the capital intensity throughout the four years. Respectively, the intensity of TRIP changes from 6.11, 5.93, 6.37, to 8.73, which shows a sharp increase from the year 2019 to 2020, 1.22 different from the mean value of increase from 2017 to 2019 per year. Although AXP underwent a decrease from 2017 to 2018, the firm has kept growing since 2018 in terms of its capital intensity. Remarkably, the increase during the epidemics in AXP is 5 more than that before the pandemic, indicating the strong power of the epidemics to push the firm being even more vulnerable to economic slowdowns. For CHH, the capital intensity grows from 4.57 to 7.81 between 2017 and 2020, and roughly 50% of the growth happening during the prevalence of the virus, and for now it has a worse ability dealing with economic downturns, because a small change in its sales could lead to a big change in profits and return on invested capital.

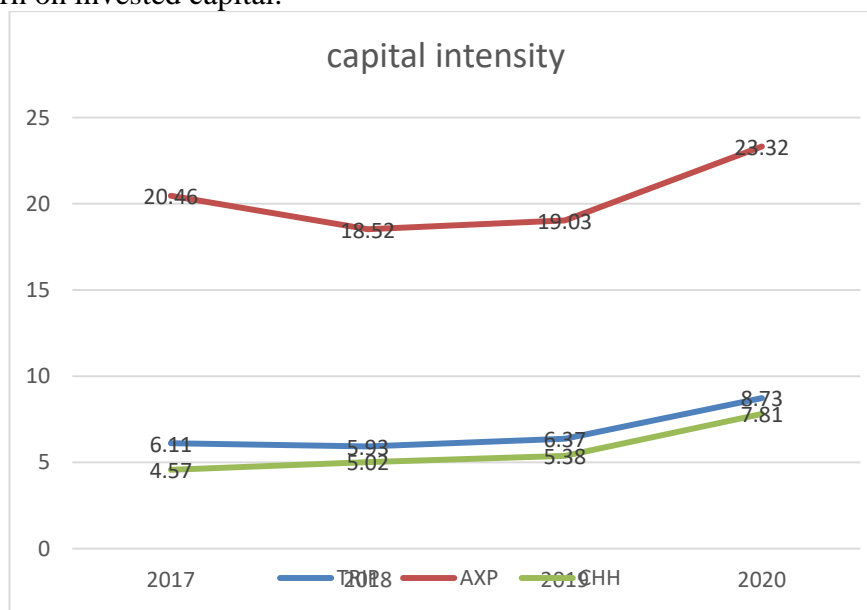


Figure 8. Seasonally Capital Intensity for three tourism companies (2017.3.30-2020.3.30)

## 3.3. Investments Strategies

### 3.3.1. Value investment—PE ratio

During the prevalence of the COVID-19, choosing Jun. 14th as the time node, the PE ratio of TripAdvisor is 34.13, which is much greater than 10. The PE ratio of American Express is 18.74, also greater than 10. Therefore, during the period of the COVID-19, both three companies could not function well for a value investor.

### 3.3.2. Growth Investment—PEG ratio

On the day of Jun.14th, the PEG ratio of TripAdvisor is 7.44, which is surprisingly much larger than 1. Although that value of American Express is only 1.73, a little larger than what we expected, the PEG ratio of CHH is as high as 4.07, indicating a bad performance of the whole travelling industry



to growth investors.

### **3.3.3 Momentum Investment—moving average and current price**

The current price of TRIP on Jun. 14th is 20.41, lower than the 200 days moving average 23.69. Similarly, the current price of AXP is roughly 6 lower than its 200 days moving average, and so do that of CHH, which has a 3.54 difference in price. This common pattern shows that momentum investor would not choose any of these three firms to invest in, since they would believe that the stock prices of all of the firms are still going to fall, which means that it's not a good time for them to buy more stocks.

### **3.4.4 Summary of the Capacities of the Industry**

The risk relative to the market level could be indicated by the value of beta. Respectively, the three values of TRIP, AXP, CHH are 1.31, 1.11, and 1.36. All of them are greater than, which means that investing in these firms are currently riskier than simply invest in the market.

## **4. Conclusions**

According to the data of three companies, there is indeed a severe and significant hit on the traveling industry, which is indicated by the decrease of the performances to earn profit, pay off debt, and utilize their assets. However, to what extent the companies are impacted is totally different. First, the stock price of TRIP has been much more stable than other two stocks since the outbreak of COVID-19, though also subject to somewhat decline. Second, the capital structure varies greatly among three companies, with TRIP holding lowest debt ratio of around 0.4. Consider that all businesses are strictly suffering from severe liquidity constraints during COVID-19 and many of them went bankruptcy for extremely high debt risk, lower debt ratio might help businesses be able to absorb some liquidity risk. Taking a closer look at the profitability, TRIP does perform better than other two companies, with a highest PE ratio of 34.13 and PEG ratio of 7.44. As a conclusion, TRIP indeed performs better so far in terms of resisting risk, however, it's hard to say to which extent the COVID-19 would exert negative influence towards all tourism in the long run.

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