

Financial Recovery of Aviation Businesses during the COVID-19 Economic Recession

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Abstract

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Title of the thesis Financial Recovery of Aviation Businesses during the COVID-19 Economic Recession		
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<p>Abstract</p> <p>In many aspects, the ongoing COVID-19 pandemic has had an unprecedented impact on the world economy. Preventive measures were mostly motivated by the avoidance of human interaction, such as lockdowns or social distance practices. The fact disrupted the usual flows of economic activities, imposing financial pressure on individuals and enterprises. The study attempted to illustrate how corporations, working in the severely damaged industry – aviation, managed to survive through the financial year 2020.</p> <p>The author inductively collected and processed data under the combination of quantitative and qualitative approaches. In the research, secondary data sources were acquired from credible literature and electronic data banks, while primary information was collected from company official filings and a valid interview with an industry expert. The quantitative method of financial analysis was used to assess the financial situations of Lufthansa, Air France-KLM, and Finnair throughout the outbreak.</p> <p>Overall, COVID-19 revealed the bottleneck of the modern economy. Ever before, the importance of government to economic development was thoroughly confirmed. With respect to airline businesses, effective corporate management and public support packages were the main factors that helped them survive through the financial crash. The event triggered corporates to develop toward a more sustainable and resilient structure. Taking notice, the financial recovery of airlines has been constrained by the uncontrollable disease spread and the decrease of consumer demand resulting from the demand and supply market shock caused by the pandemic.</p> <p>Beyond, a longer time period is expected to facilitate a proper judgment on the actual impacts of the market event. With the narrow research scope on three European airlines, the author also highlighted the subjective limitations that occurred while proposing some recommendations for further studies.</p>		
Keywords Airline(s), COVID-19, Economic Recession, Corporate Finance, Financial Analysis		

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List of Abbreviations

ACI – Airports Council International

AFP – Agence France-Presse

CAPM – Capital Asset Pricing Model

CCyB – Countercyclical Bank Capital Buffer

CDC – Centers for Disease Control and Prevention

CFA – CFA Institute

CFI – Corporate Finance Institute

CIPS – Chartered Institute of Procurement & Supply

COVID-19 – Coronavirus Disease

D – Total Debt

D/E – Debt to Equity

DCL – Degree of Combine Leverage

DFL – Degree of Financial Leverage

DOL – Degree of Operating Leverage

E – Total Equity

EBIT – Earnings Before Interest and Taxes

EBITDA – Earnings Before Interest, Taxes, Depreciation, and Amortization

EBT – Earnings Before Taxes

ECB – European Central Bank

EIB – European Investment Bank

EPS – Earnings per Share

ESG – Environmental, Social and Governance

etc. – et cetera

EU – European Union

EUREP - Eurosystem repo facility for central banks

EV – Enterprise Value

FDA – U.S. Food and Drug Administration

FSC(s) – Full-Service Carriers

GDP – Gross Domestic Products

IAIA – International Association for Impact Assessment

IATA – International Air Transport Association

ICAO – International Civil Aviation Organization

ILO – International Labour Organization

IMF – International Monetary Fund

K – thousand

LCC(s) - Low-cost Carriers

LT – Long-term

M – million

M&A – Merger and Acquisition

Market Cap – Market Capitalization

NGEU – NextGenerationEU

OECD – Organization for Economic Co-operation and Development

OPEC – Organization of the Petroleum Exporting Countries

PCS – Pandemic Crisis Support

PELTRO – Pandemic Emergency Longer-Term Refinancing Operations

PPE – Personal Protective Equipment

R&D – Research and Development

Rd – Cost of Debt

Re – Cost of Equity

ROA – Return on Assets

ROE – Return on Equity

ROIC – Return on Invested Capital

SME(s) – Small and Medium Enterprises

ST – Short-term

SURE – Support to mitigate Unemployment Risks in an Emergency

U.S. – United States

UN – United Nations

UNCTAD – United Nations Conference on Trade and Development

VAT – Value-Added Tax

WACC – Weighted Average Cost of Capital

WHO – World Health Organization

WSF – Federal Republic of Germany's Economic Stabilisation Fund

List of Terms

9/11: On the morning of September 11, 2001, the militant Islamist terrorist group al-Qaeda launched a series of four coordinated terrorist strikes against the United States.

Additional credit claim: Types of assets that can be used as collateral in the short term.

Asian Financial Crisis: A currency crisis in 1997-98 when Bangkok unpegged the Thai baht from the US dollar, triggering a series of devaluations and large capital outflows. The crisis swiftly extended to neighbouring nations

Bank reserves: Minimum amount of cash that banks must maintain on hand in the event of a sudden surge in demand.

Black Monday: On 19 October 1987, the Dow Jones Industrial Average (DJIA) fell over 22% in a single day, signalling the start of a worldwide stock market downturn

Collateral: A valuable item is used to secure a loan.

Commercial bank: A financial institution that accepts public deposits and provides individuals and businesses loans and profit-making investments.

Commercial paper: A sort of unsecured and short-term financial instrument issued by businesses to fund their activities.

Convertible bond: A fixed-income corporate financial investment pays interest but can be exchanged into a set number of common stock or equity shares at a later date.

Countercyclical capital buffer: A time-varying capital requirement subject to banks and investment firms, which aims to make the banking sector more resilient and less procyclical by boosting long-term credit provision to the economy.

Dividend: A payment from profits made by a company to its shareholders who are entitled to receive it.

Environmental, Social, and Governance (ESG): A criteria refers to the three most important variables to consider when assessing the long-term viability and ethical effect of a business or enterprise.

Financial Crisis: The subprime mortgage crisis in 2007-08 resulted from the housing market's collapse. The fact caused a major contraction of liquidity in global financial markets.

Gulf Crisis: Iraq's invasion of Kuwait in 1990 sparked an international battle to acquire Kuwait's huge oil reserves, erasing a significant debt Iraq owed Kuwait, and extending Iraqi authority in the area.

Inflation: A general increase in the cost of all consumer goods and services.

Macroprudential policy: Measures by authorities avert financial crises and improve the system's resilience, of which the objective is to promote the overall stability of the financial system.

Oil crisis: The energy crisis of the 1970s occurred when the Western world faced significant fuel shortages as well as high prices due to disruptions in the Middle Eastern oil supply.

Recapitalization: The term refers to the process of reorganizing a company's debt and equity structure.

SARS: The 2002-2004 outbreak caused by the SARS coronavirus (SARS-CoV or SARS-CoV-1)

Share acquisition: The stock of a target firm is purchased by a buyer.

Shares repurchase or buyback: A decision by a company to purchase back its share from the market.

Short-selling stock: Short selling is a trading or investment strategy that bets on the price of a stock falling.

Subordinated debt: A type of debt comes after other debts if a corporation goes bankrupt or liquidates.

Subsidy: A government-provided financial support to individuals, businesses, or institutions.

1 Introduction

1.1 Thesis Background

Since the beginning of 2020, the coronavirus pandemic, also called COVID-19, has been the hottest topic around the globe. The first case was found in Wuhan, China at the end of 2019, followed by the unforeseen spreading speed to become a global concern. The Centres for Disease Control and Prevention (CDC) (2021a) categorized SARS-CoV-2, the virus, as the inhalation transmission. In a short time, the epicentres appeared across the continents regarding Asia, North America, and Europe (AFP 2020). According to the coronavirus live-tracking of Wordometer, till November 2021, COVID-19 has spread to 224 countries with almost 260 million confirmed cases and a fatality figure of nearly 5.2 million. The medical disaster has deeply affected all nations, evolving in a complicated and unpredictable way, and bringing up a global socio-economic recession with long-lasting consequences.

The modern world has never experienced an event comparable to COVID-19. Along with the fastest-ever speed of medical innovative advances, the situation causes an overoptimistic psychological effect among global citizens toward an incoming pandemic. Officially, on the 11th of March, World Health Organization (WHO) declared COVID-19 to be a global pandemic (Adhanom 2020). The announcement failed to either raise awareness or carry out proper preventive actions promptly. In the race of speed, human actions hardly won over due to the lack of acknowledgement and prior experiences toward the deadly disease.

There is no precedent in living memory for the challenge that COVID-19 now poses to communities and world leaders (Ban 2021, Ban KiMoon Centre for Global Citizens).

There has never been an event as terrible as COVID-19 in decades with consequences comparable to a severe natural disaster on a massive scale. There weren't available ways to cure yet only treatments addressing symptoms. The preventive measures were in non-pharmaceutical form namely travel restrictions, personal sanitizations, social distancing, and lockdowns (CDC 2021b).

In response to the outbreak, governments across the globe had made intensive efforts so as to protect public health. On different regional scales, they implemented many restrictions and lockdown decisions. Countries, in turn, announced to close borders or conduct strict travel restrictions. As proof, on 17th March 2020, for the first time ever, the European Union (EU) temporarily decided to ban external entries to avoid spreading the disease (European Commission 2020). Almost all human activities were halted or restricted in different ways following the local situations with the highest level recorded on the national scale. In April 2020, half of the world's population was ordered to practice self-isolated (Sanford &

Euronews 2020). The pandemic directly interrupted human living habits and global business activities. Even when the situation got better, travellers were still required to provide documents regarding health recorded according to the destination rules.

From an economic perspective, under the threat of coronavirus, the restrictions stopped humans from participating in economic activities. Except for some businesses operating in auspicious fields that potentially advanced, most organizations faced difficulty in maintaining positions in the market. Unsurprisingly, the hardest-hit sectors were service-based industries, namely hospitality, tourism, and air transportation. The practice of preventive transmission measures crashed the aviation industry immediately on a global scale. Airline operators were unable to generate revenue, being on the verge of bankruptcy while some ran into unhealthy financial positions in both long and short terms. The whole industry had laid its fates on government supports and the hope that the pandemic could be over soon.

1.2 Thesis Objectives, Research Questions and Limitations

Following the 2020 context, the paper reveals the development of the 2020 economic shock a close look into the Airline industry, the most vulnerable sector influenced by COVID-19 preventive measures practice. The main purpose of this paperwork is to see business operating management within the distress period.

Thus, a research question is: How did Aviation Businesses survive through the COVID-19 Economic Recession of 2020?

In order to address the thesis objective and reach the main research answer, four investigative questions are arranged:

- How did the COVID-19 pandemic affect the global economy?
- What kind of supports did governments grant to revive the economy?
- What were the financial situations of airlines in 2020?
- What is the financial outlook of the airline industry on the way to recovery?

Nevertheless, it is worth noticing that the timeframe to conduct the investigation is the most significant drawback of the thesis. As a matter of fact, a COVID-19 pandemic is an extraordinary event for the modern world, exposing the many economic aspects which have not been revealed before. Hence, it is too soon to fully reveal its impacts on humanity. Furthermore, despite the fast-vaccinating scale, the pandemic is still unstoppable while appearing many variants with severe consequences. Therefore, it should take longer to evaluate the real economic cost incurred by the 2020 pandemic. The paper took only the short-term perspective to determine the immediate impacts of the event on the economy. Moreover,

the author will use the qualitative method to access the operation restructure of aviation businesses with the sole usage of financial statements and annual business performance report. The shortcoming notices the fact that assessing an issue only in this way may not lead to an accurate picture of the business performance and operating management. The research lacks the information from internal strategic discussions of companies. Additionally, since the main inputs of the methods are company fillings, the result preciseness compared to the actual can be distracted by the manipulating intention of report makers. The interpretation phrases of these quantitative data also show its weakness when all the predictions are assumed with the causal relationship among figures.

