

Impact of COVID-19 on Airline Business: A Case Study of Airlines in Thailand



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Hardship of airline industry is outstanding in 2020, air travel has been interrupted, since the new coronavirus 2019 started spreading around the world in December 2019. This research depicts the picture of impact from the consequence after economic activities are intervened both demand and supply sides, leading to financial problem. Travel restriction policy strictly imposed in several countries has reduced airline operating activities to the minimum. Airlines then mainly operate in domestic sector, and are permitted for only some specific international flights. Commercial airlines had struggled to survive, by introducing competitive airfare, finding other source of revenue, reduce over capacity, and cutting expenses. Rather than external factors of airlines such as shrinking in economic activities, government policy, and geographical factor reflected by operating performance, this study found that business management strategies take important role for survival of airlines throughout the hardship as reflected by financial performance. Rather than revenue gains from domestic travel, good asset management and financial reserve are the key outstanding reason behind the buffer of Bangkok Airways, short haul full-service carrier, which had the least impact compare to Thai Airways, long-haul full-service carrier, and Thai AirAsia, short-haul low-cost carrier. The lines between each airline category, defined by type of air travel services, become blurry as all airlines are in the same situation. The crisis forces airlines to reduce its capacity for short term recovery and to rethink of how to handle for the external thread, as airlines are highly sensitive to economic and business cyclical.

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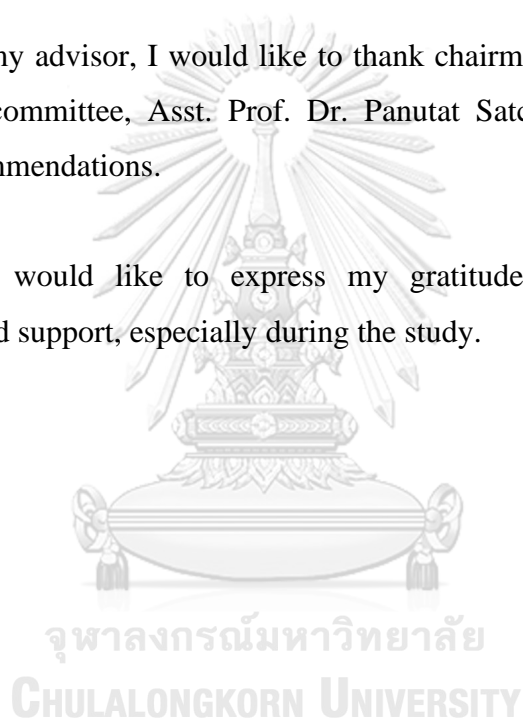


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INTRODUCTION

The new coronavirus 2019 plunged the world economy into recession. In order to slow down the pandemic situation among people infected from country to country, travel restriction had been imposed in several countries. 2020 was a tough year for hospitality industry, especially for airline companies. In case of normal situation, the trend of air travel would have been better in 2020 as per the consecutive growth of air travel along with worldwide business expansion in 2019. But then the pandemic of COVID-19 started at the end of 2019 made 2020 a tough period of airline business. Travel has been barred for many countries. Thailand also announced the state of emergency and suspended all flights in April 2020 without considering about economic activities. The top priority is to prevent the transmission and save people's life from the coronavirus disease. Airlines started faced financial loss since then and we started perceiving bad news first in tourism industries such as layoffs, furloughs, and cut off salary policy. Trying to survive until the flights can be operated as normal. According to The Air Transport Action Group (ATAG), a Geneva-based coalition of aviation industry organizations,¹ aviation-supported job has been cut off, potentially down to -52.5% and direct aviation jobs fell by 43% compared to pre-COVID situation. Rather than cutting expenses, airlines start considering ways to get short term revenue such as “flying to nowhere,” food selling, repatriation and cargo flights.

As this crisis did not occur only a few days but there were more than one wave of the pandemic and the impact seems to stay for years during vaccine development, the purpose of this study is to understand the impact of current economic crisis on Thai airlines' performance and examine the ways airlines react to economic downturn. The business cycle and particular conditions of airline business, especially in Thailand will be discussed in depth. The possible scenarios of airline recovery and airline strategic recovery plan on airline side will also be analyzed.

This study will focus on top 3 airlines in Thailand, including Thai Airways and Bangkok airways as case study for full-service carrier (FSC), due to the fact that both airlines are major full-service airlines on the internal flight network in Thailand, with difference in market position and business size. Thai Airways is Thailand's national carrier with the largest market size operating to several main airports around the world, while Bangkok airways, Thailand-based airline, focuses on regional and domestic destination. Thai AirAsia, which has a largest Thailand domestic market share, represents low-cost carrier (LCC). The other LCCs like Thai Smile and Nok Air are left no mention because of large share owned by Thai Airways. Both FSC and LCC encounter the same situation, in terms of simultaneous demand and supply shock, short-term dumping ticket price is not very significant for customer choice under travel constraint of government policy leading to limited supply on airline side. Even low-cost carriers are also affected.

¹ The Air Transport Action Group (ATAG). (2020, September). *Aviation Benefit Beyond Borders*. Retrieved from <https://aviationbenefits.org/covid-19s-impact-on-air-transport/>

In aspect of market business model, the first hypothesis is that LCC will get least impact from this travel constraint than international FSCs, that rely much on long-haul sectors and the high cost of investment for achieving in niche market. However, in the never-known ending situation for aviation industry, limitation of air travel due to inevitable government intervention in business dynamic and limited vaccines, government support would be necessary for airlines' survival. Moreover, airlines are facing the new challenges in the long run during the gradually relief in air travel sector which might take years to get back the pre-COVID level. The future direction of airline business will also be discussed.

AIRLINE INDUSTRY OUTLOOK

Due to the new coronavirus 2019 (COVID-19), global economy in the first quarter gone through a slowdown as abrupt and tight infection control leading to disruption in manufacturing and consumption, causing impact on purchasing power and demand at global level. According to Bank of Thailand, Thailand's GDP growth shrunk at -12.2% in the second quarter of 2020², the lowest downturn of economic cycle in 22 years since Asian economic crisis 1998.

As a result of economic downturn, tourism sector started face the recession since the first quarter when both supply and demand shock happened at the same time. Consequently, seats offered by airlines globally reduced by 50% and there are only 2,690 million passengers (60% reduction) in 2020, according to International Civil Aviation Organization (ICAO). According to International Air Transport Associations (IATA)'s Air Passenger Market Analysis report December 2020, global RPKs (Revenue per Kilometers) estimated to have shrunk by 66% on average.

Thai airlines also cooperated with government order and announcement of The Civil Aviation Authority of Thailand (CAAT) about travel policy during the pandemic, according to, Ministry of Tourism and Sports,³ International Tourist Arrivals to Thailand 2020 slumped 83% to 6.7 million and the number of Chinese visitors, major contributor to Thailand's Economy especially in tourism sector, has gone down 88% to 1.25 million.

Thailand's GDP growth as of December 2020 has recovered to -6.6%, partly because of easing in government travel restriction policy and stimulus package since July 2020. Government spent 22.4 billion baht (718 million dollar) from 1 trillion-baht national loan (60 billion dollar) on Thai domestic for threes stimulus packages since July and the plan has run through January 2021. The first Thai travel subsidy was "Happiness-sharing trips" subsidizing 50% of domestic travel expense for 2

2

Bangkok Post. (2020, August 17). *Q2 GDP shrinks 12.2% y/y, weakest in 22 years*. Retrieved from bangkokpost.com: <https://www.bangkokpost.com/business/1969631/q2-gdp-shrinks-12-2-y-y-weakest-in-22-years>

³ Ministry of Tourism & Sports. (2020, October). *International Tourist Arrivals*. Retrieved from Ministry of Tourism & Sports: https://www.mots.go.th/mots_en/more_news_new.php?cid=330

million travelers. The second one was “Moral Support” travel fund for healthcare workers. The third one for “Travelling Together” which is worth 5 million nights in hotel, subsidized by 40%.

The result is quite effective as the domestic travel improved 56% ⁴from June to July 2020 and remain the same level since then. Nonetheless, the second pandemic occurred during the ease in lockdown in December 2020 until January 2021. Travel stopped automatically as the consecutively high accumulative numbers of the infected people since then. Therefore, we can see uncertainty of Thai economy is still high as the recovery depends very much upon COVID-19 situation which is still accelerating since the ease of lockdown measure.

Airlines in Thailand faced the slowdown since 2018-2019 and COVID-19 made the situation worse. Thai AirAsia, low-cost carrier, faced loss 474 million bath in 2019, Bangkok Airways, full-service carrier in Thailand, also consecutively gained lower profit from 2017 at 846 million baht down to 264 and 357 million baht in 2018-2019 consecutively. The first three quarters of 2020, Thai Airways faced loss at 49,561 million baht, 3,649 million baht for Thai AirAsia, and 3,313 million baht for Bangkok Airways. The hope for recovery in the fourth quarter was destroyed due to the new wave of the pandemic. Survival of airlines would definitely depend on health innovation, government decision, and support in order to carry on the industry until the solution (vaccine) is ready. The idea of government support provided to airlines rather than bailing them out to insolvency is also supported by IATA as bailout potentially cost more damage than stimulating the marketplace in a way that does not create more liability to airlines. Partly because high unemployment will cost hugely government subsidies.

