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EXAMINING THE EFFICIENT RISK MANAGEMENT STRATEGY OF KOREAN AIR DURING THE PANDEMIC: COMPARISON WITH AAL, AF-KLM, DAL, AND SIA

ABSTRACT

The airline industry is one of the industries that were the most severely affected by the spread of COVID-19. As the travel demand was plunged, some airlines declared bankruptcies while others took strategies to cut the expenditures and revise the revenue stream (from the passenger flights to air freight). In this study, we assess the performance of Korean Air by examining the economic cost of COVID-19 on the overall airline industry and discussing how airlines coped with the plunged demands. Additionally, we examine the effect of external factors including government policies on each airline's performance. In the end, the study highlights the significance of flexibility and agility in business decisions, especially when it comes to the decisions for risk management. In doing so, this study addresses the question, what is the most critical factor for business strategies that contribute to successful risk management?

Key Words: COVID-19, Airline Industry, Risk Management, Business Strategies, Korean Air, South Korea

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INTRODUCTION

The spread of COVID-19 brought enormous interruptions to airline businesses around the world. The travel demands were plunged as many countries suspended or imposed travel restrictions, shutting down the border which is directly associated with the operating profits of airlines. As a result, unfortunately, some airlines had to shut down or even leave the market. However, while many airline businesses were stagnating, Korean Air had managed the economic downturn relatively well, thanks to its fast and right decision-making. In the following paragraphs, we highlight the decrease in passenger demand to demonstrate the severity of the economic impacts of COVID-19 and discuss the business strategies each airline employed to cope with the economic downturn. We discuss the performances of five key airlines around the world—including Korean Air, Delta Air Lines, American Airlines, Singapore Airlines, and Air France-KLM—to conduct the comparative analysis and measure the effectiveness of each airline's business strategies. In doing so, we examine the change in revenue stream throughout the year 2020 and evaluate other external factors such as government policies that could possibly have impacted the performance of airlines. Throughout the research, we address a research question: What is the most critical factor for business strategies that contribute to successful risk management? The purpose of the research is to assess the performance of Korean Air and derive meaningful implications to the whole airline industry throughout this assessment. In the end, this research result highlights the significance of flexibility and agility in making successful business decisions.

LITERATURE

This section summarizes the situation of the airline industry throughout the prolonged pandemic era by utilizing numerical data such as a change in capacity and passenger demand, stock price, and change in cost. The severe impacts (or damages) on the airline industry that the pandemic imposed clearly suggest the need to study how each airline is managing the current struggle. This finding will contribute to the business operators from many industries, not just those of airlines, to better handle the uncertainties in the future.

Capacity and passenger demand

Referring to the data released from the International Civil Aviation Organization (ICAO), overall, the seating capacity was fell by 50% "passenger totals dropped by 60%" in 2020 compared to the previous year (ICAO, 2021). All airlines (that we studied), therefore, encountered a pretty much similar situation, experiencing a reduction in passenger capacity and demands caused by COVID-19. Although a slight variation exists in terms of percentage of capacity and passenger decline across the regions, depends on the containment status of COVID-19 in each country and the rigidity of travel restrictions, all countries surely faced a decrease in capacity and passenger demand by at least 50% in 2020. This confirms the severe economic cost of the pandemic on the airline industry and therefore suggests the need to study airlines' responses to manage the crisis.