1.3 Theoretical Framework

Developed from a health crisis, the COVID-19 brought up an economic recession on a global scale raising many economic discussions around the world. As Economics is the study of how society manages its scarce resources (Bade & Parkin 2018, 2), the idea of the thesis is to investigate how the world has managed to walk through the harsh time in 2020. The bottom line is the Fundamental Economic theories with the purpose of approaching the research object from roots will be prepared in connection to the research objectives. Rather than being caught down by the in-depth discussion of a given market structure model, the prospect of the research framework only concentrates on demonstrating the business competition, market participant behaviour, and the profit-generating mechanism available in the market (Bade & Parkin 2018). The approach can be applied to various economic dialogue in response to any externalities. Hence, the author believes it is an approachable way for an undergraduate to fully grasp the COVID-19 Recession. In the research, the economic shock is illustrated under the fundamental market mechanism of supply and demand and the two most basic instruments of government to manipulate economic activities.

Furthermore, the paper reveals the management of companies within the year 2020. Whereas business management requires a continuous process of making strategic decisions to achieve the company's overall goals, the progress challenged the decision-makers with unfavourable events together with undesirable deviations toward their targets. The event of 2020 has caused a drastic impact in the business world across the globe. The after-event analysis is always essential to improve the business operation and hedging risks on potential similar occurrences in the future. By conducting the research, the author exposes the business management of the Aviation Industry within the pandemic economic recession and under the scope of financial analysis methodology.

1.4 Research Methodology and Data Collection

Research Approach

Although researchers always try to be completely objective during any scientific research conduction, they remain the characteristics of the human being. Hence, the choices of a method, data, and theoretical framework are always implemented under the context of the researcher. In a sense, identifying the research orientation could provide an insightful outlook into the implementing processes and the thesis conclusion. In alignment with the thesis theoretical framework, the author has oriented the writings under the positivism perspective. The underlying is that knowledge can be achieved based on visible and quantifiable facts and relationships. Under this point of view, a single truth can be described by '*law-like causal generalization*'. The prospect also implies the possibilities of predicting behaviours of an object in response to an unexpected event (Ghauri et al 2020, 17-18). In the later chapter, research objects will be based on predefined tactics.

When it comes to the research approach, the inductive approach was chosen to utilize several empirical observations to conclude a generalization (Ghauri et al 2020, 19). The author believed that the approach illustrated by Figure 1 is suitable to assess a research object from the pandemic 2020 due to the timeframe mentioned constraints.

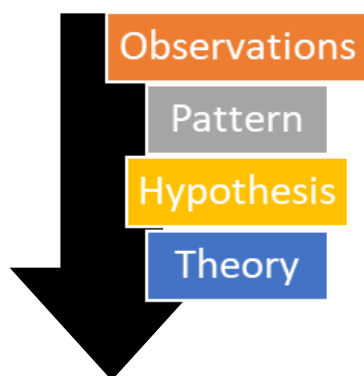


Figure 1. Inductive Approach

Research Methodology

After defining the research approach, selecting a proper research methodology is vital. Whereas quantitative research delivers results by statistical methods and quantification procedures, the qualitative perceive to approach a research object under the view of phenomena to develop possible explanations with verbal expression and conceptualization (Ghauri et al 2020, 96-97). Depending on the types of answers the researcher is looking for, either one or a combination of them should be chosen.

Qualitative methods	Quantitative methods
Emphasis on understanding	Emphasis on testing and verification
Focus on understanding from respondent's/informant's point of view	Focus on facts and reasons for social events
Interpretation and rational approach	Logical and critical approach
Observations and measurements in natural settings	Controlled measurement
Subjective 'insider view' and closeness to data	Objective 'outsider view' distant from data
Explorative orientation	Hypothetical-deductive; focus on hypothesis testing
Process oriented	Result oriented
Holistic perspective	Particularistic and analytical
Generalization by comparison of properties and contexts of individual organism	Generalization by population membership

Table 1. Qualitative versus Quantitative Method (Ghauri et al 2020, 97)

The writer decides to combine the method of qualitative and quantitative. From Table 1, the qualitative technique is designed to elicit information or opinions on a certain issue, providing an in-depth insight into a research object. In this way, the research objects can be analysed under different perspectives which might reach unusual facts in alignment with the subjective. The scope is suitable to address the first two research sub-questions on phenomena description on the COVID-19 Recession Development. The applied desktop study is defined as a summary of available information on the research topic (VIC Government). In addition, the quantitative comparative method will be employed in the empirical part of the research as under the scope of the financial analysis method. The technique was chosen concerning precision-based formula while conducting accurate calculations and seeking operational variables. The idea is to reduce subjective judgments, predictions, and intuitive business decisions to evaluate business performance in a period in empirical research. In the empirical part, three European airlines, namely Lufthansa, Finnair, and Air France-KLM, would be taken into the investigation of financial analysis. Demands on information require the utilization of different tools based on actual conditions and the researcher's objectives.

Implementation Process

In other to handle research efficiently, the author has defined four steps to implement:



Figure 2. Research implementation process

Data Collection: Collecting data is a critical step to take in any research. Functionally, the pool of collected data would possibly include qualitative and quantitative data. The qualitative type is usually under text narrative form and takes time to interpret patterns or meanings while quantitative data are numerical source can be easily approached and processed. When it comes to business, company fillings such as Annual Reports, Financial Statements, Prospectuses, and Proxy Circulars are considered as a primary source of information (David & Loraine Cheng Library 2020). To assess the COVID-19 Recession Development, the writer took an active position to conduct scanning on different secondary sources of information namely topic-related books, internet articles, and available papers from multiple reliable databanks (Ghauri et al 2020, 154-157). In addition, the author will conduct a short e-mail interview with Mr Toan Nguyen, the Sales & Development Director of VietJet (Appendix 15). The industrial expert's opinions and suggestions will act as a primary source for the demonstration of the industry outlook on the way to recovery.

Data Processing: Next step is to quickly process collected data. In definition, data processing is the *collection and manipulation of items of data to produce meaningful information* (French 2001, 2). In other words, it is a set of procedures for verifying, organizing, transforming, integrating, and extracting information from data. In this phase, the user will arrange qualitative data in a logical order according to the research objectives.

For quantitative practices, Financial Analysis will be conducted. At this juncture, processed data are served to compare, explain, evaluate, and interpret the cause of those data results. Under the comparison approach, the authors selectively calculated ratios while extracting and combining suitable information from Financial Statements and different public sources to support the research. To support the interpretation phrase, the author also considers the use of data visualization techniques to represent data under informative images, statistical tables, and graphs, to transmit information in more vivid and approachable ways. The processed data will be visualized reasonably to produce a brief overview of any business issues and quick access to information. The point is to easily identify patterns in the big picture and enable more insights into the research objects.

Data Interpretation: The next stage is an attempt to determine the significance and meaning of the available data, which is known as the data interpretation process. The keys are to identify changes, patterns, and implications behind data. Normally, there are predefined concepts and perspectives to assign meanings to given data. In practice, the interpretation of qualitative information is often more complicated and harder to define patterns compared to the procedure dealing with quantitative data. (Lebied 2018.)

Conclusion: Collecting, processing, and interpreting data are all practices to find a basis for the research to reach the research conclusion. In this phrase, the author expects to conclude how the extraordinary 2020 event impacted the global economy and the reaction of the market participants within the theoretical study. For the empirical part, the aim is to conclude the possible changes in the financial position of aviation businesses in 2020 and the industry outlook after the disastrous year.

Research Design

In a nutshell, based on the chosen approach, methodology and implementing processes, the author has designed a strategy as follow to address the initial thesis question:

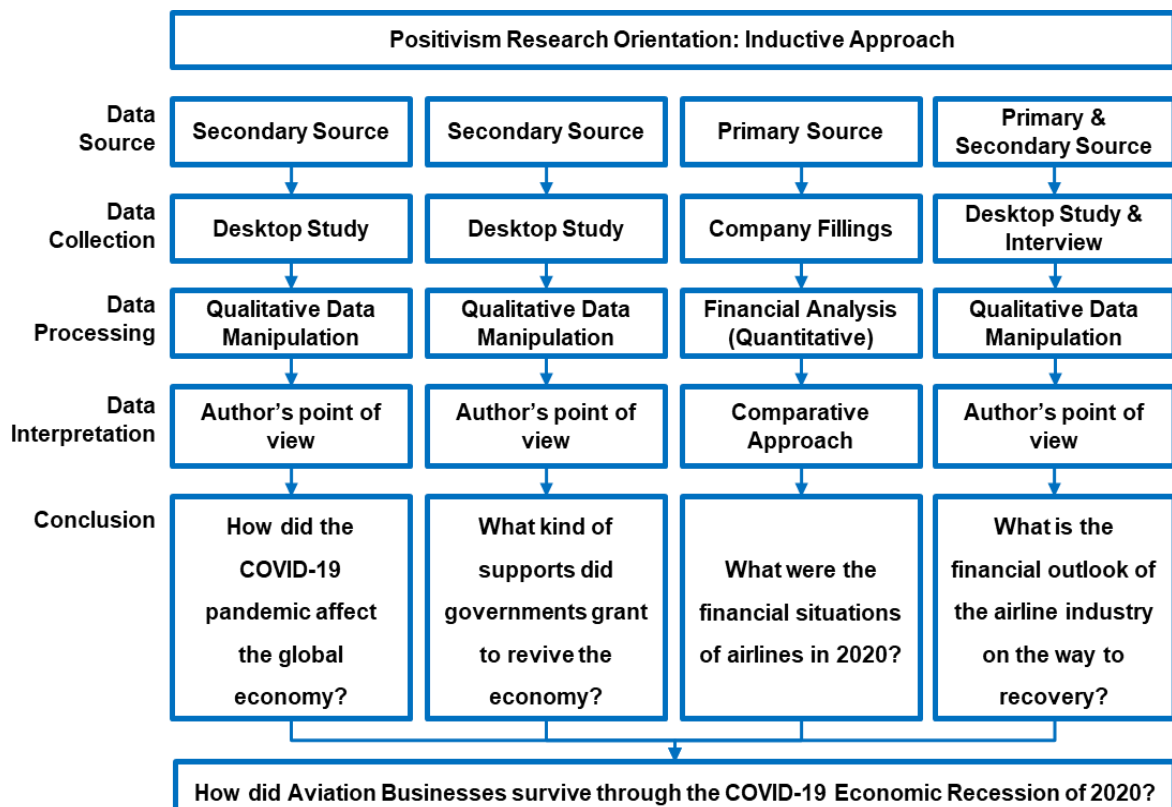


Figure 3. Strategic Research Design

1.5 Thesis Structure

To capture the thesis objectives, the author has meticulously constructed the thesis structure as follows:

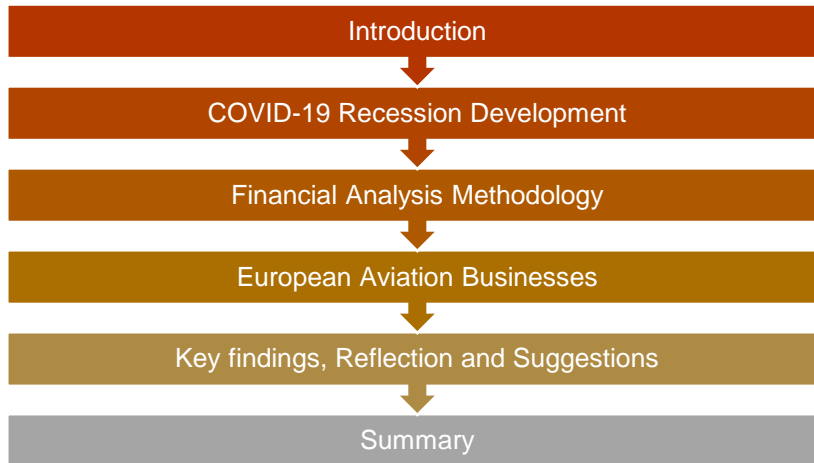


Figure 4. Thesis Structure

The thesis is separated into two sections: a theoretical and empirical research. Within the first chapter, all the initial requirements of research have been identified concerning the topic background, thesis objectives, research methodologies, and data collection. With this basis, the two following parts would cover the theoretical parts, focusing on extracting possible qualitative data in alignment with the thesis objectives. Particularly, the second chapter emphasizes the development of the 2020 recession and all related economic insightful discussion toward an event. Then, in the third chapter, Financial Analysis Methodology applied to the empirical part would be carefully described. Jump to the empirical part, the fourth chapter reveals the case of the European Aviation Industry within the COVID-19 market crash in the year 2020. The combination of market insight into the industry, the business management of three chosen airlines under the financial analysis application, and the proposal of aviation industry outlook after the novel health crisis derived by qualitative data. Next comes the fourth chapter with final answers to predefined questions, research validity and reliability, and some recommendations for further research. Lastly, a summary chapter will conclude all different phrases and the close-by overview of the research.