Airline performance relies much on environmental factors. Several crucial moments in the past have been recorded with impacts of aviation industry such as 9/11, Severe Acute Respiratory Syndrome (SARS), deregulation, extremely rising fuel price in 2008. For Thai aviation industry, internal crisis also occurred in 2008 when Suvarnabhumi airport invaded by anti-government demonstrators casing Thousands of overseas passengers stranded at the airport. However, the downturn of 2020 was perceived as the worst crisis ever.

LITERATURE REVIEW

In the aspect of tourism sector, airline business takes a role of a feeder that generates economic activity. The opposite scenario when there is no demand and there is also no permission to supply, airline then received a huge impact. According to Frank and John (2011), when economic slump combined with exogenous shocks, overlapped the collective fear of flying, the demand declines. According to Discazeaux and Polèse (2007), air traffic volume has positive relationship towards

⁴ Joanna Bailey. (2020, December 9). Retrieved from Simple Flying: <https://simpleflying.com/thailand-air-passenger-boost/>

local economy, as well as Debbage and Delk. (2001) and Brueckner (2003). Lam, Zhong, and Wctan (2003)'s study about SARS in Asia and the world emphasizing the outbreak of the infectious disease can spread rapidly by air travel found that aircraft movement at the Hong Kong International Airport plunged by 49% in May 2003 and apparently bounced back in June and July 2003 to be 70% and 80% respectively of pre-SARS levels after the last affected area declared free SARS transmission. Like airline business in other countries, when Thai economy slump, the supply side of air travel is expected to decline consequently due to smaller size of the economy indicated by decrease in demand.

Moreover, there are studies highlighting airline's market's sensitivity to cyclical business itself, because of the long lead time for business expansion, especially in aircraft ordering process, and the immediate effect from environmental threat which directly affects supply and passenger demand. This implies the hardship to stabilize the business and the important role of cyclical business management. According to Liehe, Großler, Klein, and Milling (2001)'s study about business cycles in the airline market emphasizes the leverage points to stabilize the system's behavior were identified in the process of aircraft ordering which normally takes 18-24 months before the new jet can increase market's capacity, in network planning, and in adding flexibility to existing capacity. Franke and John (2011)'s study about crisis in airline industry also emphasized the sensitivity of airline to cyclical business due to the necessary adjustment in the time of crisis in the short run to stabilize the business and the risk of reintroducing capacity at very high cost in the upturn.

In terms of product differentiation, Gillen and Morrison (2003)'s study found that the key difference between FSC and LCC is that LCC aims at profit maximizing by adjusting price to capacity while FSC sets price before capacity setting. FSC is highly depending on high profit margin referring value added packages for each segment, especially for business travelers, a subset of passengers that the large revenue comes from. It is risky for the business downturn due to expectation on a high margin from only a subset of passengers.

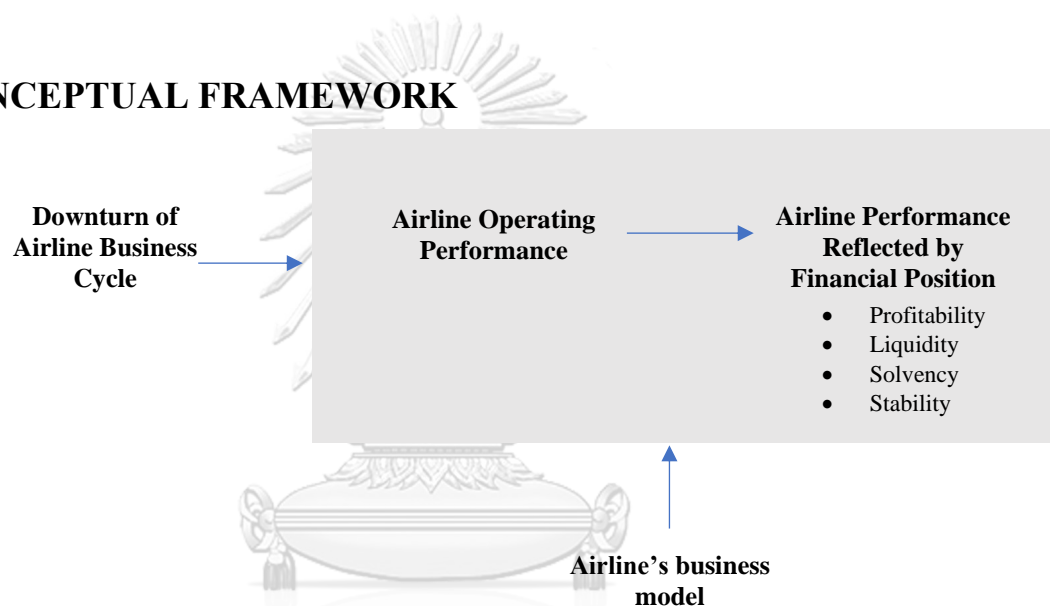
According to Trondent Development Corporation study (2020), business passengers generally contribute 75% of airline revenue, though they are only 12% of all passengers, due to their high income, which is correlated with high disposable income to spend on abroad range including additional cost of last-minute booking and direct-flight options.

In regard to market position, according to Flouris and Walker (2005), the study accounting and stock performance in the aftermath of terrorist attacked in 2001 shows that LCC had least impact and recovered faster compared to FSC. Fu, Lei, Wang, and Yan's study (2015) about airline after deregulation in China indicates that LCCs has high advantage for the regulation in terms of low-cost strategy that allows them expand other route network with low expense compared to FSCs. Rather than business model relates to airline company flexibilization, Hatty and Hollmeier (2003)'s study about airline strategy during September 2001, terrorist attacked, indicates that states subsidiaries, which are limited, the ultimate hope for airlines and

there are rumors of government visible and hidden subsidies received by the national carriers. Dursun, Connell, Lei, and Smith (2014)'s study about transformation of a legacy carrier also significantly implies competitive advantages of partially of fully stated owned legacy carrier in an increasingly open and liberal airline industry.

Most studies show the impact from airline business model that uses cost as the main key factor of airline flexibility or resilience in U.S., Europe, and China's airlines during the major crisis at global level like Gulf war in 1990, September 11 in 2001, and rise in oil price 2008. This study focuses on current crisis, COVID-19, towards main airlines in Thailand and provides discussion in depth regarding airline strategic plans for short term during slump of air traffic and for long term preparation to handle with the economic downturn.

CONCEPTUAL FRAMEWORK



The conceptual framework above relates airline business cycles with economic effect to overall airline performance reflected by financial position. Airline capacity has been reduced rapidly according to government policy causing inevitability organizational restructuring to cope with limited supply and demand, as well as other industry that faced financial loss. Rather than cause and effect of endogenous variables, airline business model is considered to be exogenous variable apart from direct effect of demand and supply shock from travel policy constraint on airline operating and financial position. Efficient business model is as a good cushion buffer for the business downturn; on the other hand, the inefficiency of previous operating performance implies business sensitivity to the downturn of business cycle.

DATA COLLECTION

Secondary data from annual reports from airline websites are used for analysis and reference for discussions. Accounting performance of airline will be analyzed to emphasize the impact of COVID-19 on airline liquidity using financial ratio 2019-2020, quarterly and annually, to compare pre and post COVID. I will also discuss in business model and airline strategies used to handle the situation and point out the previous crisis in aviation industry. The airlines in this study were chosen from Thailand's domestic market share according to CAAT (2019) and the top ranking of each category are picked. Thai Airways represents Thailand-based international airline. Bangkok Airways represents regional airline. Both are full-service carrier. Thai AirAsia represents low-cost carrier.

Airline operating data will be used in terms of operating impact overview. The latest data from airlines' report are limited at the third quarter of 2020. Policy and decisions taken disclosed through annual reports and business news will be discussed along with findings from operating data below.

Significant Airline Operating Data in Airlines' Report:

1. ASK (Available Seat-Kilometer): The number of seats available for passengers multiplied by number of kilometers flown (sometimes miles and referred as ASM), which is normally provided via quarterly report of airlines to measure the capacity of each airlines in the same period of time.
2. RPK (Revenue Passenger-Kilometer): The number of revenue passengers multiplied by the number of kilometers that are flown. RPK will used to measure the demand for air travel in each airline before and after crisis.
3. Number of passengers (million)

METHODOLOGY

Due to the fact that each airline has different in characteristic, implying variety of impact, SWOT analysis will be used to identify airlines' business model to separate its significant characteristics first.