Stock price

Stock price provides a good overview of a corporation's market value. Most airline stocks lost at least 50% or more of their value as the pandemic spread globally which has been detrimental to the aviation industry. The effect of COVID-19 on the aviation industry can be observed in the regions including North America, Europe, Asia-Pacific, and the rest of the world. For instance, as of the month the pandemic started spreading, the stock price of Korean Air was USD 21.65 in December 2019, but it dropped to USD 21.1 in November 2020 (Google Finance, 2020d). The stock price of Delta Airlines was USD 58.66 in December 2019, and it dropped to USD 30.22 towards the end of 2020 (Google Finance, 2020c). As for the stock price of American Airlines and Air France, it dropped from USD 28.30 to USD 12.79, and from USD 11.07 to USD 5.04 respectively (Google Finance, 2020a; Google Finance, 2020b). This data shows the downturn trend in the stock prices after the pandemic hit the aviation industry. As the prolonged pandemic continually imposes a gloomy outlook on the airline industry, almost all airlines experienced fluctuations in stock prices throughout the whole year of 2020. Among the five airlines we have researched, two American airlines (Delta and American Airlines) and Air France experienced the greatest decline in their stock prices as they experienced little more time lag than other airlines to switch to the cargo flights—this will be discussed later. Contrarily, Korean Air experienced lesser fluctuation as they managed to switch to cargo operation within a shorter period.

Cost

Not only did the pandemic negatively affect the stock price but also it affected the operating expenses of each airline. When the travel demand started to fall, almost the first movement took by the airlines was to cut down the operating expenses to secure revenue. To compare the operating expense of each airline before and after the breakout of COVID-19, the operating expense of Korean Air decreased from USD 2.54 million to USD 2.1 million in the first quarter, from USD 3.08 million to USD 1.5 million in the second quarter, and from

USD 2.8 million to USD 1.3 million in the third quarter of 2020 (Korean Air, 2020). Delta Air Lines also was cutting its operating cost from USD 9,452 million to USD 9,002 million in the first quarter, from USD 10,408 million to USD 6,283 million in the second quarter, and from USD 10,489 million to USD 9,448 million in the third quarter of 2020 (Delta Airlines, 2020). As for American Airlines, the operating expense increased from USD 10,209 million to USD 11,064 million in the first quarter but decreased from USD 10,807 million to USD 4,108 million in the second quarter and from USD 11,103 million to USD 6,004 million in the third quarter of 2020 as the United States entered to the phase of severe virus spread relatively later than other countries (American Airlines, 2020). As for Singapore Airlines, the operating expense decreased from USD 3,902 million to USD 1,888 million in the first quarter, from USD 7,911.4 million to USD 3,497.3 million in the second quarter of 2020 (Singapore Airlines, 2020). Lastly, as for Air France, the operating expense increased from USD 4,405 million to USD 4,034 million in the first quarter, but it decreased from USD 3,707 million from USD 3,396 million in the first quarter, from USD 7,735 million to USD 4,423 million in the second quarter, and from USD 14,138 million to USD 7,321 million in the third quarter of 2020 (Air France KLM, 2020). The common pattern of drastic decline in the operating expense of each airline reflects how damaging the impact of the pandemic is to the aviation industry. A general trend of airlines is, therefore, to cut down the operating expense, for example, by reducing the number of flights. However, unfortunately, according to OECD (2020), the operating costs are projected to increase in the near future due to the possibility of additional health and safety requirements such as disinfection, temperature checks, and customs for screening (e.g., COVID-19 tests) which adds gloomy outlook on the aviation industry.

METHODOLOGY

To analyze each airline's performance throughout the period of the pandemic, we utilized the data obtained from the official quarterly financial reports released from the airlines. Throughout this, we compare the output and demand of Korean Air and other airlines, which confirm Korean Air has managed to survive in the difficulty relatively better, thanks to its flexible and timely-made business decisions. Since the focus of the study is on assessing the performance of Korean Air, we reached the agreement that analyzing the performance of international airlines as well, other than solely addressing the situation of Koran Air, would bring better perspectives over overall airlines' business management strategies. Hence, we included other 'big players' in the airline industry of different countries to provide a similar ground of comparison, for example, in terms of the availability of resources. In selecting the airlines to conduct a comparative analysis, we excluded those that do not release financial statements or provide clear information such as costs (operating and fixed) and revenues. This left us with four renowned international airlines: Delta Air Lines, American Airlines, Singapore Airlines, and Air France-KLM.