2 COVID-19 Recession Development

Historically, there have been several expressions of economic declining growths, depending on the scale and consequent impacts. The term of the economic crisis appears to describe a sudden significant downturn of a national economy, while a financial crisis was defined as a substantial drop in the value of financial assets, associating with liquidity shortage, both of which are used interchangeably as the most historical economic crisis came from financial market deterioration (Market Business News 2019; Kenton 2021). Considering the global scale, over the past 30 years, the world experiences three deep financial crises, namely the Black Monday (1987), the Asian financial Crisis (1997-98), and the Financial Crisis (2007-08). Mostly, the origin of these crises came from unpredictable movements of the financial market, leading to large-scale currency devaluation or mass collapse of the banking system. (Bernhardt & Eckblad 2013; Duignan 2019; Ba 2021.) As the world economy is a complex network of connections, individuals interact and influence one another via many factors. From the stock market, recession spread over, like the domino effect, directly stroke the economy. Nevertheless, the essence of the 2020 crisis appeared very different from all of them. In the COVID-19 Recession, restrictions on social distancing and quarantine blocked all activities based on direct interactions, known as the indispensable element of human society.

When the world stood still, stagnation immediately enveloped the globe. Many nations were quickly pushed into a double crisis of health and economy. With a fairly rapid spread and irreparable impacts, the epicentres of the pandemic were located in the world's largest economies, which were the key contributors to the movement of the global economy. Many commentators have compared it with the Great Depression of the 1930s or even worsen as the contraction was the deepest since 1947 in terms of its massive scale and the high spreading speed of economic instabilities (Wheelock 2020). By that time, the International Monetary Fund (IMF) announced an estimation of \$28 trillion lost incurred for the historical disease (Elliott 2020). To revive the economy, governments across the globe have unprecedentedly launched different costly bailouts. To provide a full picture of COVID-19 Recession Development and its economic consequences on the globe in 2020, the chapter will be divided into three parts, respectively several market insights from economic perspectives, the pandemic impacts, and authority efforts to save the economic downturn.

2.1 Economic insights

2.1.1 Market Economy Mechanism

By definition, a market is a set of conditions and agreements under which buyers and sellers competitively conduct the exchange of goods (Bade & Parkin 2018, 48). There are many categories of the market, each of which has its own conditions binding the related internal objects, regarding geographic scope or scale, commodity contents (input/output market), or market structure (perfect or monopolistic competition, oligopoly, and monopoly) (Bade & Parkin 2018, 376). No matter how the market functions, its process, and mechanism are bogged into the force of demand and supply. Assuming other things are equal at a given time, while demand refers to the amount of a good/service that consumers are willing and able to buy, supply indicates the quantity that sellers are willing and able to sell at a certain product price (Bade & Parkin 2018, 85 & 92). The laws of supply and demand regulate the circulation of goods in a market economy. When supply is greater than demand, the price of a commodity will fall to adjust the market, and vice versa. In other words, the rise or fall of commodity prices gives a signal for market trends such as good movement from places of excess to that of shortage or reasonable reallocation of input sources. (Bade & Parkin 2018, 85 & 92.)

Over and above, from the perspective of international economics, no matter how powerful a nation can be, there is no healthy economy exist without trading. The world has been developing towards the tendency of globalization concerning commercialization, investing, banking, services, working labour, etc where every day great amounts of products or capital flow across national borders (Bade & Parkin 2018, 5). At different stages, there will be different shifts in the global trends, connecting countries around the world to create equal developing values for each human. In the modern world, thanks to the outstanding development of advanced technology, current globalization has achieved tremendous development. Economic activities become interdependent and much more cost-efficient when benefiting comparative advantages through trading. In fact, the concept of comparative advantages is widely accepted in the global market where a given agent can produce goods or services at a lower relative opportunity cost or autarky price (Bade & Parkin 2018, 73). With this idea, there will more gains at the end for any participants in the sustainable picture of development.

In the modern world, collaborating activities are the core. Individuals or businesses operating within a nation have found their way to establish their supply chains by taking comparative advantages available in the market operating capacity to maximize economic

activities' efficiency. The practices flows are all captured through trading as the core exercises to ensure sufficient supply and production. Throughout different historical development phases of the global economy, the distribution of the chain has been assigned and shaped distinctively by market participants. With the ongoing globalization, organizations around the globe have created a global network of goods, capitals, resources, information, etc. flows under the help of international governments, which is declared as a global supply chain (CIPS). One typical example is that China, the global site of industrial goods manufacturers. Any businesses, locating in this Asian country, are surrounded by cheap sources of producing factors with the ecosystem of input material and low labour cost (Bajpai 2021). With enormous excess of trade surplus in foreign trade, China is considered one of the largest exporters by value partnership with countries around the world (Santander Trade 2021). Due to the high interdependence characteristics of the current business world, an unexpected disruption in input production in one country will negatively affect subsequent production in another. The fact found reasons for the global economic shock in 2020 at the start of the COVID-19 outbreak in China.

2.1.2 Economic Recession

To correctly define, economic shocks are *random, unpredictable events that have a wide-spread impact on the economy and are caused by things outside the scope of economic models* (The Investopedia Team 2021). As a matter of fact, any given external originator can be resolved under the supply and demand points of view. In defined terms, either demand or supply shock happens when there are unexpected adjustments in purchasing prices in response to any given market event. Theoretically speaking, on one side, a supply shock is determined as a sudden drop in the economy's capacity to provide commodities and services, which might be caused by the market output constraints or the supply chain disruption (Tarver 2020). On the far side, a demand shock is an unforeseeable situation where consumers are not willing or unable to purchase goods at the usual rate in the recent market (Barone 2020). In reality, the destructive volume of consequences caused by economic shocks depends heavily on the economic structure, national development strategies as well as the linkages of that economy in the global chain.

The pandemic wave hit the labour, one of the key ingredients of economic activities. Labour is a primary factor of production providing physical and intellectual services as inputs to any market process (Bade & Parkin 2018, 37). The recession was recognized as a combination of supply and demand shock by economists with severe and overarching impacts on humanity (Brinca et al 2020). Undeniably, it brought severe consequences comparable to any historical recessions, which shall be discussed in the following section.

The Economic Times (2021) defines a recession as a '*slowdown or a massive contraction in economic activities*' often comes a substantial decline in consumer spending. Luckily, although the 2020 recession was evaluated to drop sharpest, it happened in the shortest period (Wheelock 2020). Due to the health crisis, the economic input flows had halted but the labour force would not disappear forever. It is positive to say the global economy is still developing forward. Commenting on the COVID-19 impacts, the economy was perceived as a physical spring that is temporarily pressed to cope with the pandemic. Once the pandemic is under control, all activities will bounce back on track and immediately start the recovery phases. However, things would not completely be the same as what they used to as the society functions in a way to continuously develop to be more sustainable due to the long-lasting hurt it caused for the labour market, business operation, as well as consumer behaviours (Cordray 2020).

2.1.3 Global Economic Outcome

To capture the overall situation of national economies, the author takes the two most used economic indicators, respectively Gross Domestic Product (GDP) and unemployment rate into concerns. Hypothetically, from the output perspective, GDP illustrates the market value of national output; while in terms of expenditures, it is a sum of how much had been paid for goods and services within a specified period (Bade & Parkin 2018, 538-541).

Looking into the COVID-19 recession, the loss of budget from high demand segment products diminished worldwide national GDPs. Starting from China in late 2019, in August 2020, G20 economies reports 77% confirmed cases with 82% of all death, dragging the global economy down markedly. Never before, dozens of national economies fell into recession at the same time including big names such as the United States, United Kingdom, Germany, France, Spain, Australia, Brazil, Canada, Japan, Korea, and Singapore. (ILO & OECD 2020, 6-8.) The epidemic centres spread following by downturns of economic and worst trade picture. Particularly, in the second quarter, the US, the world's largest economy, shrank deepest from 1947 by 31.4% mainly due to the 34% steep of consumer spending (Cox 2020). Things were not better for Europe when the Eurozone encountered a plunge of 12.1% in 19 countries when the regional businesses were closed to prevent the virus from spreading (Eurostat Press Office 2020). Although the situation turns optimistic with the vaccinations, the impacts of the economic shock were projected to be severe and long-lasting into the future (Filippini & Yeyati 2021, 1).

Overview, World Bank (2020) reported a 3.6% contraction of the global economy, where the annual GDP growth dropped deepest in over a sixty-year history period (Figure 5). It

was an almost 6% decline compared to the 2019 GDP growth figure and differing 7% from the forecast of 3% growth rate back in October 2019 (International Monetary Fund 2019).

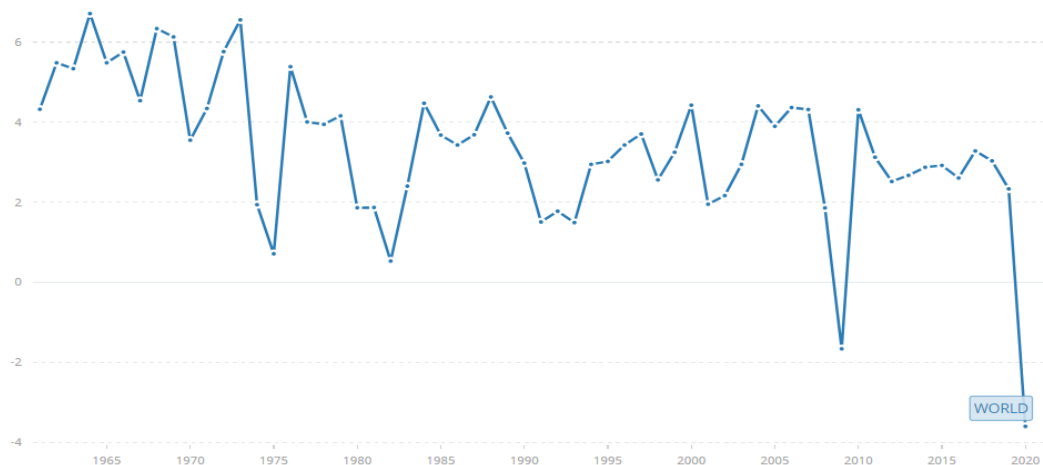


Figure 5. Global GDP growth between 1960 and 2020 (The World Bank a)

Another noticeable indicator when assessing a national economic situation is the Unemployment Rate, which can briefly be described as the portion of unemployed people within the labour working force of a nation. To clarify the concept, the unemployed are the ones who are actively looking for a job while the labour force is the sum of both employed and unemployed persons (Bade & Parkin 2018, 569).