In order to compare operating performance of each chosen airline as representatives of their service categories, common measurement of airlines will be adopted. Further form demand and supply side indicated by RPK and ASK, revenue per unit and unit cost will be observed, emphasizing different effect towards airlines. RASK and CASK are commonly adopted for airlines operating performance indicator in airline industry and in those three airlines' reports. To make the result reliable and fair for all airlines, the calculation is standardized as per below formular.

1. CASK (Cost per Available-Seat Kilometer) calculated by the sum of operating cost, sale expenses, service expenses and the remuneration of the executives (excluding financial cost). CASK is used as unit cost.

2. RASK (Revenue per Available-Seat Kilometer) is calculated by the sum of revenue from sales and services divided by ASK. RASK is used to measure revenue per seat, comparing with unit cost of airlines (CASK). The higher RASK compared to CASK, the better the airline can generate profit. RASK is used as revenue per unit.
3. Passenger Load Factor is calculated by using RPK divided by ASK, measuring how well airlines could manage their operating activities, balancing demand and capacity, especially during the immediate effect of the crisis.

Financial position of three chosen airlines in the same specific period of time will be compared and analyzed, mainly focus on four categories in different aspects which are liquidity, asset management, solvency and profitability for measuring airline companies' stability according to Flouris and Walker (2005). Liquidity ratio is for measuring airlines' ability to comply short-term debt obligation. Asset management ratio is for measuring asset utilization efficiency. Debt management ratios are for measuring financial riskiness of the airline regarding long-term debt. Profitability ratios are for measuring profit generated from airlines' activities. Airlines' annual reports such as financial statement and management discussion will be analyzed comparing before and after the crisis, using accounting ratio analysis from textbook of Financial Management. Key indicators are adopted from previous researchers regarding airline performance.

1. Liquidity: Current ratio will be used to estimate firm's ability to pay its current bills with for a safety margin above the required amount needed to pay current or short-term obligations.

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

2. Asset management: Total asset turnover will be used to measure how efficiently and effectively a company uses its assets to generate sales. The higher ratio, the more efficiently they have been used.

$$\text{Total Asset Turnover} = \text{Sales} / \text{Total Assets}$$

3. Debt management: Debt ratio and interest coverage ratio will be used. To speculate solvency of the firm, debt ratio will be used to indicate firm's ability to pay debt in the long run, to represent the percentage of assets financed by creditors, and to determine how well the creditors will be protected in case of insolvency. High ratio implies the good level of financing by creditors.

$$\text{Debt Ratio} = \text{Total Liabilities} / \text{Total Assets}$$

The interest coverage ratio (or "times interest earned") will be used to measure firm's ability to service its debts and to measure how many times interest payments could be made with a firm's payment with earnings before interest

expenses and taxes (EBIT). The higher ratio represents the more positive to the financial position, meaning that the firm potentially meet its obligation.

$$\text{Interest Coverage Ratio} = \text{EBIT} / \text{Interest}$$

4. Profitability: Net profit margin, return on assets (ROA), and return on equity (ROE) will be used.

The net profit margin will be used to estimate profit amount that the firm can generate to shareholders after interest and taxes have been deducted. In this case, net profit margin is considered to used instead of operating profit margin due to the exogenous variable of government travel policy influences airline operating activity as a whole industry, passenger travel sector has dropped significantly.

$$\text{Net Profit Margin} = \text{Net Income} / \text{Sales}$$

The return on assets (ROA) ratio measures airlines' asset utilization efficiency in terms of profit generation.

$$\text{ROA} = \text{Net Income} / \text{Total Assets}$$

The return on equity (ROE) measures the return earned on the owners' equity in the firm.

The higher the rate, the better the firm can generate wealth to shareholders.

$$\text{ROE} = \text{Net Income} / \text{Stockholders' Equity}$$

Business news and airline strategy will also be analyzed and lead to further discussion regarding the future of airline business in Thailand.

BUSINESS MODEL

Nowadays, airlines are not completely distinguished as totally different type of categories as in the past where business model divided into many categories which are low-cost carrier, regional carrier, legacy carrier or so called "full-service network carrier" (FSNC), charter carrier, and hybrid carrier. There are many of hybrid airlines combining competitive attributes trying to achieve in the market, especially when market competition intensified by limitation in demand and supply sides. The three chosen airlines in Thailand's air transport market are also considered to be the hybrid airlines in this case, as their services cover passenger, cargo, and charter flight to both international and domestic destinations. However, each airline still stands on different market position in terms of targeted market and service differentiation. To separate marketing position of each company, SWOT analysis is applied as per discussion on strength, weakness, opportunity, and threat as below.

<p><i>Strength</i></p> <ul style="list-style-type: none"> - National carrier - Star Alliance partnership - Primary International and domestic route network - Comprehensive operational activities - Hub-and-spoke system for route structuring - Primary airport Suvarnabhumi Airport (BKK) as a hub transferring passenger for both domestic and international sectors 	<p><i>Weakness</i></p> <ul style="list-style-type: none"> - Aircraft Management - High operating and maintenance cost - High fuel cost in terms of long-haul operation - Lower position in service ranking - Small domestic capacity
<p>Thai Airways</p>	
<p><i>Opportunity</i></p> <ul style="list-style-type: none"> - Economy feeder in tourism market segment - Thai baht appreciation supporting Thai tourists' international travelling 	<p><i>Threat</i></p> <ul style="list-style-type: none"> - Highly dependent on revenue from international sector - Highly dependent on premium seat revenue passengers - Low-cost carrier with more competitive airfare, as a result of Airline Deregulation started by United States since 1978 - Increase in fuel price

Table 1: Thai Airways' SWOT Analysis

Thai Airways International Public Company Limited is Thailand's national carrier, partially-owned by Thai government, in the name of Ministry of Finance who decided to reduced shareholding from 51% to 48% by selling 3.7 % of the share to private fund, since May 22, 2020. The airline provides premium international and domestic full-service for both long-haul and short-haul route. However, Thai Airways continues take a responsibility of national carrier as a core competency. With 60 years of operation to primary airports around the world, strong infrastructure of the airline in international level as a Star Alliance member, and continued business expansion in terms of route network and variety of aircraft, stability of the company is widely recognized. In terms of strength in operational activities, the airline has all its need for a flight with their own business unit as their own feeders such as catering, cargo, ground handling, aircrew training center, and aircraft maintenance. Hub-and-spoke system that generally adopted by full-service network carriers creates economies of scale in case of flight plan and aircraft management.

The airline can take a lot of advantages from the economy upturn along with business expansion. With largest fleet size in Thailand and as a flagged carrier, the airline can bring in large number of foreign travelers both business and leisure sector. The airline then takes an important role of the main economy feeder. In addition, airline can also take opportunity from international sector by managing source of fund with more than 50 currencies with Cross Currency Swap (CCS).

However, Thai Airways also encountered a lot of obstacles during its expansion which reflected by scandals and annual consecutive loss in financial reports. Its own subsidiary (100 percent holding), Thai Smile, providing full-service

short-haul international and domestic routes also reported seven years of annual consecutive loss.

Rather than higher fuel cost due to long-haul operation, Thai Airways has 2.5 times and 1.7 times larger fleet size than Bangkok Airways and Thai AirAsia respectively. There are total of 103 active aircrafts.⁵ 6 of Airbus' A380 and 7 of Boeing's B747 series are oriented as per service levels from first, business, to economy classes. Wide body long-range, 12 of Airbus' A350, 15 of A330 series, 8 of B787 series, and 32 of B777 series are divided into only 2 levels which are business and economy classes to serve for both domestic and international sectors as deemed suitable for demand forecasted in each season. Lastly, only 20 of Airbus' A320 under Thai Smile's operation mainly serves domestic travel in full-service travel package as well as Bangkok Airways. To serve the segmented customers and depending on high yield revenue from premium seat passengers, wide range of aircrafts are utilized causing the higher cost such as different type of aircraft spares parts, different maintenance staffs, air crew training varied per aircraft type.

Rather than risk by depending on the small amount of premium seat passengers, the airline needs to prepare for risk on its route structure that depends much on international network at 98% of its total sales revenue. After the low-fare business model applied by low-cost carrier in United States like Southwest airline as a result of Airline Deregulation act in 1978, removing entry and price restrictions on airlines permitting carriers to serve specific routes, hub-and-spoke route structure is not necessary for airlines business model as the regulation and agreement between countries has been adopted worldwide, for ASEAN this is named as "Open Skies"⁶ policy. Without restriction in price, low-cost airlines are established and adopted point-to-point system for route structure avoiding expense, competition in price started. Thus, low-fare business is another thread of Thai Airways in the same industry when price differentiation created other choice for travelers.