Another criterion for selecting the airlines to research was the dispersion of each airline's reputation in the market. To do so, we searched some renowned international airlines on Skytrax, which releases an annual ranking of airlines based on customers' survey results; the survey area includes cabin service (boarding assistance, staff language skills, etc.), services on airports (airline booking, online website, etc.), and onboard products (seat comfort, quality of meals, etc.) (Skytrax, 2019a). Referring to the results of "World's Top 100 Airlines 2019," Singapore Airlines ranked second; Air France ranked twenty-third; Korean Air ranked thirty-fifth; Delta Air Lines ranked forty-first; American Airlines ranked seventy-fourth (Skytrax, 2019b). By selecting airlines with different degrees of reputation, we intended to investigate the variation of risk management strategies adopted by each airline.

For the data collection of expenditure and revenue, we heavily relied on the quarterly financial statements that are periodically released by each airline on their websites. To provide a comparative analysis of each airline's performance in 2020, we also provide the data from the same quarter of 2019. For stock prices, we utilized external sources such as Google Finance and news articles.

COMPARATIVE ANALYSIS OF THE RESPONDING STRATEGIES OF KEY AIRLINES

In this section, we discuss some major risk management strategies of each airline including aggressive investment, cutting capital expenditure, discovering marketing opportunities, and switching to the air freight business. Through the observation of raw data, we establish a few strategies commonly employed by the airlines. By conducting a comparative analysis of the business strategies and evaluation of the performance indicated in the following section, "ANALYSIS," we conclude that certain approaches have been more effective in risk management than others.

Aggressive investment & expansion of partnership: Korean Air (KA) and Delta Air Lines (DAL)

Amongst the airlines we have researched, KA and DAL have taken the pandemic as an opportunity to revise and reestablish their investment plans and partnerships. These airlines have taken an approach to expand their investments, business allies, or their own business. For instance, in November 2020, the largest airline in Korea, KA issued the acquisition of the second-largest airline in Korea, Asiana Airlines at the cost of USD 1.6 billion, further consolidating its dominant position in the Korean aviation industry (Baker, 2020). Similarly, DAL has been putting effort to expand its business through investment in foreign carriers such as Virgin Atlantic, Virgin Australia, KA, Aeromexico, and China Eastern (Schlappig, 2020). Moreover, apart from these former connections, DAL newly established a tie with LATAM (the largest airline in Latin America) at the end of 2019, in which DAL had closed its deal with the purchase of 20% of LATAM share at the cost of USD 1.9 billion (Silk, 2020). However, the profitability of DAL's strategy to diversify its investment in foreign airlines still poses a question since many of DAL's partner airlines— Virgin Atlantic, Virgin Australia, AeroMexico, and LATAM—are currently facing the risk of bankruptcy (Schlappig, 2020). Hence, whether KA and DAL' decisions were effective will be remained unclear until the airline industry completely restores its demands at the pre-pandemic level.

Reduction in capital expenditure: KA, DAL, American Airlines (AAL), Singapore Airlines (SIA), and Air France-KLM (AF-KLM)

Of all strategies, the most widely employed one was to reduce the capital expenditure by selling the old fleets or postponing the plans to purchase the new aircraft to minimize the maintenance and equipment cost of non-operating aircraft in the short run. For instance, the number of fleets of KA had decreased by 5, from 169 in 2019 to 164 by the end of Q3 (end of September) in 2020 (Korean Air, 2020). DAL also took a similar approach in reducing the capital cost by cutting down the number of aircraft. Luckily, the situation for DAL was pretty favorable since DAL owns relatively older airplanes; this is actually about the right time for DAL to shrink the size of its business and retire the operation of older planes (Schlappig, 2020). For example, DAL currently possesses nearly 80 MD-80s/ the 90s that are 26+ years old and 130 of 757s and 80 of 767s, which are both 22+ years old (Schlappig, 2020). Considering that the average retirement age for airplanes is about 23.6 years—due to safety concerns—this is just the appropriate time for DAL to let go of some of its old fleets (Mazareanu, 2020).