Due to COVID-19 direct negative effects on cells of the economy, the globe reported warning unemployment figures with the gloomy changes in employment along with deteriorating GDPs. Demographic groups of workers were disturbed in different levels depending on the virus spread situation of countries. For example, in the United States, at the early stage, unemployment climbed from 3.8% in February to 13% in May, higher than that of the two years of the Great Depression (Kochhar 2020). In Europe, following the Eurostat's estimation, the unemployment rate rose from 6.5% to 7.5% in 2020, which was up by 2 million added cases (Eurostat Press Office 2021). However, according to ILO & OECD paper reporting COVID-19 impacts on job and income, the unemployment figure has been biased by policies on defining temporary layoffs. As the unemployment rate is measured within the labour market participants, some regional rates were considered to be muted or absent partly caused by the drop in participation. (ILO & OECD 2020, 12-13.)

Despite new jobs created in some sectors, the International Labour Organization (ILO) (2021) reported that the growth would not cover the damages until at least 2023. The decrease in employment and working hours led to a sharp decline in labour income, followed by an increase in the global poverty rate and the rising gap of inequality in the different segments. The ILO Director-General, Guy Ryder, observed that the world economy had

gone backwards where the working poverty level was in 2015. At the time, women were concerned to suffer the most, feeling out of the job market. (United Nations 2021.) The situation got even worse for the low-income classes, not to mention a large proportion of families depending on their members with abroad income source. COVID-19 makes the homeless, refugees, migrant workers, who initially live with insufficient living expenses, become more struggle with the medical burden. This fact brought the worst financial cost to the economy especially when the homeless skyrocket. (Khadem 2020.) In fact, poor people had always been classified as the most vulnerable link in the social chain. They took more concern about hunger than the threat of coronavirus to their health. To make their livings, they could not practice social distancing to protect their health. They were so defenceless to be the most affected but caused the most troubles for the society to fight the pandemic wave. As the result, for the first time in a 20-year period, the property was said to climb followed by hidden social catastrophe when the public aid budgets dwindled. (Lenhardt 2020.)

2.2 Impacts on the Global Economy

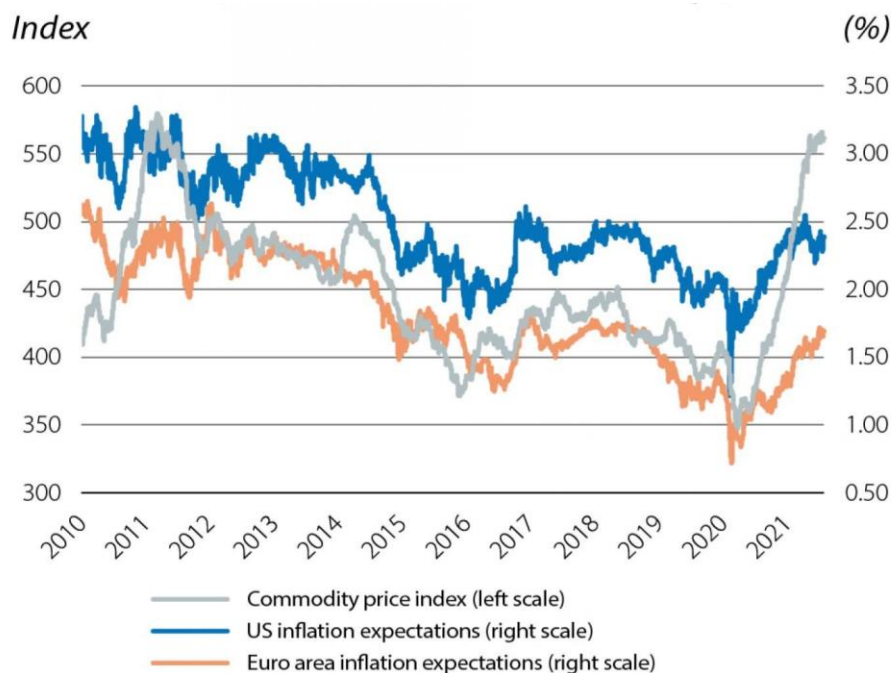
Acknowledging the importance of supply and demand components within a market, the author tries to approach the extraordinary event. An effort on impact analysis will be made under the supply-side (business operating turmoil and global supply chain disruption) and demand-side (personal income decline, spending behaviours changes, and financial market turbulence). Under the view of market fundamentals, it is expected to comprehensively draft out the pains the pandemic causes to the global economy.

2.2.1 Supply-side

Business Operation Turmoil

In the business context, negative situations widely hit on almost every industry ranging from commodities business operators to contactless highly industrial corporates and contact-required services. Social distancing measures caused a sharp decrease in labour supply, especially for fields that depended heavily on direct labour force within production processes (Filippini & Yeyati 2021, 14-16). Not only had the epicentres affected, but the closure of non-essential activities and the enforcement of travel restrictions also took place everywhere in the fear of disease spread. The fact hampered businesses to function properly. Thereby, revenue could not be generated to cover the massive expense together with the struggle of finding affordable sources of funds to remain their businesses. In order not to go exhausted, companies tried to only maintain profitable lines while minimizing the unnecessary activities to meet the cost thresholds. Statistically, the Work bank (2021) summarized

the pandemic effect to companies with an average loss of 27% in sales when one-fourth saw a drop of over half of the last-year figure. As the result, commodities being injected into the market were limited, making them become rare and expensive at the same time causing supply shortages in the first stage. The fact came with the rise of inflation (Figure 6), predicting the future of high living costs, panicking global citizens as well as frightening them in spending decisions when the economy reopen (Serrano 2021).



Note: Inflation expectations are represented by 5-year 5-year forward inflation rates.

Source: CaixaBank Research, based on data from Bloomberg.

Figure 6. Inflation expectations and commodity prices

For large corporations, there is a casualty department function to predict macroeconomic risks with some elementary strategies and financial plans in response to market shock. Though the COVID-19 recession could not be anticipated in anyways, the position was better for them since they have at least some backup plans, or their different business lines might compensate each other for a certain time until the controlling managers could plan for a good response to the market event. On the other hand, small and medium enterprises' operating concentration only lay on the changes of different microeconomic components so as to win over their market competitors with slightly different product advantages. Thereby, when an extraneous event happened to the market, smaller companies tend to react in an inferior and passive position compared to larger entities. Under policy intervention within the crisis, most SMEs and entrepreneurs across the globe had incurred a big failure in maintaining their financial positions (Kalemli-Ozcan 2020, 48-49). According to the World Bank (2021), SMEs is a vital part of national economies, especially for developing countries.

They acquire almost 90% of global businesses while providing half of the employment to the labour forces. The massive breakdown of global SMEs in a short time has contributed substantially to the global supply crisis and economic shock.

Global Supply Chain Disruption

In the era of recession, trading, travelling, and producing activities were all temporarily blocked, freezing the material and capital flows through nations. According to Statista Research Development (2021), in 2020, approximately 68% of global retailers revealed moderate and heavy disruption in the supply chains while only 32% of them faced little or no disruption. In the published research, Mazareanu (2021) estimated impacts of the recession on the supply chain of businesses namely: delays in transportation (cross borderland, 74%; domestic land, 70%; air, 63%; sea, 75%), troubles in acquiring critical supplies (severe delays, 83%; no longer available, 75%) and others with the figure of over 50% each (such as insufficient stockpile, transporting capacity problem, absence of staffs and the liquidation of critical suppliers). The turmoil of the nerve economic centres of the global supply chain threatens the future of many industries, urging the leaders to find solutions to relieve the heavy dependence of supply chains on a single nation and requestion on the real practicality of the globalization trend (Enderwick & Buckley 2020, 108-109).

In the early of 2020, unfortunately, the world manufacturer, China, turned out to be the first place of the novel virus outbreak. Even when the country had controlled the situation with recovered production activities, it led to the inevitable continuous disruption of the global supply chain. Things got even worse when the epicentres spread to the European nations and United States. Fields with complex supply chains had to stop operating due to the lack of inputs. When local companies, as well as foreign businesses, were forced to execute the local restricting requirements, at the early of the pandemic period, the global industries experienced shipment delays from two to ten weeks. Immediately after the China national lockdown in Mar 2020, international firms faced an initial shortage of both end-product and input-producing supply. Indeed, many industries were going into a shortfall period on a global scale since factories and plant providing input material and immediate products had lost commercial linkage. (Kilpatrick & Barter 2020, 2-3.) Businesses found it hard to meet the remained contracts with prior settled prices while the cost of inputs skyrocketed in a short period of time.

To reflect on the situation, the writer especially examines some industries with highly complicated chains. For auto industrials, spare parts and components cannot be easily replaced since they have special characteristics as well as unique technical standards in producing process. Businesses faced difficulty in both finding alternative sources or developing an

immediate system to internally self-supply. Case in point, in March 2020, Hyundai mentioned its microchip shortages to Reuters caused by the supply disturbance, which warned its opponents namely Volkswagen (Germany) and General Motors (United States) to resolve the coming situations (Reuters Staff 2021). In addition, as the economic shock caused by the health crisis, it is also worth bringing up the medical supply condition around the world. While being the main hub of personal protective equipment facilities of the world, besides travel restrictions, the Chinese government commanded nationalizing all medical production and supply at the initial stage of the pandemic outbreak while later prioritizing some overseas partners. As the result, China's PPE export diminished while the EU and the US escalated their needs to fight the novel disease. (Sutter et al 2020, 15-16.) Although it can be understood as an effort of national authorities to protect from the speed of virus transmission, the action was accused of a serious shortage for a global medical system when the pandemic developed uncontrollably worldwide. The controversial movement from the Asia country had broken the global medical supply chain. The fact triggered the reassessment of the international cooperation policy framework and the ongoing globalization tendency in the world of commercialization (Bown 2021).

2.2.2 Demand-side

Personal Income Decline

From different perspectives, the social distancing restrictions made a huge proportion of employees could not join production processes. Certain producing phrases of businesses halted. With different kinds of financial decisions, companies tried to cut off their operating and financial cost. They minimized cost by eliminating some functional staff in their current businesses and even suspending their subsidiary business lines, in which they decided on firing or shortening the working hours of employees (ILO & OECD 2020, 14-15). Although the reported figure showed that laid-off decisions were conducted by 11% of global businesses, there were approximately 65% of firms altering the payroll (The World Bank b). The situation got terrible for people who worked for bankrupt businesses. Hence, the loss in personal income remained substantial contributing to a sharp decrease in their consuming demand. The detrimental effects were much worse for those people outside the coverage of unemployment insurance since not all governments could effectively implement such insurance programs for citizens, especially for some underdeveloped countries. On account of this reasoning, the deepness of expenditure amounts was comprehensible with the drop in the overall personal affordability.

If the impacts on the supply side can be controlled upon the transmitting spread of the virus, consequences on the demand side are concerned as unforeseeable. Businesses found

their way to adapt to the situation by changing into working online environment but only for some professions. Highly expert individuals learnt to work from home, utilizing technology to maintain their work. These only partially compensated for the loss while the damage caused by the loss of the physical human working force was tremendous. (Rio-Chanona et al 2020.) Ordinarily, in the event of economic shock, authorities would try to stimulate economic activities by different governing instruments. However, in the COVID-19 recession, any efforts to pull back economic activities would be paid for by the citizens' health. The fact-challenged nations to make reasonable policies saving the fall of employment. Indeed, the demand shock by personal income deterioration was claimed to be the consequence of the preventive measures. These were evidence to say that the economic recession was so distinguished and more severe than any prior market events due to its underlying roots of attacking the economic foundation.

Spending Behaviour Change

With a view to immediate impacts, the modern market first witnessed the stockpiling phenomenon when people hoarded commodities. From the beginning of the outbreak, people rushed out to buy sanitiser and food products in supermarkets from Asia to the United States and European countries (The Irish Times 2020). The situation together with the supply disruption shortly brought chaos to these commodities sectors around the world. According to research on United States households, the occurrence had impacted significantly on consumer spending behaviours across different products, of which demand climbed 40% in the early outbreak yet quickly fell by around 25-30% in weeks later. Apart from income, demographic factors such as age or family structure induced great levels of variation in expenditure reaction to 2020. Overall, there were immediate rising demands for groceries and delivering services while purchasing for entertaining, travelling, and services plummeted, typically worst for airfare and public transport. (Baker et al 2020.)