⁵ Thai Airways. (2021). Retrieved March 2021, from Thai Airways:
https://www.thaiairways.com/en_TH/during_your_trip/our_aircraft/aircraft/index.page

⁶ Thodsapol Hongtong. (2019, August 14). Retrieved from Bangkok Post:
<https://www.bangkokpost.com/business/1729615/thai-airways-calls-for-official-review-of-open-skies>

<p><i>Strength</i></p> <ul style="list-style-type: none"> - Growing profitability - Asia's Best Regional Airline according to the Skytrax World Airline Award - Exotic and cultural domestic destination - Airports and resort ownership - Comprehensive operational activities - Both Primary, airport Suvarnabhumi Airport (BKK) as its hub. 	<p><i>Weakness</i></p> <ul style="list-style-type: none"> - Small fleet size - Limited number and type of aircrafts
<p>Bangkok Airways</p>	
<p><i>Opportunity</i></p> <ul style="list-style-type: none"> - Mainly advantage in domestic sector - Domestic travel encouragement by government - Agreement of code-share flights with 27 airlines - Hub-and-spoke system for route structure 	<p><i>Threat</i></p> <ul style="list-style-type: none"> - Low-cost carrier with more competitive airfare as a result of Airline Deregulation started by United States since 1978 - Highly dependent on premium seat revenue passengers - Increase in fuel price

Table 2: Bangkok Airways' SWOT Analysis

Bangkok Airways is a regional full-service airline, Thailand-based and owned by private investors in Thailand, providing premium full-service to destinations in Thailand, Cambodia, China, Hong Kong, India, Laos, Malaysia, Maldives, Myanmar, Singapore, and Vietnam, utilizing Suvarnabhumi Airport, Thailand's primary airport as a Hub. The airline apparently represents full-service airline in private sector in Thailand. The airline is positively recognized due to consecutive annual profitability before 2020 and was certified by Skytrax as Asia's best regional airline 2019⁷. With ownership of three domestic airports, Trat, Sukhothai, Samui airport, and ownership of airport-related service such as passenger and ramp service, catering service and cargo, the airline can take advantage on this comprehensive revenue, in terms of promoting it brand through their whole products and services as a main service provider for the area. Moreover, government subsidies for domestic travel by Stimulus package as the second quarter of 2020 indirectly help boost airline operating activities as well.

Though Bangkok Airways markets itself as a full-service provider, its fleet size is the smallest of all at only 40 small or narrow-body aircrafts. Aircraft types include ATR72 series, for 72-78 passengers, Airbus' A320 and A319 series. For 162 seats per aircraft. This is considered to weakness in terms of capacity and ability to gain market share compared to low-cost and potential domestic sector player as Thai AirAsia. On the other hand, the airline bears lower expenses and risk, especially for

⁷ Skytrax. (2019). *Skytrax World Airline Awards*. Retrieved March 2021, from <https://www.worldairlineawards.com/worlds-best-regional-airlines-2019/>

the crisis when there is limitation of both demand and supply side, due to the fact that mainly high expense of airlines come from aircraft, personnel, and fuel.

As well as Thai Airways as a full-service carrier, the threat of selling bundling full-service ticket price is lower unbundling affordable airfare of low-cost carrier, which provide more affordable choice to customer.

<p><i>Strength</i></p> <ul style="list-style-type: none"> - Affordable ticket price - Unbundling ticket price as “You pay what you want” - Well-established brand name in Asia Pacific - Low-cost leader in Asia - Highest market share in Thailand’s domestic sector - Fleet Uniformity 	<p><i>Weakness</i></p> <ul style="list-style-type: none"> - Lower profit margin as depending on capacity fulfillment
<p>Thai AirAsia</p>	
<p><i>Opportunity</i></p> <ul style="list-style-type: none"> - Domestic travel encouragement by government - ASEAN open skies - Point-to-point system of route structure - Emerging AirAsia group for long, medium, and short haul network 	<p><i>Threat</i></p> <ul style="list-style-type: none"> - Increase in fuel price - Challenge in cost management

Table 3: Thai AirAsia's SWOT Analysis

Asia Aviation Public Company Limited (“Asia Aviation”), brand in Malaysia is a major shareholder at 55 percent of Thai AirAsia Company Limited (“Thai AirAsia”) who is an airline operator of Thai AirAsia, the top LCC in Thailand with at 33-35 percent passenger market share in Thailand as in 2019 according to CAAT (2019). Thai AirAsia clearly represents the low-cost carrier strategy, as the airline provides high-frequency short-haul international and domestic routes, utilizing its hub at Bangkok’s secondary airport, Don Mueang International Airport and other four urban domestic airports to connect travelers in Southeast Asia, South Asia, and the southern part of China. The access to ASEAN area is clearly the business expansion opportunity from “Open Skies” policy in 2015.⁸ The airline declares the very clear position at the beginning of its inception in 2004 positioning itself as a low-fare airline business for both cost-concerned leisure travelers and business travelers with single-class, single-fleet, and point-to-point operation. During the crisis in 2020, Thai AirAsia still attract customer with low price in order to achieve the limited demand by applying promotion throughout the year and introducing unlimited pass during limited

⁸ AirAsia. (2019, August). Retrieved from AirAsia:
<https://newsroom.airasia.com/news/https://newsroomairasiacom/news/airasia-unveils-sustainable-asean-livery-to-celebrate-asean-day->

airline operating activities in 2020 to maintain its largest market share in Thailand's domestic sector.

Thai AirAsia operates with only Airbus's 320 series, as Thai Smile and Bangkok Airways have with 162-168 seat per aircraft. However, the capacity of is adjusted to fit for maximum with. 180-236 seat per aircraft with 62 aircrafts in total. The cost is considered to be lower in terms of air crew training and maintenance personnel. Fleet uniformity enhances flexibility to air crew relocation and also enhance economies of scale in terms of same type of minimal spare parts and maintenance tasks for only one particular type of aircraft. Due to the familiarization in one aircraft type, airline staffs are the experts in its utilization and how to maintenance.

With low cost and high capacity, the airline gains profitability of high volume of passengers; therefore, the main challenge of airline is to maintain its major market share and secure passenger volume. Though, the airline is good at cost efficiency, the uncontrollable cost like fuel cost is considered to be a thread.

From the aspect of capacity segmentation, Thai Airways consider to be the most restricted for seat fulfillment due to the number of class-oriented seats made at aircraft ordering process. Seat Adjustment is limited as per different seats features. Consequently, this type of service is quite sensitive to the demand of travelers. Thai Airways service is competitive in case of high demand from high yield passengers, first and business class travelers, which can cover 70% approximately of full-service network carriers in general and make the airlines survive, while narrow-body aircrafts user like Thai AirAsia in this case, the cost is aimed to minimize by promoting full capacity without seat segmentation.



IMPACT OF THE PANDEMIC ON AIR TRAFFIC OF AIRLINES

Operating Statistics: Traffic and Capacity

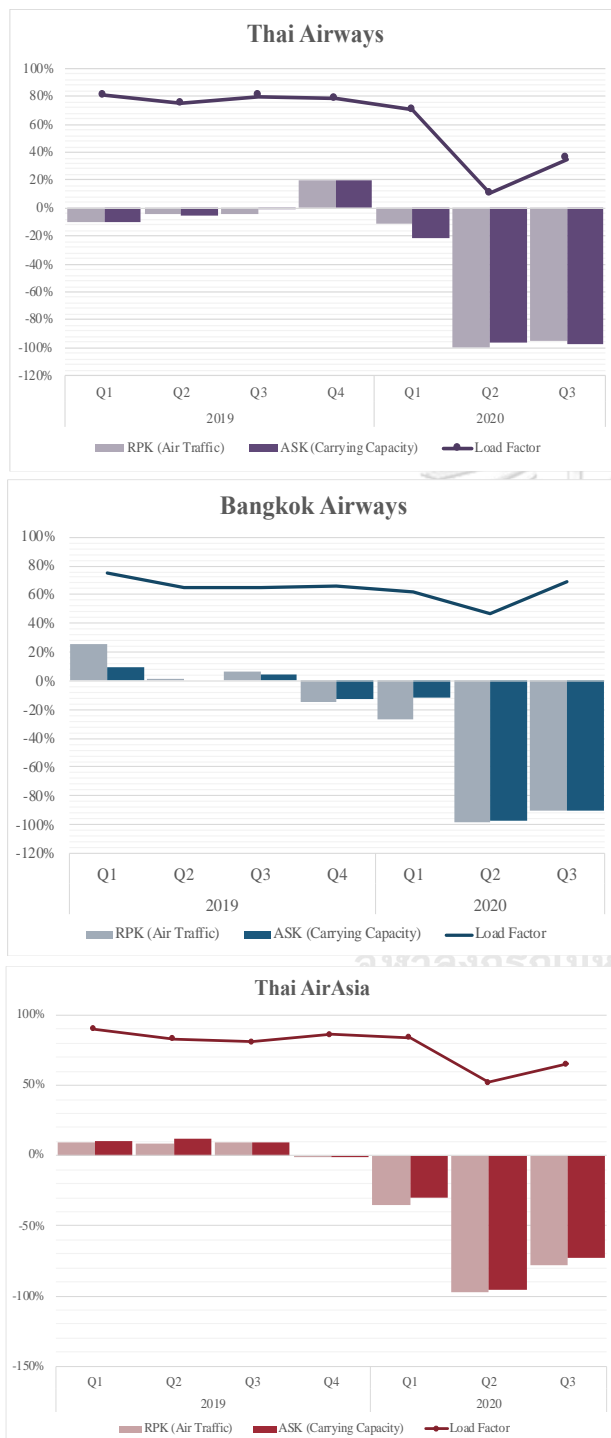


Figure 1: Airlines' Demand (RPK) and Supply (ASK) and Load Factor (%)

Huge drop in every airlines' traffic can be observed aligning with the report from IATA for the impact worldwide especially in April, the second quarter of 2020, when travel constraint imposed by government authorities.