Similarly, AAL stated it will "reduce its total operating and capital expenditures [in 2020] by more than [USD 15 billion]" through retirement and storage of around 150 airplanes (AA Newsroom, 2020). SIA also announced its goal to cut down the capital spending by 12% from the originally planned amount of USD 4.5 million to USD 4.0 million after the revision (REUTERS, 2020). To do so, SIA had negotiated with the aircraft manufacturers to postpone the delivery of new airplanes so that it could save spending on new fleets (REUTERS, 2020). Moreover, AF-KLM had revised its previous plan for fleet retirement and rushed the retirement of some fleets: AF-KLM retired 5 fleets in March 2020, which were originally planned to be retired by the end of 2020 (Horton, 2020). Additionally, AF-KLM is planning to rush future retirement plans as well (Horton, 2020). The airline is a costly business. Once the flights are suspended as the flight demands plunged, everything from maintaining and storing the aircraft induce costs. As a result, almost the first, and the most widely used, approach was to reduce capital expenditure to minimize the loss. However, although cutting the capital expenditure will temporarily secure some of the profits of the airlines, this would never be the ultimate breakthrough to the economic recession. Apart from this, all airlines announced a massive layoff of workers earlier this year to reduce the capital expenditure, which will be further discussed in the following section.

Marketing opportunities: DAL and SIA

Some airlines have been utilizing the current situation as marketing opportunities to establish regular customers by introducing a new policy or developing a new service product. For example, DAL's new policy to block the middle seat marks DAL's attempt to create a positive branding image in the current situation. In fact, among the three big airlines in the United States (DAL, AAL, and United Airlines), DAL is the only one prolonged the 'blocking the middle seat policy,' aiming to minimize the possible spread of the virus throughout the travel—AAL suspended this policy after a few weeks of practice and United Airlines never implemented the policy like this (Slotnicka, 2020a). The implementation of regulation like this may not be the most profitable option as it only allows flights with limited capacity. Yet, DAL is striving for some more long-term-oriented goals, trying to create loyal customers by ensuring the idea that DAL prioritizes the customer's safety over its profit (Griff, 2020). DAL's marketing strategy seemed to be working out well so far as the CEO of DAL, Ed Bastian, stated "Delta's latest customer surveys found that the blocked middle seat was the top reason passengers were choosing the airline" (Slotnicka, 2020a).

On the other hand, SIA had developed a new service product, "in-flight meals," which provides three hours of dining service in flight. And the result had been successful as there were even waitlisted consumers in its first sale (Gene, 2020). The flight will leave the country and return to the country after the three hours of flights; this sells travel sentiments to the customers, although it does not really bring them to other exotic places. By developing innovative service products and implementing strategic marketing strategies, the airlines are trying to create opportunities out of the crisis.

Expansion of air freight business: KA and AF-KLM

The second-most common strategies adopted by the airlines were to expand the air freight. Except for DAL and AAL, all the other airlines (KA, SIA, and AF-KLM) have employed this strategy, reestablishing their revenue stream to expand cargo business to cope with plummeting passenger flight demand. For instance, KA sold its in-flight catering and duty-free business to Hahn & Company at the price of USD 900 million in August (Choi, 2020). This strategic movement of KA demonstrates its concrete determination to concentrate on the air freight business while giving up on non-profitable passenger flight-related services. Similarly, in support of the cargo business, AF-KLM has established a new service called "KickCharter," aiming to allow forwarders to ship to a destination that is perhaps not in the AF-KLM's list of currently serving destinations. Through this platform, AF-KLM will receive the shipping request from the forwarders, and then once there is sufficient demand for shipping to the destination, it will operate (Lennane, 2020). The executive vice president of AF-KLM cargo Heijer stated, "We continued to demonstrate our commitment to the industry in the third quarter by offering an extensive network of full freighter aircraft," expressing its effort to expand cargo business (Brett, 2020a). As a result, AF-KLM was able to hit a "31.7% year-on-year increase in cargo revenue" throughout the third quarter (Brett, 2020a). The magnitude of change in cargo operating revenue will be further discussed with details in the following section. On the bottom line, the timely made business decisions mark a different performance of airlines in terms of their net profits. Perhaps, making a little faster and wiser decision to minimize the loss when the profit loss began, may be the most fundamental, yet crucial, determining factor of each air line's performance.