Since the world is deeply integrated, there has never been an economic stagnation that can be compared to COVID-19. Therefore, it appeared later a worse situation when global citizens started to worry about their uncertain future. In research on pandemic impact from multiple industry perspectives, the reporters pointed out that the decline possibly came from practical intention (permanent loss in expenditure) or psychological factors (temporary pause in spending which can be fully or partially compensated later). (Rio-Chanona et al 2020.) In the later phase of the outbreak, people started saving and minimizing their consumptions to serve their most essential needs of food and water. This especially harmed service, entertaining, or some commodity industries. These fields mostly located in high segments of the demand hierarchy, such as entertainment, dining, or luxury goods, are

terribly harmed since consumer behaviours are more conservative than ever before (Figure 7). It has left a psychological scar for consumers, which might take a considerable time for their behaviours to bounce back to the prior pandemic spending level.

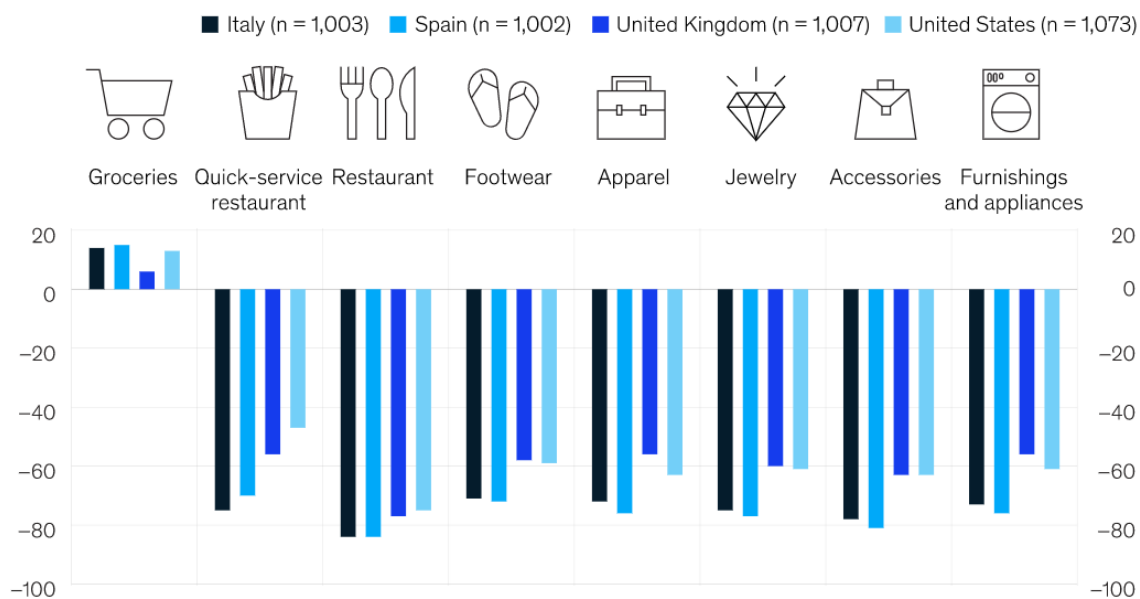


Figure 7. Consumer spending surveys in several countries (Wilson 2020)

With reference to the direct consequences, the writer skim through impacts laid on some service-based industries, the recovery speed of which greatly depends on the pandemic development. As reported by UNCTAD (2021), the world has experienced over \$4 trillion loss on tourism caused by this infectious disease. Restrictions preventing transportation activities shut down the growing opportunities for tourism. At different levels, people were constrained by high national border restrictions. Never before, bustling cities and travel destinations became unusually quiet. New York, Rome, Paris, and Bangkok, associated with noise and haste, were covered by silence (Stein 2020). By the same token, COVID-19 underwent the revolutionary transformation of education for the first time when teachers and students were forced to adopt virtual interaction under digitalization processes. This also limited studying abroad possibilities regarding legal issues for a visa. The fact pushed education institutions into difficulties that financially depend on international students in Canada, the United States, the United Kingdom, and Australia. (Schleicher 2020, 6-11.)

Another result from the social distancing principle in consumer spending behaviours was a new trend of online purchasing. When citizens were advised to limit going out, the visiting traffic of stores or shopping centres suddenly dropped. All people began to avoid physically shopping at the same time, causing demand to disappear from the market. Gambling on government measures, the changes in demand varied accordingly to the geographic differences. In general, most commodity categories incurred negative adjustments in terms of

consumer demand. According to the UNCTAD survey (2020), the pandemic would be a turning point to the commerce world with a long-lasting impact on consuming behaviours. Although the growth of e-commerce industries had been accelerated with the development of technology and quick adaptability from different countries, businesses operating online could only partially overcome the widespread phenomenon.

Financial Market Turbulence

The most noticeable indirect impact caused by COVID-19 was the financial market turbulence in early 2020. The sudden economic stagnation led to a widespread interruption in different economic sectors, spreading to the global financial sectors. The consecutive bankruptcy of businesses would create a debt crisis, which is a precondition for the breakdowns of financial systems. The fears toward long-lasting economic discontinuation along with policy measures caused market participants a very negative sensation to the global stock market. (Goldstein et al 2021.) The recession claimed the negative movement of market uncertainty while increasing the stock return volatility worldwide. People started the delaying status in consumption and investment, which awfully shrinks the capital flows in current markets. The same situation was found in the Financial Crisis a decade ago. However, after that lesson, many countries have tightened the financial safety regulations when central banks were lifelong committed to ensuring reasonable liquidity in the market (Silver 2021). Consequently, when it comes to the COVID-19 outbreak, the risk of the financial crisis had been assessed as not too ominous in the short term.

In reality, at the time the infectious disease crossed out the China border, the stock market witnessed a terrible slump due to the 15-minute trading halt on the dates of 9th and 12th March, comparable to the historical dreadful event of Black Monday 1986 (White 2021). In the first month of the pandemic, the stock indexes of key markets announced a substantial plummet (Figure 8). Following the described demand and supply shock, the stock market illustrated equivalent patterns for a different industry. The event encountered a remarkable performance of strong market returns of health, food, natural gas, and software sectors while hospitality operators fell sharply, losing more than 70% of their market capitalization (Mazur et al 2020). However, the recovery speed of the financial markets happened surprisingly fast, benefiting different corporate policy programmes and the transformation of businesses adapting to the market situation (OECD 2020a; White 2021).

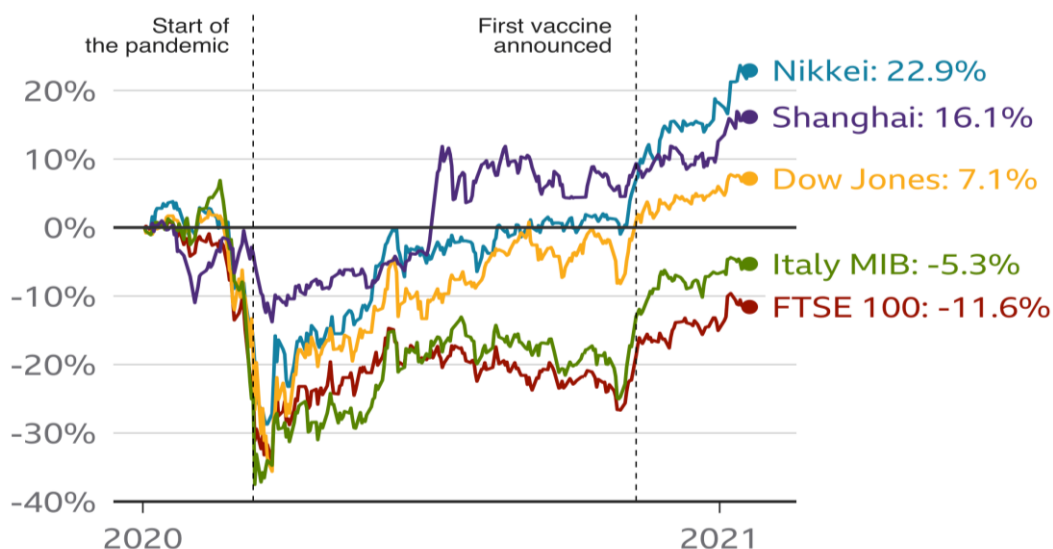


Figure 8. Stock market since the start of Coronavirus Outbreak (Jones et al 2021)

In fact, it is also notable that the pandemic had not been the main reason for the stock plunge of 2020 (OCED 2020). The financial market crash substantially provoked the unexpected collapse of the energy market where oil prices fell remarkably by 85% in three months, the worst since the Gulf War 1991. Meanwhile, usually in the decreasing price environment, energy-exporting countries will find a way to reduce output and raise the price soon again. The 2020 case was way more complicated and precipitous. Along with the demand shock caused by worldwide travel restrictions, there was a suspension in the oil production agreement between the Organization of the Petroleum Exporting Countries (OPEC) and the Russian Federation. Together, all of them brought out an unprecedented shock, steadily paralyzing the world economy. (Wheeler et al 2020.)

2.3 Public Financial Support

2.3.1 Government Instruments

Throughout history, the government played an important part in different development phases of the national economy. Some tried to completely control the whole system in the interest of accomplishing social or political goals. Some others tried to not be involved in any arising economic problems to make it self-adjust. In the modern world, most of all government positions are somewhere in between the line. The systems allow individuals and businesses to own property and compete for economic welfare, contributing to the bigger picture of the economy. The supply and demand mechanism would drive how products are produced and distributed with almost no dictate authorities could dominate the market. At the same time, the governments try to combine different policy instruments to promote

market development towards economic stabilization. They play a vital role in the downturn event that businesses cannot healthily operate by establishing policies to regulate the macroeconomy depending on the current economic status. (Bade & Parkin 2018, Chapter 10.) Different policies constitute the national system, all of which act independently but still interact and support economic goals. There are two powerful tools:

- Fiscal policy is a policy of collecting public tax as income and government spending to influence the economy to achieve price stability full employment, and economic growth. By this, the central government aim to bring the economy to equilibrium when in recession or overdevelopment, correct market failure and (re)distribution of national resources. (Bade & Parkin 2018, 824.)
- Monetary policy is the process that authorities manipulate money resources and market liquidity. By this, the central bank (e.g., US Federal Reserve, European Central Bank) controls interest rates; reserve requirement; exchange rate policy; quantitative easing; open market operations, etc. to achieve economic goals. (Bade & Parkin 2018, 868.)

2.3.2 Policies in COVID-19 Recession

COVID-19 made huge impacts on the economies across the globe, requiring quick and drastic policy responses internationally. As the discussion of economists published by Harvard Business Review, governments must find the balance between economic reconstruction and ensuring people's health. Every mistake or delay in response comes at the cost of citizens' life and has long-lasting effects on the national economy. In fact, there was no clue to define perfect strategies for this harsh time. (Bornardi et al 2020.) At that point, they have to face a dilemma when every anti-epidemic policy cannot be fierce. The government could not close the economy for too long to avoid poverty and backward developing movement. However, if they tried to reopen the activities, the risk of disease taking on citizens' lives was conspicuous. Moreover, since many sectors struggled, choosing which fields to appropriately aid was a difficult decision especially with only a few given inputs in the decision-making process. The collective decisions not only created a direct impact on the economies but also prolonged influence lasting later in a country economic development. It is hard to criticize whether a policy is appropriate or at least not at this point. (Bornardi et al 2020.)