Thai Airways' load factor rate sharply declined to 10.3% in the second quarter, the least among three airlines, implying hardship in capacity management in terms of route and flight adjustment, due to variety of aircraft types and large portion of international sector observed. Bangkok Airways' demand and supply side started dropping since the last quarter of 2019 which was intensified by the pandemic crisis in 2020 leading to load factor down to 47% in the second quarter from 65%, while Thai AirAsia faced big jump from profit to big loss in 2020 with load factor 52% in the second quarter from 84%.

All in all, load factor rate of Thai AirAsia is the highest among three airlines, emphasizing LCC's operating strategies that aims for capacity fulfillment to cover airline operating expense according to previous researchers. Domestic traffic helps recover both airlines a little bit, but not even show up for Thai Airways' case which is discussed in the next part including the proportion between domestic and international traffics.

Traffic Comparison

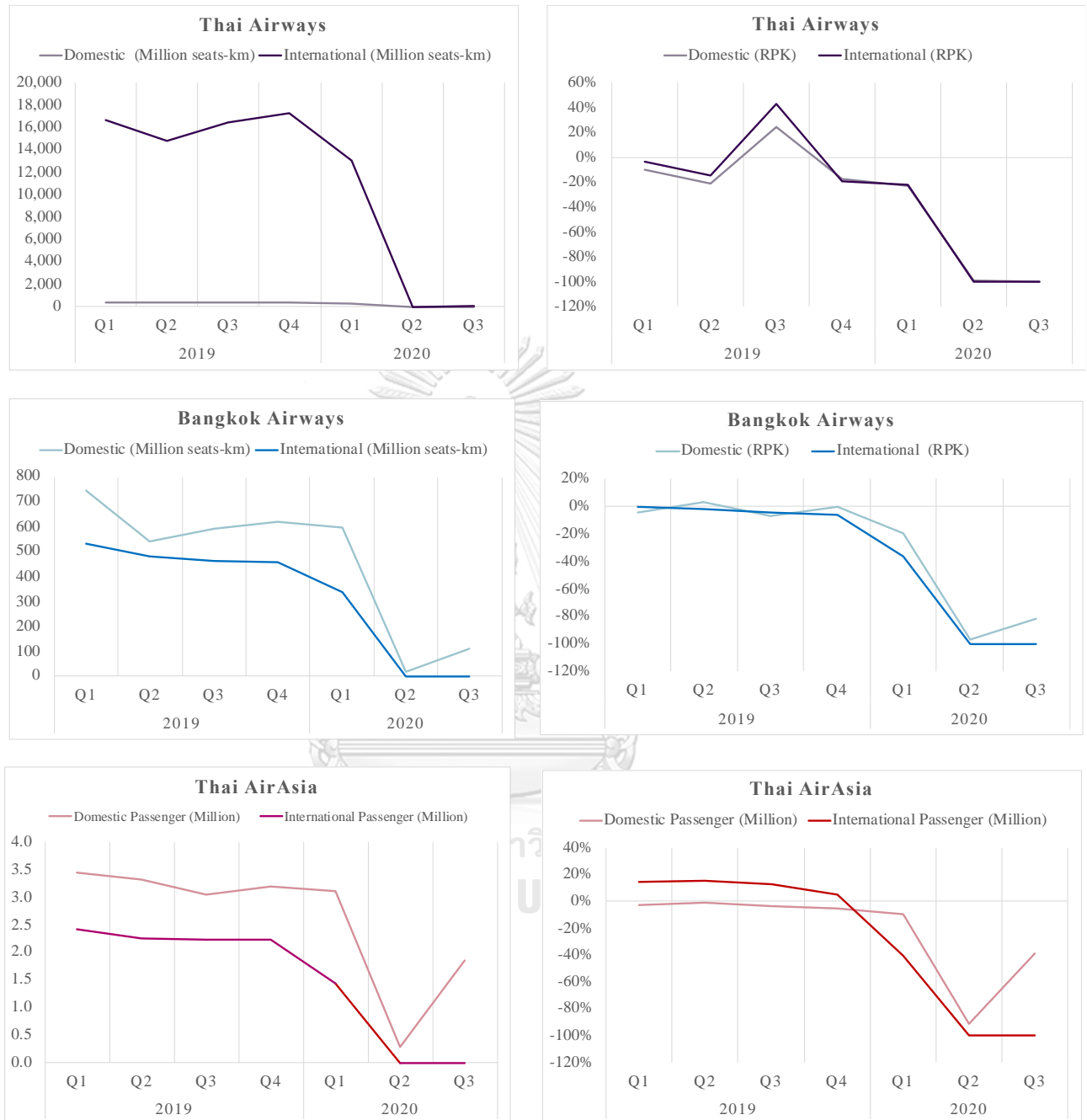


Figure 2: Airline Traffic between international and domestic sector and change from the same period last year

Above figures are from airline quarterly and annual report 2019-2020. The right side shows airline proportion between domestic and international traffics and the left side portrays changes in traffics over time from the same period last year. Huge drop in domestic traffic can be observed every airline, since travel restriction announced by CAAT cooperated with government authority in the beginning of April 2020. International traffic which is a majority of Thai Airways’ total operating flights

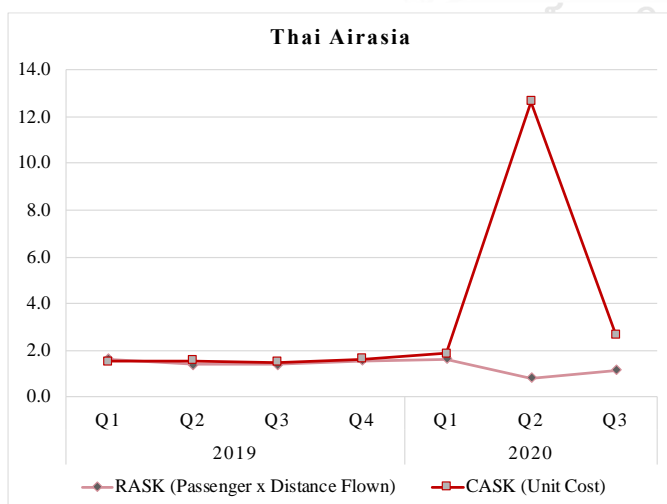
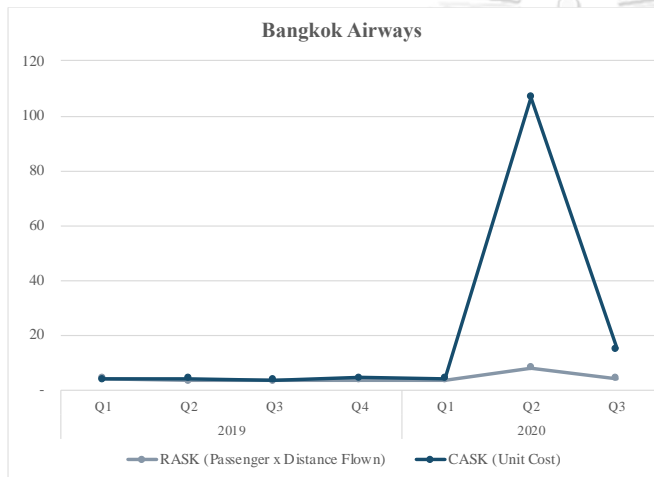
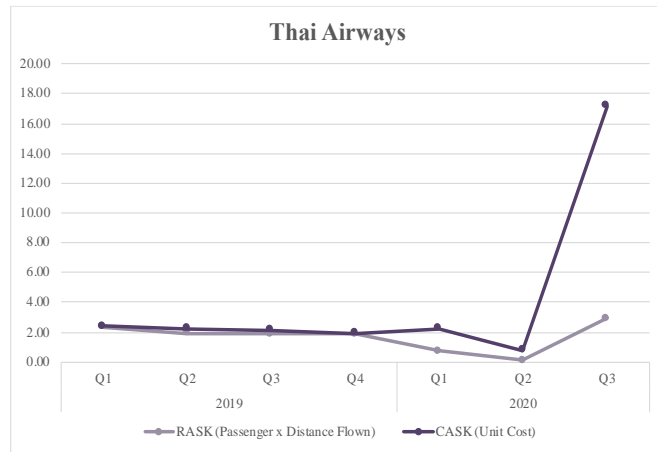
declined, causing immediate effect to the airline operating activity since international flight banned after arrival of the pandemic in Thailand. Easing in domestic travel policy, after the first wave of the pandemic, would not be enough for Thai Airways obviously, with 98% of revenue relying on international flights. On the other hand, Bangkok Airways' traffic naturally recovered as per ease of travel restriction policy of Thai Government, as domestic operation can be observed obviously in the third quarter.