OTHER FACTORS AFFECTING THE PERFORMANCE OF AIRLINES

This section is dedicated to discussing the unique governmental and socio-cultural features of Korean Air that have contributed to Korean Air's successful management of the crisis to extract positive operating profit throughout Q2 and Q3 of 2020.

Governmental factor: government's assistance in acquisition

Although almost all airlines have been receiving substantial government support in times of financial difficulties, the Korean government has stepped further in supporting KA by assisting the merger of KA with another dominant airline in Korea, Asiana Airlines. Specifically, after the KA's acquisition deal of Asiana Airlines had been established at the price of USD 1.6 billion, the state-owned bank, Korean Development Bank (KDB), expressed its support by injecting USD 727 million into the deal (CAPA, 2020). Regarding the decision of KDB, the head of the monetary policy committee, Eun, had stated, "Supporting the acquisition is the only way to reduce tax spending on airlines and maintain the employment level" (Seo, 2020). With this assistance provided by the government, Korean Air was allowed to employ the strategy of aggressive investment to expand its business and gain greater competitiveness in the global aviation market even during the current downturn (KBS, 2020).

Sociocultural factors

The performance of the airline is also associated with the socio-cultural context of the aviation industry of each airline. For instance, DAL and AAL are known to have a greater demand for domestic routes, while KA has been focusing on international flights for most of the time. As a result, the fleet size of KA are expected to be bigger than those of DAL or AAL, so that KA "already had sizable cargo fleets" (Jeong, 2020). Hence, it was easier for KA to switch to air freight from passenger operation by converting the bigger size of fleets. On the other hand, the airlines with a larger share of domestic flights tend to hold smaller size (narrower-body) fleets, which is not as profitable in cargo operations. Apart from this, "the Asia Pacific was the only origin region growing its air cargo business between October and November [by 3.2%]," largely due to "the large orders of PPE-goods shipments above 5,000 kgs grew year on year..." (Brett, 2020b).

ANALYSIS

In the following paragraphs, we attempted to quantify the impact of COVID-19 in the airline business in three different aspects: revenue stream, layoff status, and financial impact. This section discusses the actual impacts and status of the practice of business strategies that were discussed in the previous section by providing statistics for objective assessment of each airline's performances.

Revenue stream

The main components of the change in the revenue stream before and after the COVID-19 include change in capital expenditure and cargo operation revenue. A notable decrease in capital expenditure has been observed for all airlines as they were employing the strategy to cut down capital expenditure either by rushing the retirement of the fleets or delaying the spending on the new fleet. And the largest degree of change was observed from AAL as its expenditure in this year has reduced nearly by half of the last year's, which ties back to the fact that AAL has the greatest number of retired and non-operating fleets.

Table 1: Cargo operating revenue

Name	Q1 2019	Q1 2020	Q2 2019	Q2 2020	Q3 2019	Q3 2020
KA	577	580	564	1,098	579	918
SIA	379	556	364	493	719	924
AF-KLM	649	553	634	671	610	801
AAL	218	147	221	130	208	207
DAL	192	152	186	108	189	142

* Unit: Million USD

(Korean Air, 2020; Singapore Airlines, 2020; Air France KLM, 2020; American Airlines, 2020a; American Airlines 2020b; American Airlines, 2020c; Delta Airlines Inc., 2020)

Another notable change after the breakout of COVID-19 is the change in cargo operating revenue. Table 1 compares the change in cargo operating revenue in each quarter of 2019 and 2020 respectively. For KA, SIA, and AF-KLM, the proliferation in cargo operating revenue—especially throughout the second and third quarters when the impact of COVID-19 was the largest to the airline industry—is observed. Contrarily, the cargo revenue of AAL and DAL have even dropped from their previous year as these two airlines have chosen to expand the domestic and international passenger operation over cargo operation. Regarding this decision, Hodges (the director of AAL Cargo) shared the optimistic perspective on the possible recovery of passenger flight demand by stating, "While the extra focus on air cargo is welcome and our share of overall revenues has grown, we are still looking forward to an environment where passenger service can return at or near pre-Covid levels" (Kurian, 2020).