The IMF has collected key policies from all nations, yet the writer selectively lists some in Figure 10 to better demonstrate the situation in 2020. Since later the paper will dive into the financial management in the business area of the European Union, the table will reveal governments' measures in Europe, respectively Euro Area, Germany, Spain, France, Italy,

and Finland, giving an insight into how different authorities used fiscal and monetary policy instruments to alter the national economy.

Country	Fiscal Policy	Monetary Policy
Euro Area/ European Union	<p>Dec 2020, the agreement of an additional €750 billion on the EU budget and NextGenerationEU (NGEU) recovery package. Additional measures:</p> <ul style="list-style-type: none"> • Safety net: A Pandemic Crisis Support (PCS) instrument to provide up to 2% of 2019 GDP to finance health-related spending • Protecting workers and jobs: A temporary loan-based instrument (SURE) of up to €100 billion • Loan guarantees: €25 billion in government guarantees by EIB to support up to €200 billion to finance to companies <p>Temporary flexibility in aid rules:</p> <ul style="list-style-type: none"> • Enable EU states to compensate damaged directly companies (aviation and tourism) • May 2020, temporary extensions of state aid for recapitalization and subordinated debt measures 	<p>ECB provided monetary policy support:</p> <ul style="list-style-type: none"> • Interest rates as low as 50 bp • A new liquidity facility: Pandemic Emergency Longer-Term Refinancing Operations (PELTRO) • Asset purchasing programs • Expansions of eligible asset range under purchase programs • Relaxation of refinancing operations standards and collateral easing measures • Temporarily change the credit quality requirements • EUREP establishment to solve possible euro liquidity needs <p>Dec 2020, several policies were extended with a bad reflection toward inflation</p> <p>ECB lower some requirements to national banks (prudential floor, cash holdings, reserve amount); and prudential rules (Package: to support bank lending)</p> <p>Policies support businesses:</p> <ul style="list-style-type: none"> • Recommendation of dividend payments and share buybacks suspension to banks • Encourage investments by allowing rapid re-capitalization and increase banks' capacity • Guidelines for mitigating leverage risks of hedge funds
Germany	<p>Three supplementary budgets: €156 billion (4.7% of GDP, 03/2020), €130 billion (3.9% of GDP, 06/2020), and €60 billion (1.7% of GDP, 03/2021)</p> <ul style="list-style-type: none"> • Expense on healthcare facilities and R&D, childcare benefit • Subsidy to preserve employment • Grants to small businesses • Interest-free tax deferral of venture capital • Temporary extension of unemployment insurance and short-term work benefits • June stimulus package: temporary VAT reduction, family income support, investment in digitalization and green energy <p>Volume extension of available corporate and public guarantees Injection of public equity into some firms. Support in state-level loan guarantees</p>	<p>See above the Euro Area section.</p> <p>Additional measures:</p> <ul style="list-style-type: none"> • An extension of all ECB-issued regulatory and operational relief to banks at the nation level • The countercyclical bank capital buffer (CCyB) of 0% (from 0.25%) • Finance liquidity provisions to companies by commercial banks • €100 billion to acquire equity • A three-month payment moratorium on consumer loans • Relaxation of leverage ratio calculation requirements • A temporary suspension of the obligation for insolvency filings by over-indebted or illiquid firms • Restricting banks on distributing dividends nor share buy-back
Spain	<p>7.4% of GDP, €85 billion changes in uses:</p>	<p>See above the Euro Area section.</p> <p>Additional measures:</p>

	<ul style="list-style-type: none"> • The budget for health research and public services • Protective unemployment benefits, assistance program on rental and housing • Direct financial aid for corporate solvency, exemptions of social contributions • Tax payment deferrals and social security debts deferrals • Temporary zero/Reduction of the VAT rate on medical essentials • Temporary subsidy for households and social public sectors 	<ul style="list-style-type: none"> • An extension of €100 billion of government guarantees for firms and self-employed • Investment in digitalization, sustainability, and innovation • A temporary delay in mortgage payments and rent payment • Suspension of interest and repayment of loans to the tourism sector and businesses • A temporary ban of short-selling Spanish shares • Macroprudential liquidity tool
France	<p>Mar-Nov 2020, four amending budget laws about €180 billion (8% of GDP) added to the crisis addressing budget, which contributed to a sum of €327 ½ billion (15% of GDP) of a guarantees package.</p> <ul style="list-style-type: none"> • Increase health insurance and expense on medical supplies • Unemployment benefit extension • Direct financial aid for individuals, and microenterprises • Business support: bills postponement, temporary exemption on social contribution and accelerate of tax credits, tax credit refund • Additional equity and nationalizing businesses and investment in potential industries 	<p>See above the Euro Area section. Additional measures:</p> <ul style="list-style-type: none"> • The CCyB of 0% • Temporary ban short-selling stock • Credit mediation to support re-negotiation of SMEs' bank loans
Italy	<p>Mar 2020, an emergency package of €25 billion (1.6% of GDP):</p> <ul style="list-style-type: none"> • Budget for health care system and civil protection • Measures to preserve jobs and support personal income • Business financial aid (SMEs grants and tax deferrals) <p>April 2020, additional state guarantees aim to enable liquidity of more than €750 billion (about 50% of GDP)</p> <p>May 2020, A "Relaunch" package of €55 billion (3.5% of GDP) to support business and individuals</p> <p>Aug 2020, following the approval of €25 billion deficit deviation, a new third support package on labor and social:</p> <ul style="list-style-type: none"> • Additional measures to support personal income support • Delay SMEs' debt repayment and tax obligations pay-back <p>Oct 2020, a €5.4 billion package of quick relief to hardest-hit sectors affected:</p> <ul style="list-style-type: none"> • Grants to 460 thousand SMEs and individuals 	<p>See above the Euro Area section. Additional measures:</p> <ul style="list-style-type: none"> • A moratorium on loan repayments (on mortgages and overdrafts) • State guarantees for banks on loans to all businesses • Deferred Tax for financial/non-financial companies • State guarantees for banks in lending, liquidity to finance SMEs, insurance schemes for exporters <p>Schemes to inject capital into businesses:</p> <ul style="list-style-type: none"> • Subscribing bonds or debt securities issued by SMEs • Investments in convertible bonds and subordinated debt, innovative start-ups and SMEs, and funds for corporate restructuring • (Temporarily) nationalize hotels <p>The "Rilancio" decree: Fund for the restructuring of firms (M&A, turnaround, debt restructuring) and equity injection</p>

	<ul style="list-style-type: none"> • Extension of social contribution exemptions for businesses. 	<p>Measures of Bank of Italy:</p> <ul style="list-style-type: none"> • Enable banks and non-bank intermediaries to temporarily operate below some requirements • Extension of obligations; and re-scheduling of on-site inspections • Extension of additional credit claim frameworks to include loans backed by public sector guarantees
Finland	<p>Around 3% of GDP spent on:</p> <ul style="list-style-type: none"> • Public health and safety services, R&D, medical supplies, cost to implement restrictions (€3 billion) • Lower pension contribution (€1.05 billion), deferral payment • Direct financial support for SMEs (over €1 billion); increase public investment; and individual income (direct aid, unemployment benefit, (€3 billion) • Temporary deferral of tax • Recapitalization for Finnair and other state-owned companies • Contribute to international vaccine R&D agents and WHO <p>May 2020, a third supplementary budget for business share acquisition, support catering sectors, and vaccine development (€1.68 billion)</p> <p>Jun 2020, the 4th supplementary budget for household and business (€1.2 billion).</p> <p>Sep 2020, the 5th supplementary budget for vulnerable sectors (€1 billion); and the 6th supplementary budget for cross-border testing capacity (€200 million)</p> <p>Oct 2020, the 7th supplementary budget on maintaining public health (€750M)</p>	<p>See above the Euro Area section.</p> <p>Additional measures:</p> <ul style="list-style-type: none"> • Commercial paper purchased by Banks of Finland (€1 billion) and by the State Pension Fund (€1 billion) • A state guarantee for Finnair and shipping companies • Different governance entities relaxed some prudential limits to support liquidity and financial boost (housing loans, residential mortgage, pension contribution reborrowing, credit institutes, lending capacity to SMEs, etc.) • Injection into the national climate fund and state-owned enterprises • Compensation for implemented restrictions

Table 2. Government policies in response to COVID-19 in 2020 (IMF 2021)

3 Financial Analysis Methodology

Financial Analysis provides individuals with a chance to look into business operations with relevant data. The technique is known as a set of methods and tools to collect and process a company's accounting data and other information relating to corporate management with the purpose of understanding its financial situations, capabilities, and growth potentials. The input data can be obtained from internal business or external entities, as long as they are suitable for the analysing process. On one hand, the external source of information includes macro topics (tax or interest policies, economics situations, market opportunities etc.), industry-related discussion (industry structure, market shares, etc.), and legally required documents (management report, auditing report, etc). On the other hand, internal accounting information is considered a basic form of assessment. With the systematic, homogeneous, and resourceful characteristics, it is an important source when businesses must transparently provide a periodic report called financial statements. (CFA 2020, 6 & 34.)

Under the market economy with the micro-management from the government, businesses with a different type of registered ownership are equal by law in choosing their production lines and operating fields. Therefore, there are many subjects taking interest in the financial situation of enterprises, namely business owners, investors, suppliers, and customers. Financial Analysis allows approaching corporate information comprehensively to make strategic operating or investing decisions based on personal interests. As can be seen, the importance of financial analysis can vary according to subjects (CFA 2020, 6-7):

- **Finance managers/controllers** can comprehensively understand financial data published. On the basis of analysis, they can assess the current financial situations and conduct forecasts to make operating decisions.
- **Investors/Debtors**, whose prioritized interest on profit, can assess the company ability to generate profitability, the return possibility of their invested funds and its financial or other related risks.
- **Employees** can comprehend the financial strengths and weaknesses, the use of funds and future plans. The transparency for individual analysis can build trust and motivation on the way to efficiently grow the company.
- **Other interest parties** from different career fields, namely tax authorities, public research agencies, economic police, or commercial lawyer, are interested in business financial positions to process their professional procedures.

As an effective tool in assessing corporate administration and business performance, the practice of financial analysis should achieve the following objectives (CFA 2020, 636):

- A method to evaluate an enterprise's financial position in many aspects
- A compass for stakeholders to make appropriate decisions, relating to funding, investing, profit distribution, etc. in response to market events
- A basis to conduct financial forecasts, detecting financial potential and risks so as to enhance resilience capabilities and focus on growing potential aspects.
- A tool to control business activities by examining the achieved outcomes in comparison to the prior targets or benchmarks, later delineating operating strengths and weaknesses to enhance business efficiency

3.1 Comparative Approach

When analysing the financial situation of an entity, the comparative approach is widely used and considered the most important practice. The idea is to reflect different characteristics of an object company with those of the others with possible similarities. It is to point out differences and emphasize implying causes. Within the scope of comparative study, Financial Analysis is applied with predefined procedures to approach different business events, financial decisions and money flow, business changes and deviations of operating outcomes. The writer concludes the following preconditions:

- **Object requirements:** There are at least two comparable objects with similarities of economic contents, calculation methods, time schedule and measurement unit.
- **Comparative base:** This depends on the purpose of the analysis. When attempting to detect trends and growth rates, the base should be the value of equivalent financial indicators from previous periods. The target value is taken into consideration with the actual statistic to assess performance toward predefined goals.
- **Data inputs:** Input data for financial comparison applications are mostly derived from the Financial Statements, possibly from other internal and external business-related information sources, which are obtained through the data collection process.
- **Comparison techniques:** Analysts commonly use inclusively absolute comparison and relative comparison. The former reveals the absolute changes of the object while the latter points out the difference in per cent compared to the base.