Another player in Thailand's domestic sector, Thai AirAsia revealed its attempt to stimulate the domestic demand by introducing unlimited pass. Along with government subsidies boosting domestic tourism sector indirectly supporting domestic transportation, Thai AirAsia generated at least 261 million baht (87,000 tickets sold) from the campaign and its largest market share in Thailand's domestic sector remained with top destinations, Chiangmai and Nan. In the third quarter of 2020, the traffic gradually recovered, the last quarter and load factor boost up to 65%. however, the capacity still dropped 73% overall compared to the same period last year.

Domestic transportation, during national locked down, could be the survival of airlines. However, in terms of particular attributes of airline, especially for Thai Airways and its subsidy, domestic operating capability of Thai Smile (Thai Airways' subsidy), with 180 seat per flight at only 20 active aircrafts (Airbus' A320 series), will definitely not be able to subsidize loss of Thai Airways. Thai Airways would then be the last airline recovering from the shock and slump of its passenger sector which is the main source of airline's revenue.

Stimulus Package help boosting domestic demand of tourism sector, but it was very limited demand and supply of international sector. The opportunity was relied on Charter flight so-called as repatriation flight, semi-commercial flights, and Cargo flight. In light of reduction in main service of airlines and limited capacity as per travel restriction requirement, managing with high operating cost is challenging for airlines in order to maintain business activities.

Airlines' Operating Revenue and Unit Cost



As well as other airlines, Thai Airways applied strict order to mitigate the situation by reducing personnel expense and maintain liquidity, reserving cash as possible during imposition of travel restriction policy both domestic and international sector.

In the second quarter 2020, while other Thai Airways and Thai AirAsia failed on generating high revenue per seat, Bangkok Airways is on the other hand appear with the higher revenue per seat and unit cost than ever happened in 2019 with the same level of traffic decline with other airlines. The main expense in this quarter mainly came from the administrative expense from “voluntary resignation program” as a way to secure airline’s future cashflow.

As per the gradual recovery of the traffic, due to the indirect support from government through Thai people’s budget provision, along with cutting cash expenses at -50% compared to the same period last year, mainly in fuel, related operating expense, personnel expenses, maintenance cost and aircraft lease, consequently, unit cost apparently dropped by 79% from the previous quarter. The impact still remained reflecting by the higher unit cost at 80% year-on-year. Asia Aviation is observed as the most agility of taking back the performance.

Figure 3: Airlines' revenue per unit and cost per unit

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IMPACT OF THE PANDEMIC ON AIRLINES' ACCOUNTING PERFORMANCE

Time Period		2019-Q1	2019-Q2	2019-Q3	2019-Q4	2019	2020-Q1	2020-Q2	2020-Q3	2020-Q4	2020	
Panel A: Thai Airways												
	Sales	(MTHB)	49,345	42,169	42,643	46,123	180,280	37,637	2,400	3,271	4,408	47,716
	Net Income	(MTHB)	456	(6,878)	(4,680)	(915)	(12,016)	(22,676)	(5,353)	(21,531)	(91,619)	(141,180)
Liquidity	Current Ratio	(times)	0.59	0.58	0.56	0.59	0.59	0.41	0.10	0.08	0.07	0.07
Asset Management	Total Asset Turnover	(times)	0.18	0.16	0.17	0.18	0.70	0.11	0.01	0.01	0.02	0.23
Debt Management	Debt Ratio	%	91.2%	93.6%	95.2%	95.4%	95.4%	103.7%	105.8%	113.4%	162%	162%
	Interest rate coverage ratio	(times)	1.54	-5.19	-3.30	-0.93	-1.48	-11.59	-0.97	-4.21	-23.90	-10.49
Profitability	Net Profit Margin	%	0.9%	-16.3%	-11.0%	-2.0%	-6.7%	-60.2%	-223.1%	-658.2%	-2078.3%	-295.9%
	Return on Assets (ROA)	%	0.2%	-2.6%	-1.8%	-0.4%	-4.7%	-6.7%	-1.7%	-7.2%	-43.9%	-67.6%
	Return on Equity (ROE)	%	1.9%	-40.8%	-37.5%	-7.8%	-102.1%	182.0%	29.5%	53.9%	71.2%	109.7%
Panel B: Bangkok Airways												
	Sales	(MTHB)	7,341	5,198	5,788	5,634	23,962	5,627	287	697	1,056	7,666
	Net Income	(MTHB)	511	(698)	66	478	357	(339)	(2,994)	(1,585)	(410)	(5,328)
Liquidity	Current Ratio	(times)	1.39	1.38	1.37	1.36	1.36	1.02	0.58	0.52	0.31	0.31
Asset Management	Total Asset Turnover	(times)	0.12	0.08	0.09	0.09	0.39	0.10	0.01	0.01	0.02	0.15
Debt Management	Debt Ratio	%	49.4%	50.1%	50.9%	51.5%	51.5%	61.0%	59.5%	63.8%	61.3%	61.3%
	Interest rate coverage ratio	(times)	2.36	-0.82	1.09	2.92	1.41	-0.31	-10.45	-6.79	-0.33	-3.68
Profitability	Net Profit Margin	%	7.0%	-13.4%	1.1%	8.5%	1.5%	-6.0%	-1043.5%	-227.6%	-38.8%	-0.69
	Return on Assets (ROA)	%	0.8%	-1.1%	0.1%	0.8%	0.6%	-0.6%	-5.3%	-3.0%	-0.8%	-10.5%
	Return on Equity (ROE)	%	1.6%	-2.2%	0.2%	1.6%	1.2%	-1.5%	-13.0%	-8.4%	-2.1%	-27.2%
Panel C: Asia Aviation												
	Sales	(MTHB)	11,155	9,609	9,419	9,998	40,181	7,813	267	2,122	3,433	13,634
	Net Income	(MTHB)	904	(878)	(759)	(133)	(866)	(1,222)	(2,075)	(3,341)	(2,029)	(8,667)
Liquidity	Current Ratio	(times)	0.68	0.49	0.48	0.53	0.53	0.40	0.24	0.20	0.15	0.15
Asset Management	Total Asset Turnover	(times)	0.18	0.16	0.15	0.16	0.64	0.10	0.00	0.03	0.05	0.20
Debt Management	Debt Ratio	%	52.7%	53.3%	54.5%	56.0%	56.0%	70.4%	70.9%	73.8%	74.5%	74.5%
	Interest rate coverage ratio	(times)	5.89	-4.39	-2.43	0.22	-0.13	-2.47	-4.58	-7.59	-5.37	-4.82
Profitability	Net Profit Margin	%	8.1%	-9.1%	-8.1%	-1.3%	-2.2%	-15.6%	-778.6%	-157.5%	-59.1%	-63.6%
	Return on Assets (ROA)	%	1.5%	-1.4%	-1.2%	-0.2%	-1.4%	-1.6%	-2.8%	-4.7%	-3.0%	-12.7%
	Return on Equity (ROE)	%	3.1%	-3.1%	-2.7%	-0.5%	-3.1%	-5.4%	-9.7%	-17.7%	-11.7%	-49.9%

Table 4: Airlines' Accounting Performance

* Due to the fourth quarterly shown as an annual report, income data will be calculated by the annual performance minus sum of the first three period.

Above is benchmarking in accounting standpoint by comparing three chosen airlines' accounting measures and financial ratios' overtime to compare financial position of airlines in pre and post COVID.

The data above derived from consolidated quarterly financial statement reports form website of The Securities and Exchange Commission, Thailand, 2019-2020.