Regarding the layoff status, while other airlines have been adopting both reducing the employment through a layoff and unpaid leave to manage the current crisis, KA has been avoiding layoff of its workforce while only adopting the 'unpaid leave' policy. KA asked 70% of its workforce for unpaid leave and cut the payment of the remaining employees between 30% and 70% depending on their position (Cirium, 2020). For DAL, it is projected that 1,941 pilots will be involuntarily furloughed by 2021, reducing the total number of pilots to about 9,450 (Fonda, 2020). In the case of AAL, around 19,000 employees were furloughed (Highberger, 2020). In Air France, it announced that it would lay about nine thousand workers, which is approximately 20% of its workforce, off by 2022 (Reuters Staff, 2020b). In SIA, 4,300 employees were furloughed, more than six thousand employees were asked for unpaid leave (Begum, 2020). Also, it cut the payment of its workforce between 10% and 30% depending on their position (Yang, 2020). As the severity and period of implementation of policies (e.g., layoff, switch to air freight) for notable changes in capital expenditure and cargo operating revenue varies over the airlines, the financial outcome of each airline is also varied.

Table 2: Financial impacts

20/21 Financial Summary		Q1 2020	Q2 2020	Q3 2020
KA	Operating Profit	-598	125.2	6.8
	Net Profit	-621	137	-342
DAL	Operating Profit	-410	-4,815	-6,386
	Net Profit	-534	-5,717	-5,379
AAL	Operating Profit	-2,549	-2,486	-2,871
	Net Profit	-2,241	-2,067	-2,399
AF-KLM	Operating Profit	-1,018	-2,763	-1,935
	Net Profit	-2,129	-3,088	-1,968
SIA	Operating Profit	-808	N/A	N/A
	Net Profit	-732	N/A	N/A

* Unit: Million USD

(Korean Air, 2020; Singapore Airlines, 2020; Air France KLM, 2020; American Airlines, 2020a; American Airlines 2020b; American Airlines, 2020c; Delta Airlines Inc., 2020)

Table 2 represents that, in the first quarter, the DAL, AAL, AF-KLM, and SIA recorded the operating loss of USD 598 million, USD 2,549 million, USD 1,018 million, and USD 808 million, respectively, while they recorded net profit loss of USD 534 million, USD 2,241 million, USD 2,129 million, and USD 732 million, respectively. In the same quarter, Korean Air also made the operating loss and net loss: USD –598 million and USD –621 million, respectively.

Regardless of the general trends of net profit loss, KA managed to record positive growth by recording operating profit and net profit of USD 125.2 million and USD 137 million, respectively, in the second quarter. In contrast, in the same quarter, the DAL, AAL, and AF-KLM recorded the operating loss of USD 4,815 million, USD 2,486 million, and USD 2,763 million, respectively, while they recorded a net loss of USD 5,717 million, USD 2,067 million, and USD 3,088 million, respectively. Indeed, Korean Air is the only company that made both positive operating and net profits in the second quarter. However, although Korean Air made a positive operating profit in Q3, it faced negative net profit due to the factors related to interest payments and the exchange losses; it made USD 6.8 million operating profit and USD 342 million net loss. On the other hand, in the third quarter, the DAL, AAL, and AF-KLM recorded the operating loss of USD 5,379 million, USD 2,871 million, and USD 1,935 million, respectively, while they recorded a net loss of USD 6,386 million, USD 2,399 million, and USD 1,968 million, respectively.