3.2 Financial Statement Analysis

In principle, financial statements are statistic reports summarizing a company's asset status, operating results, and cash flows within a specified period. Financial statements mainly include The Balance Sheet, The Income Statement, and The Cash Flow Statement with mandatory explaining notes. They are established based on accounting principles synthesizing

accounting books and incurred financial targets. In market economies, there are a variety of subjects interested in an enterprise's financial position. Hence, companies are legally committed to proposing these reports periodically to provide stakeholders such useful information about the organization. (CFA 2020, 13.)

Within the scope, Financial Statement Analysis is a set of actions to interpret and evaluate business value and performance from reading financial statements, the key inputs. It is a performance measurement by looking into the relationship between financial statements and the company's financial objectives. Analysts ought to use these statements comprehensively and mutually include them with an external source of information to make appropriate assessments. During the practice, changes, and movements of different financial objects within business operation; later decide positive strategies for companies or achieve individual goals in response to market changes. To achieve the highest level of efficiency, three financial statements have to be used comprehensively and mutually inclusive in the analysing process to support the analysis goals (CFA 2020, 33-36). The practice is irreplaceable in any conduct of Financial Analysis.

3.2.1 Balance Sheet

The Balance Sheet demonstrates the financial position of a company at one particular time, reflecting all the existing assets and sources of capital that can form the company's future assets. According to Ittelson (2020), there are three parts representing today's company financial position including what the enterprise has (Assets), how much the enterprise owes (Liabilities) and what the enterprise is worth today (Equity). The principle of The Balance Sheet is an equation of:

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

Values are attributed to every account in the Assets and Liabilities sections, together pointing out the net worth of a business. On one hand, the Assets section mainly informs the allocation of capital uses of an enterprise. All asset elements financed by the equivalent source of debt or equity are often arranged in descending of liquidity level, including current assets (cash, account payable, prepaid expenses, inventory, etc.) and non-current assets (fixed tangible/intangible assets, goodwill, etc.) On the other hand, the Liability & Equity section shows how much a business is legally liable for creditors (Liabilities) and the ownership of company funding sources (Equity). Elements in the Liabilities part are sorted by the urgency of repayment requests, possibly short-term, medium-term, and long-term debt. (Ittelson 2020, 16-19.) Nevertheless, demonstrating order and financial terms listed on the statement vary in companies and its belonging accounting standard.

When it comes to the Balance Sheet, to identify funding sources and capital usages, analysts should consider changes and value among financial data disclosed. The statement is a basis to inspect the key investments and funding structure of the business. From this section, the data illustrates the scale and structure of capital, evaluating either a company's financial independence status or financial risk endurance. The process brings out how much capital increase/decrease or element changes. With that, managers will have corresponding solutions to effectively use capital to leverage the company's overall value.

3.2.2 Income Statement

The Income Statement or Profit & Loss Statement reports on cumulative financial results of all business activities at a certain time. Over a period of time, income is generated from the deduction of material input cost (Cost) and operating expenses (Expense) from what has been sold (Revenue). For this, the second accounting equation is applied:

$$\text{Revenue} - \text{Cost \& Expenses} = \text{Profit/Loss}$$

Normally, Income Statements have two key components: Revenue and Income (Income from main and secondary activities; and Net Profit); Cost and Loss (Cost for main and secondary activities; and Net Loss). (Ittelson 2020, 46-47.) In reality, businesses can have different items on the statement depending on their operating industry. In detail, to generate profit, main business activities are key; for example, material purchasing and selling products for retailers or manufacturers; or professional practice and required procedures to deliver their services to customers. Income from secondary activities is obtained from many types of non-operating activities, namely selling, or buying fixed assets or value changes by extraordinary macro events. (Ittelson 2020, 55-56.) In a sense, the cost and income of these business activities will offset one another, resulting in a net profit with a positive figure or a net loss with a negative record. It is noted that the financial elements in this section are not necessarily involved with the actual cash receipts or cash payments.

For Income Statement Analysis, profits from different types of business activities should be assessed in the picture of overall cost and revenue of business operation, which assists in pointing out the underlying causes and their degree of influence in the accounting period. By interpreting the statement, stakeholders can make a comparison with previous periods or those of the competitors to get an overview of operating results and movement trends. The report also reflects the enterprise's performance to execute legal commitments in terms of taxes and other obligations. However, when adopting these data, analysts must take into consideration the following notes:

- There is a relationship between revenue, cost, and profit. The profit expands only when the revenue growth is higher than the equivalent cost growth, vice versa.
- Sale decreases or sale returns increases might imply the deteriorating quality of products when trying to meet customers' demand.
- When assessing performance, it is more practical to use the net income figure.

3.2.3 Cash Flow Statement

Last but not least, the Cash Flow Statement is a financial report of cash movement through a business over a period of time. Due to practical reasons, it is common to have a gap time between the transaction recorded date and the actual cash receipt date. The statement assesses the business ability to generate cash, showing the relationship between net profit and net cash flow, profitability, and solvency in order to plan money receipts and expenditures for the coming period. The principle is:

Cash on-hand at the start of the period + Cash received in the period + Cash spent in the period = Cash on-hand at the end of the period (Ittelson 2020, 64)

As stated by Murphy (2021), the statement reveals cash in- and out-flows for the daily revenue-generating process (Operating Activities); selling, purchasing, constructing, and liquidating long-term assets and other investments (Investing Activities); and activities cause changes in size and capital structure, namely debt and equity (Financing Activities). A financial analyst cannot skip a check of Cash Flow Statement. The report demonstrates the relationship between net cash flow and profit, allowing corporate governance to balance revenue and expenditure effectively. Hypothetically, Cash Flow Statement is a useful supplement to The Balance Sheet and The Income Statement. By using this, analysts can examine the money inflows and outflows within the reported period. Furthermore, the generating cash abilities of both internal and external factors along with the debt repaying capacity are identified accurately without the influences of accounting principles.

3.3 Financial Ratio Analysis

By definition, a financial ratio illustrates a proportionate connection between two lines or groups of the line of the financial statements, of which technique is the most common procedure. Ratio analysis is implemented based on predefined concepts to interpret within the quantitative scope of the financial figure relationship. It does not take into account the size or scale of the business; so operating performance can be evaluated thoroughly in the industry picture. The practice provides a comprehensive investigation of trends when applying the comparative approach within itself or with other semi-similar objects. Via mathematic

figures and calculating practice, users can conclude real-life phenomena occurring to businesses and possibly predict the future. They can be compared with other internal ratios, those of competitors or those figures yet in the past timeline. The practices also require the determination of a threshold, known as a benchmark, available for different types of ratios (CFA 2020, 246-247). The point is to set a visible comparable object derived from other industry players, which aims to ascertain an enterprise's financial status.

Usually, financial ratios are categorised based on either how they are formed or and the underlying information delivers. A set of ratios are indicators of different aspects following the analysts' objectives. In classification, there are five groups:

- **Return-on-Investment Ratios** point out the benefits derived from given resources. For every money unit invested in a sector, the relevant return is analysed to conclude the asset utilization efficiency no matter how it is financed (Return on Asset, Return on Equity, Dupont System, etc.). (Fabozzi & Peterson 2003, 723.)
- **Liquidity Ratios** represent either a company's capacity to satisfy its short-term obligations or its ability to convert assets into cash. These ratios imply the effectiveness in asset management and the liability structure controls (Current Ratio, Quick Ratio, Cash Ratio, Operating Cycle Figures, etc.). (Fabozzi & Peterson 2003, 729.)
- **Profitability Ratios** measure a company's ability to generate profit. They emphasise aspects contributing to the actual income (Gross Profit Margin, Operating Profit Margin, Net Profit Margin, etc.). (Fabozzi & Peterson 2003, 736.)
- **Activity Ratios:** show *the benefits produced by specific assets*, to assess a company's asset management, which plays an important role to control costs and support the planning processes (Inventory Turnover Ratio, Account Payables/Receivables Turnover Ratios, etc.) (Fabozzi & Peterson 2003, 739).
- **Financial Leverage Ratios** illustrate how much financial risk a corporation has been bearing on. These figures reveal how a company fund its operation and its capability to meet its debt obligations (Total Debt-to-Asset Ratio, Total Debt-to-Equity Ratio, Interest Coverage Ratio, Fixed-charge Coverage Ratio, etc.). (Fabozzi & Peterson 2003, 742.)

Each category has numerous distinctive ratios, exposing different financial aspects of the analysing object. Choosing the appropriate ratios and suitable analysing techniques will undoubtedly expose the financial status of the target organization. Depending on the circumstances and the research targets, the users have to select and combine different indicators to satisfy the demands of information and the analytical viewpoints. Therefore, being

a master of different ratio applications as well as financial reporting comprehension will create a good foundation for an analyst to effectively reach the target answers.

To associate with the business operating situation in 2020, the author will conduct a ratio analysis based on the key financial changes of business derived from the Second Chapter. There ought to be a revolution on cost restructuring in companies under the impact scope of the recession. To capture the situation, the analysing objectives in this research will be:

- Evaluate corporate market value and profit-generating capacity of corporate
- Assess cash position and liquidity management in 2020 financial year
- Inspect operating performance and capital restructure
- Examine leverage usages under the unfavourable market situation

3.3.1 Market Value

Theoretically, stock price represents a stock's current value to market participants, which changes over time and are influenced by numerous variables such as the growth of a business, macroeconomic environment, market interest rates, etc (CFI a). Hence, the investigation of stock price development will price the market picture of businesses within the period where a market value can be understood as an estimated exchange price among potential willing sellers and willing buyers at a certain time. Correspondingly, market capitalization, also called a market cap, is an indicator of business size calculated by multiplying the current stock price by the number of shares outstanding. However, since the intrinsic value makes more sense for business evaluation, Enterprise Value (EV) will be used as a more complete alternative to market cap. (Beers 2021; Jernando 2021a.) The applied formula is:

Enterprise Value = Market Capitalization + Total Debt - Cash & Equivalent

Compared to the Market cap, EV considers short- and long-term debt together with available cash to expose precisely business value in the event of a takeover. Hence, a company with more debt than cash will have an enterprise value greater than its market cap.

3.3.2 Profitability Metrics

In this research, the author will investigate corporate profitability via the proportion of Earnings before Interests, Taxes, Depreciation, and Amortization (EBITDA) over Revenue

EBITDA margin = EBITDA/ Revenue

As EBITDA is an excellent indicator of core profit trends since it removes certain unnecessary components such as cost of debts, taxes effect and non-cash expense of depreciation and amortization, allowing a more accurate comparison among firms when it solely comes to profit-generating capacity. (Chen 2021b.) Obviously, a high EBITDA Margin means that the business is doing well with potential stabilities for a long time to generate profit.

The indicator will be laid aside the annual Earnings per Share (EPS), which will measure the profit distribution per stock. The figure is believed to provide a more precise evaluation for profit-generating abilities from investor aspects. When the basic EPS takes into account the outstanding common shares, it is noted that, for a complex company structure, it is more appropriate to inspect the diluted EPS, which also consider related convertible securities. (Fernando 2021c.) Basic EPS are accessible in the company's annual report, from which the author will extract as inputs to the interpretation phase.

3.3.3 Cash & Liquidity Management

The research will dive further into the companies' cash management to assess their positions toward their current financial obligations and possible future outcomes. In its most basic form, cash flow management is a process of managing cash flow in and out by monitoring, optimizing the quantity of cash received after extracting the cost of money. As cash is associated with the operation, effective cash flow management is critical to the existence of any firm. (Hayes 2021a.) It is noted that cash flow from operations is favoured over net income to evaluate a corporation's financial management because it avoids the manipulations from accounting gimmicks aiming to distort financial outcomes (Tuovila 2021).

There will also be an analysis of Quick Ratio which belongs to the group of Liquidity Ratios. The ratio demonstrates how effectively liquid assets meet current obligations or how much current liabilities are utilized to fund their operating capacity with minimal influence of the current market price or no additional financing. (Seth 2021.)