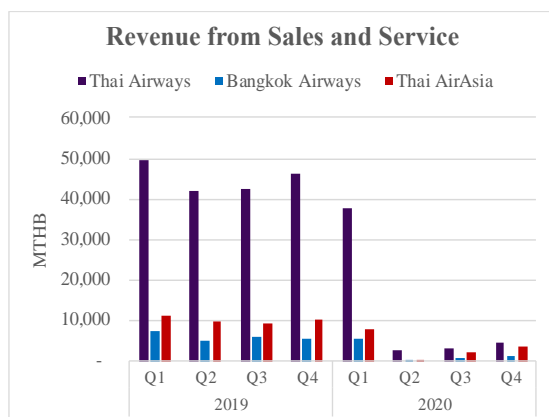


Figure 4: Airlines' Revenue from Sales and Services

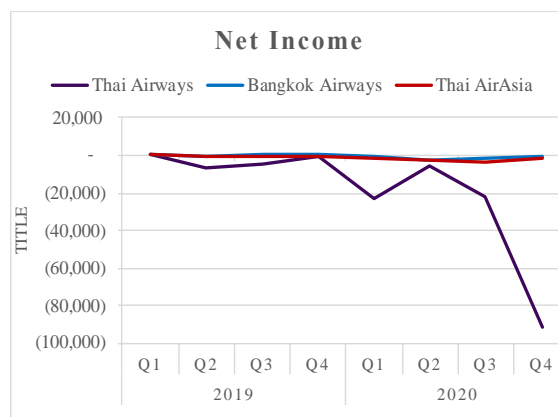


Figure 5: Airlines' Net Income

Airlines' Income

Aligning with fleet or business size mentioned in SWOT analysis, gap between revenue is obvious. Long-haul flight cost higher to airlines and passengers, the revenue amount of Thai Airways then is huge compare to Bangkok Airways and Thai AirAsia which focus on short-haul and domestic flights. Thai Airways, Bangkok Airways, and Thai AirAsia faced decline in revenue by 74%, 68%, and 66% respectively. In revenue generation perspective, comparing in percentage, the range not very far from each other, especially for Bangkok Airways and Thai AirAsia which relies on regional and domestic travel service.

The largely different business size of Thai Airways can be observed compared to the other two, leading to implication of high risk of the firm in consideration of market position as a full-service carrier, international flights provider, and variety of fleet types. In this point of view, the airline will bear high maintenance cost and high air crew trainings cost. Despite decline in revenue from sales and services, gain from foreign exchange Cross Currency Swap (CCS) transactions at 8,818 million baht mainly by revaluating foreign currency liability including aircraft operating lease liability leads to Thai Airways' lower net loss reduction in the second quarter of 2020 compare to the previous quarter. This emphasizes the important role of the other source of fund management of the airline company during the business downturn. Unfortunately, it is stated in 2020 annual report that the gain from exchange has been terminated by the counterpart, since the airline company has been filed for business rehabilitation under the Central Bankruptcy court. End-year report indicates high expense for the company and its subsidiaries is counted at 96,430 million Thai baht, causing lost to the airline 141,180 million Thai baht. The main expense here is impairment loss on aircraft, right-of-use assets and rotatable aircraft spare parts at 82,702 million Thai baht. With high operating cost in big aircrafts and low demand, the airline decided suspending its flights both international and domestic. Thai Smile, Thai Airways' subsidiary, still operate domestically as per travel policy, but the revenue is only 2.5% of total revenue of Thai Airways.

On the other hand, ease in travel restriction policy in Thailand, the domestic travel for Bangkok Airways and Thai AirAsia improved apparently in the third quarter. Both rely on domestic passenger more than half of their total revenue. However, Bangkok Airways faced net loss at 5,378 million Thai baht, first annual loss of the airline. Thai AirAsia also faced another annual net loss.

Liquidity and Debt Management

Focusing on liquidity of the airlines, Bangkok Airways is the winner for short-term debt obligation in the pre-COVID. However, no airline can control and maintain level of financial position. Despite reconsider to stop ongoing investment, limited operating activities caused airlines' consecutive cash burn. Strong drop in total asset turnover for all airlines, since the first quarter and the worst for all at the same level in the second quarter. The hardest hit goes to Thai Airways in this crisis.

In the aspect of airlines' solvency or debt management, Thai Airways' position is clearly in danger. High leverage of debt since pre-COVID reached 95% in 2019. COVID-19 had stimulated the situation as skyrocket debt ratio shown, as well as loss in ability to service all debts shown in interest coverage ratio in opposite way from the other two airlines. This is when the airline decided to request for business rehabilitation under the Central Bankruptcy Courts in May 2020 unless the airline would have been filed for bankruptcy.