DISCUSSION

The overall output of the airline industry has shrunk conspicuously. The aviation industry has been struggling with creating profit. The stock prices of each airline have dropped at least 50% and the operating expense has declined as well. The present state is predicted to be continued in near future since the aftereffect of this pandemic is expected to be enormous. Among the multiple business strategies adopted by airlines, 'cutting the capital expenditure' has been the most widely used one.

Throughout the evaluation, we have discovered two reasons for KA's successful management of the loss. These include the nature of the Korean Air with a large number of international routes—so that it could usually shift its gear to air freight business—and the government's assistance of the merger of Korean Air with Asiana Airlines. Speaking of KA' s acquisition of Asiana Airlines, it was possible to pursue, for Korea used to have two major airlines, which is not common for a country of population size like Korea. Depending on whether airline companies tend to give weight to domestic flights or international flights, the responses to COVID-19 vary. AAL and DAL have been striving for increasing domestic flight operations. However, as the outbreak of the COVID-19 pandemic gets severe, the overall capacity of flights has drastically declined. And it seems that travel demand, especially the international one, will take longer to recover because remote work is likely to remain in times of post-pandemic era and many find self-quarantine inconvenient.

The capital size of each airline affects how it is responding to the current pandemic situation. AAL and DAL focus on domestic travel, while KA has a greater demand for international flights. Thus, the fleet size of KA is bigger than that of AAL and DAL (Jeong, 2020). As a result, KA could easily expand its air freight business and increase cargo operating revenue. On the other hand, instead of relying on cargo business, AAL and DAL focus on expanding domestic and international passenger operation over cargo operation due to the relatively small fleet size.

CONCLUSION

As the pandemic prolongs, airlines are indeed facing a huge financial difficulty. Since the pandemic imposed economic costs not only on the airline industries but also had spillover costs to most of the other industries, it is even more challenging to find a way for airlines to break through the restrictions imposed on mobility. In this time of recession, KA showed a good example to the aviation industry by utilizing the current situation (or struggle) as their opportunity. KA focused on using their aircraft as transportation of cargo, which demonstrates that they had the ability to read out the economic flow and make timely decisions. KA was aware that even though at the time when people are not allowed to move, with a high change, the transportation of imports and exports is necessary, and will not be suspended, for the sake of continuing economic activity. Remarkably, KA has used flexible business strategies and switch many of its passenger flights to air freight, expanding cargo business.

Throughout the comparative analysis on strategies taken by different airlines, we obtain the research result that there was not much variation among the business strategies that were used to cope with the plunged passenger demands. Almost all airlines that we have studied adopt a similar strategy to reduce capital expenditure and expand cargo revenue. However, there was a variation across the revenues of each airline despite similar strategies adopted; the variation on the period when such strategies were adopted exist. This concludes that the crucial aspect of successful risk management strategies is to make flexible and agile decisions rather than discovering an innovative breakthrough. Indeed, making the right decision at the right moment is the most fundamental, yet not necessarily always practiced, a principle in the business world.

The supply of vaccine transportation will another game-changer for many airlines as it will be a threat to its current advanced standing. Until now, each country of the airline had each reserved 11.4 million doses (of vaccines) for Singapore; 112 million doses for Korea, 1,010 million doses for the U.S., and 1,585 million doses for the European Union (which includes France's supply) (Reuters Staff, 2020a; Kim, 2020a; Koop, 2020). This is big news for the airlines, especially for those currently heavily relying on cargo operating revenue. Unfortunately, Korean Air is one of the airlines that had increased the cargo revenue to the greatest extent among the airlines discussed throughout the writing. Hence, it is reasonable to conclude Korean Air will suffer from a lower cargo revenue at least until Q1 of next year. In addition to this, the anticipated date for the vaccination was the latest for Korea, which is estimated to be next year March, while it was the earliest for the U.S., where the vaccination had already begun earlier this month (Lee et al., 2020; Kaplan et al., 2020). Considering both Korea's relatively late planned period of vaccination and KA's current heavy reliance on cargo operating revenue, it is hard to not predict the pessimistic future for KA, and therefore we conclude that the current astonishing performance of KA may be discontinued in the future.

ENDNOTE

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