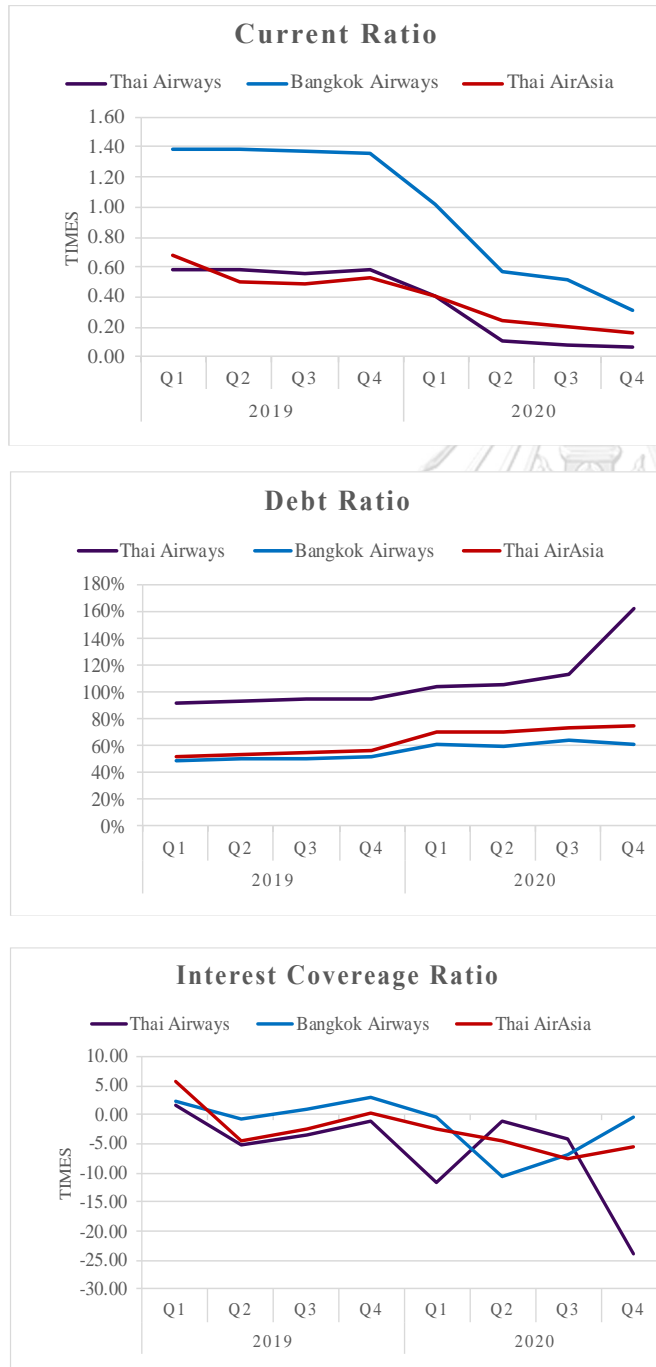


Figure 6: Airlines' Debt Management

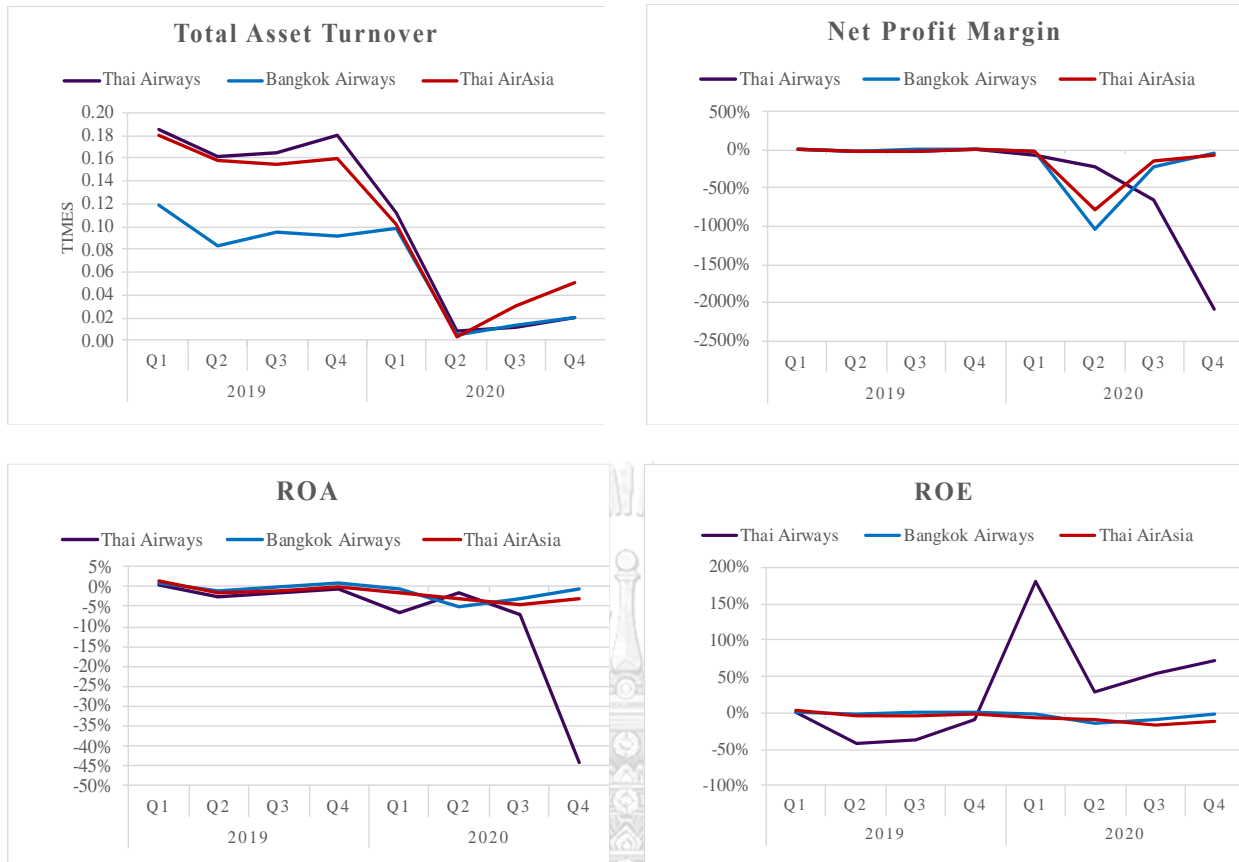


Figure 7: Airlines' Profitability

In the aspect of airlines' profitability, all airlines shown total asset turnover in the same according to travel restriction. Thai Airways got the impact first from drop in international sector. However, as mentioned in revenue performance, Thai Airways is better off for the opportunity from gain in foreign currency exchange in the second quarter of 2020. Long-haul charter flights service cooperated with government and CAAT in the name of repatriation flight as a flagged carrier's accountability also a part of recovery. During travel restriction period in Thailand in the second quarter of 2020, Bangkok Airways and Thai AirAsia faced the slump in their net profit as there is no passenger sector income.

Bangkok Airways decided to reduce expense by introducing voluntary retirement program and it was applied right away in the second quarter of 2020. This is the main reason for drop in its return reflected in the profitability ratios above, but the consecutive improvement is observed as after that. Profitability can be observed gradually after that with a lot of sales boosting campaign of the airlines by attractive price of bundling service package and increase in domestic flights along with government subsidies for tourism sector.⁹ Like Bangkok Airways, Thai Asia takes

⁹ Narumon Kasemsuk. (2020, February 18). Retrieved from Bangkok Post: <https://www.bangkokpost.com/business/2070203/domestic-flight-pass-considered>

advantage on domestic flights but with lower fare as per its unlimited-pass condition, even more special from its affordable price strategies with unbundling ticket price. Though the airline gains large market share, profit generation is not increasing much as depicted in slow recovery in profit margin, ROA, and ROE in the second half of 2020.

Rather than simultaneous demand and supply shock from travel restriction, ROA of each airline overtime reveals the different rate depending on their own specific reasons. According to Demydyuk (2012), the study of optimal key performance indicator of airline industry found that number of passenger and yield appear as an important role in ROA model. Regarding business model, smaller airline operates with smaller aircraft will potentially be able to achieve higher cabin factor than larger airline.

The ROA of three chosen airlines seem to align with the study. When the operating activity has been interfered especially international sector as per different policies and level of the pandemic in other countries, the biggest impact significantly contributed to Thai Airways, main international long-haul tourism feeder.

In shareholder's perspective specified by ROE, all chosen airlines appeared to have low ability to generate wealth to shareholder since the beginning of 2019. Thai Airways faced capital deficiency reflected in the first quarter of 2020, since arrival of COVID-19, following travel constraint. ROE rate has gone skyrocket in the second quarter at 162% when both net income and shareholder's equity are negative. ROE, therefore, does not indicate the efficiency of the firm's performance, but suggests the worst-case scenario for airline.

CONCLUSION AND IMPLICATIONS

The new coronavirus 2019 caused airline to rethink and act fast to handle with limited operating activities and financial loss. Airlines are inevitably forced to reconsider decision for business survival like sales of assets, commercial renegotiation contract, cashflow management, leaner human capital cost, workforce salary cut, review current projects, requesting for government support. Competitiveness of industry is triggered by the pressure from the crisis. Advantage of market location can be observed for Bangkok Airways and Thai AirAsia. Due to the large variety of aircraft and market positioning of niche market mainly for long-haul route network, Thai Airways has a very challenging in capacity adjustment of matching high operating cost and low demand.

Apart from the geographical condition between international and domestic sector as controlled by external factors, airline companies' differences in terms of risk and crisis management also takes important role for company resiliency. In terms of

business expansion, Thai Airways increases its capacity to 103 aircrafts, with 8 types, within 62 years to serve premium travel service on board with new aircraft type, however, the airline was not able to manage its expenses to be lower than revenue gains. Unlike Thai Airways, Bangkok Airways seems to insist in constant growth from domestic sector to regional sector with partners airlines throughout 53 years after established with only 3 smaller types at 40 aircraft in total. Financial risk management and sourcing revenue from existing assets rather than acquiring new investment are main reasons why the airline is in the most stable financial position.

Annual consecutive loss of the airline shortens time survival as the issue of high operating cost could not be totally solved as reflected by net income since pre-COVID. In terms of how airlines run their business, constant revenue generating and gradual business expansion or investment with annual consecutive profit of Bangkok Airways are reflected by highest current ratio and debt ratio among three chosen airlines. In terms of challenging in capacity fulfillment with competitive airfare, Thai AirAsia, low-fare airline business, boosts the demand constantly to maintain its major market share in domestic sector implying attempt to secure passenger volume or source of revenue. This aligns with Gillen and Morrison (2003)'s study finding market interactions between FSCs and LCCs that can exhibit price stability and relatively low-price dispersion.

Strong business model and strategic plan are important and invisible during the crisis. As if the strong one has its own buffer preventing and delaying collapse of the business, while the weak one is highly sensitive to external factor, the business can collapse any time the crisis happens. Therefore, airlines should maintain their balance their business expansion in terms of investment and the revenue gains in order to maintain it stability. Resiliency implication of airlines deal with the quick decision and actions taken right away. In short, airline categories do not explain airline business survival or resiliency as per the hypothesis; on the other hand, each airline would have to take a look at opportunity in its business and manage the risk by thinking possible of the “impossible” situation. In this case, Bangkok Airways, premium full-service regional carrier, has the strongest financial position, though the first loss is reported for 2020. However, unpredictable future ending and limited vaccines¹⁰ potentially worsen airline industry until go to insolvency due to continue cash burning more than revenue gained from high expense and low activity.

Last but not least, obstacles of airline operation can be observed mainly from travel constraint that government takes an important role to manage between health security and economy growth in tourism sector, which is counted at 20% of Thailand's GDP¹¹. Stable situation and ease of travel restriction domestically signal recovery of tourism sector in Thailand where the airlines can generate revenue.

¹⁰ Bangkok Post. (2021, February 24). Retrieved from Bangkok Post:
<https://www.bangkokpost.com/thailand/general/2073735/first-covid-19-vaccine-arrives>

¹¹ KNOEMA. (2019). Retrieved March 2021, from KNOEMA:
<https://knoema.com/atlas/Thailand/Tourism-receipts-as-a-share-of-exports>

DISCUSSIONS AND RECOMMENDATION

This crisis triggers competitiveness of air travel industry in terms of quick adjustment for the economic downturn and hasten the digitalization as well due to its contactless characteristic that can prevent the infection. This crisis therefore leads to direction of how airlines do business in the future. Due to long period of severe economic downturn in Thailand from unstoppable infection without travel restriction, health security innovation would be one of the key competencies to gain customer trust in the long run and to get back taking a role of business expansion in the long run.

After big loss in main source of revenue, the future of airline business strategy would not be able to rely totally on passenger sector, but rather expand the business to other sectors to prepare and to be aware of business sensitivity to the economic downturn and cyclical business. In the aspect of externality as per attack from the pandemic to overall economy, government subsidiary to tourism industry indirectly supports airlines taking large part of their revenue from domestic passengers. However, international sector seemed to be left behind for a while. Apart from Airlines' survival, Thailand's economy, which gains 20% of its GDP from inbound foreigner, is melting down.

Limitation of this research is major different size and market position of three chosen airlines, the research is aimed only to show the different outcome in different context, not for comparing to find the most successful airline business model and the best strategic plan; on the other, the finding clearly points the advantage and disadvantage in decisions taken by airlines reflected performance in the crisis. From findings abovementioned, airline integration would be another option to consider, sharing strengths and alleviating intensity of price war and limited demand, during the time that cashflow is necessary for running firms. Further research regarding other international airlines' successful story and recovery strategies would be advantage.

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