Quick Ratio = $(\text{Cash \& Cash Equivalent} + \text{Marketable Securities} + \text{Account Receivables}) / \text{Current Liabilities}$

The quick ratio is expected to be 1, meaning the corporation has exactly enough assets to pay off its present creditors in a single transaction.

3.3.4 Capital Structure

Anyhow, the reality shows that not all firms can be financially self-sufficient. In order to grow, they raise funds by selling stock, issuing bonds or borrowing from banks and creditors. Their

capital structure is a mixture of fundings consisting of debt and equity (Loth 2021). The ideal capital structure serves as the foundation to achieve a balance of risk and return, from which they strategically maximize stock prices while reducing capital expenditures. In contrast, an undefined capital structure can lead to the loss of capital control for operating activities, or the waste of funds incurred within the operation. Beyond, capital structure affects the company's risk, capacity to pay costs and resilience in the events of an economic downturn. Nonetheless, there is no formula for a perfect capital structure, yet one can say that a low level of debt is preferable in bankruptcy possibilities consideration. Different corporates would have different structures depending on the bearing business risks, tax and policies and current market situation. (Loth 2021.)

Taking notice, for many large-cap companies favour lower cost of capital when debt can be a less expensive alternative to equity, they often have a high debt structure. The investment there also seems safer than the smaller constituents even with the reported high-interest coverage. (Ross 2021.) However, the assessment might vary in the different market situations. Moreover, employing long-term debt can assist in reducing the overall cost of capital because the lenders do not partake in any profits or stock growth. The strategy benefits firms by predicting significant growth and substantial income to meet on-time debt repayment. By contract, it places significant financial pressure on failing businesses, perhaps leading to insolvency as well. (Hayes 2021c.)

To assess the company's capital structure, the analysts often use some common leverage ratios derived from the balance sheet, namely Debt Ratio, Debt to Equity Ratio and Long-term Debt to Capitalization. With different formulas, they give the proper measurement to different scopes of consideration. The first one in the set is the debt ratio, illustrating the borrower's financial position compared to the total liabilities they are bearing.

Debt Ratio = Total Debt/Total Assets

The high total debt ratio implies great financial risk with high leverage used by the company. Hence, a ratio greater than 1.0 (100%) means that more debt has been used to finance assets while lower than 1.0 show a company-funded its assets more by equity. Total liabilities can be used instead of debt according to some sources. (Hayes 2021d.)

Secondly, one of the most common leverage ratios is the Debt-to-Equity Ratio with the formula:

Debt to Equity Ratio = Total Debt/Total Equity

Usually, the high figures mean that the company mostly uses debt to finance its operation, leading to an unstable phrase of income sources. In principle, the smaller ratio shows the

less difficult the business will be in financing decisions or fewer possibilities of bankruptcy due to debt burden. However, the use of debt is sometimes appreciated, which will be discussed further in the leverage usages section below. The assessment criteria of the Debt-to-Equity ratio highly depends on the industry in which the business operates. (Ittelson 2020, 197 & Fernando 2021b.)

The third leverage ratio is Long-term Debt to Capitalization, a variation of the traditional ratios measuring the percentage of long-term debt in a company's funding sources.

Long-term Debt to Capitalization = Long-term debt/ (Long-term debt + Total Equity)

The indicator allows the investors to identify the amount of control utilized by a company to analyse the investment risk associated with long-term debt. A larger ratio indicates that a corporation poses a greater danger of bankruptcy. (Hayes 2021c.) Thus, the company should make sure that their long-term debt to capitalization ratio is in favour so that their debt is under control.

In addition to leverage indicators, one insolvency ratio worth investigating for funding is the interest coverage ratio, assessing the business's secured payment toward debt.

Interest Coverage Ratio = (Net profit + Income tax + Interest expense)/Interest expense

This ratio depicts a capacity that enterprises create to cover the cost of borrowing capital throughout the course of operation. The higher the ratio, preferably greater than 2, the better the company's ability to pay interest instalments, and vice versa. (Hayes 2021e.) Businesses ought to generate a reasonable amount of security to ensure their ability to pay creditors.

3.3.5 Operating Performance

In terms of evaluating operating performance, profitability ratios equip information regarding management's success in utilizing the funding resources. Usually, Investors prefer to inject their money into risky corporate in order to create higher returns compared to depositing them in a bank or other low-risk assets. If these ratios prove not to make more profit, they shall withdraw their investment and reinvest money in other sources. However, it is noted that there are several elements that possibly alter the profitability parameters. The author will take a comparison of Return on Equity (ROE) and Return on Asset (ROA):

ROE = Net Income/ Total Equity

ROA = Net Income/ Total Assets

By definition, the former measure the profitability per dollar of capital invested by shareholders while the latter provides information on the returns generated from the business total assets. ROE is frequently evaluated by investors for references when choosing the business to invest in. Instead of equity, ROA uses the total asset as the denominator, with the key difference being the inclusion of liabilities. In other words, if a corporation is free of debt, two ratios turn equal. (Furhmann 2021.) Higher profitability figures mean better as the company make more money on less investment either from its shareholders or the concern of total injected asset value. In reality, these indicators vary greatly, and the valuation depends on different industries.

Another comparison will be made between Return on Invested Capital (ROIC) and Weighted Average Cost of Capital (WACC) to examine the performance of a business operation. ROIC is another profitability ratio, yet this time only considers the profits created by invested capital, a mixture of Equity and Debt. The calculation shall be applied:

$$\text{ROIC} = \text{EBIT} \times (1 - \text{Tax rate}) / (\text{Total equity} + \text{Total Debt})$$

This indicator expresses the money amount earned over the average cost of its capital structure usages. (Hayes 2021b.) Nonetheless, the cost of borrowing should also be taken into consideration not solely the returns, which is the reason to conduct the comparison.

$$\text{WACC} = (E/(E+D) \times R_e) + (D/(E+D) \times R_d \times (1 - \text{Tax rate}))$$

- Where: D = Market value of debt. E = Market value of equity.
- R_e = Cost of Equity, R_d = Cost of debt

WACC is the cost of capital when weighted proportionately types of funding sources injected into the business. In other words, the figure shows how much it costs a company for every dollar funded. (Hargrave 2021.) When investigating cost, a high indicator of ROIC is not always good if a firm doesn't make more than its expense on activities. By contrast, the figure is greater than the cost of borrowing, indicating the excellent use of financial leverage.

3.3.6 Degree of Leverage

While adopting leverage is always associated with risk, firms still employ various sorts of leverage for their operations. The fundamental driver is that it allows businesses to start with a small amount or without initial self-resources, then expand the operation by using external sources. Using leverage fosters profitability as well as benefit the competitive advantages available in the market. However, if occurs ineffective usage, leverage will definitely push businesses to severe troubles, especially in the volatile market condition.

Normally, when analysing business structure, investigating how operating and financial cost is essential since they affect the parallel financial results.

In theory, Operating Leverage represents the level of cost structure impact on the earnings before interest and taxes, in which case, the cost structure is a combination of fixed and variable cost. It comes to Degree of Leverage calculation (CFI b):

Degree of Operating Leverage (DOL) = Gross Profit/EBIT

Firms that have a large portion of fixed costs in operating structure will result in a higher DOL, implying higher EBIT. In other words, businesses with high DOL can generate more money from each additional unit when the sale of that does not raise the cost of production. However, large fixed-cost operation aligns with equivalent business risk defined as the possibility of sales-generating not to cover business expenses and cost (Maverick 2021).

Financial Leverage refer to the financial cost of a firm when it utilized external sources of financing to enhance its capital sources to fund the operation with the formula (CFI c):

Degree of Financial Leverage (DFL) = EBIT/EBT

Enterprise with a large proportion of borrowed capital will have a greater ROE or EPS when earning before tax and interest increase yet associating with financial risk, the firm's ability to satisfy debt-related commitment (Maverick 2021). By the same token, raising equity enhances the financial independence of a business yet lessen the effect of financial leverage. In practice, using debt bring considerable advantages namely corporate income tax deduction of interest expense, maintaining ownership at the same time not sharing business profits, and the fact that managers can either choose long-term or short-term debt from different financial creditors and the low-interest rate (Chen 2021a). Especially, the usage of debts has been encouraged by authorities to stimulate business activities with nearly-zero interest rates in the long period after Financial Crisis.

To put them in a nutshell, the author will examine the Degree of Combine Leverage, casting up the effect of operating and financial leverage exercise within a business (CFI d).

Degree of Combine Leverage (DCL) = DFL X DOL

4 European Aviation Businesses

4.1 Aviation Industry

Not until the catastrophic event of 2020, the world had been witnessing the rapid expansion of the aviation industry ever since its first presence in the market. The industry is identified as a small sector yet takes an important position in the global economy. It closely ties the upstream businesses (aircraft manufacture, air transportation facilities, leasing service, etc) and the downstream sectors (oil suppliers, tourism, international commerce, etc.) Not only the fact that this economic chain substantially contributes to the national GDP, but aviation operating within a country is also critical on the matters of national security, military, and human rights. (OECD 2020b.) On average, every year, the global airline industry generates 65.6 million employments including 10.2 million direct jobs and more than 55 million indirect jobs. In 2018, the economic sector made up to 3.6% of the global GDP, the figure of which is \$2.7 trillion dollars. (IATA 2018.)

4.1.1 Market Overview

By the time COVID-19 hit the globe, aviation became the hardest-suffer sector. Due to the nation's rigorous border controls prohibiting virus entry, the number of international travelers began to collapse in early 2020 then eventually reach the historical bottom (ICAO 2021). Facing the same fate of other major lines of businesses, airlines were forced to stop offering their flight services while continuing to pay for aircraft maintenance, airport facilities, employee salaries, not to mention the prior enormous loans for new purchasing or leasing passengers' aircraft. Just during the first two quarters of 2020, Bloomberg Quint estimated over 400 thousand aviation job losses while IAIA predicted the 25 million number for all related industries (Kotoky 2020). The subsequent delayed recovery had negatively influenced the airline revenue and the connectivity of the global economies. As a result, in order to survive, aviation businesses started to develop toward digital transformation, leveraging service standards of hygiene and sanitation, profiting air freight, reorganizing business operations targeting flexibility and sustainable development, and restructurings of financial and operating costs (Rodrigues 2021).

The history books will record 2020 as the industry's worst financial year, bar none (de Juniac, IATA 2020).

During the history of development, the aviation industry has seen several crises from minor to global scale that was however quickly resolved. Although the oil crash events hit the sector quite hard many times, the consequences can't be compared to what pandemic 2020

has caused. Latest, while Financial Crisis in 2008 brought fear to the world by the stock market crash event, as can be seen from Figure 9, the world air passengers stood still for a little time then come surge during the golden age of airlines in recent years. Even when it comes to the outbreak of SARS (2002-2004), the slight disturbance of customer demand hadn't caused too many visual impacts to the air travel sector. During the COVID-19 pandemic, the number of air passengers was predicted to plummet to 1.8 billion, the figure of which was 60.5% down from the 4.5 billion records in the last year. Accordingly, the world operating revenue for airline passenger businesses made it loss of 370 billion dollars splitting over different regions with losses in Asia/Pacific (\$120 billion), Europe (\$100 billion), and in North America (\$88 billion), and billions of records in other areas. (ICAO 2021.) Even if the significant oil price did plunge during the period, the airline operating loss could not propose any positive due to the highly uncertain scenarios of the pandemic evolve (Asquith 2020). However, it was worth noting that the industry failures still appeared to have fewer either airline collapses or company restrictions than the initial expert expectations of which the key driver is government financial support (KPMG 2021, 4). In the answer to the first interview question, the industrial expert spoke that some aviation enterprises could financially survive since they actively switch to transporting goods, medical and relief supplies to partially compensate for the declining passenger transport (Nguyen 2021).

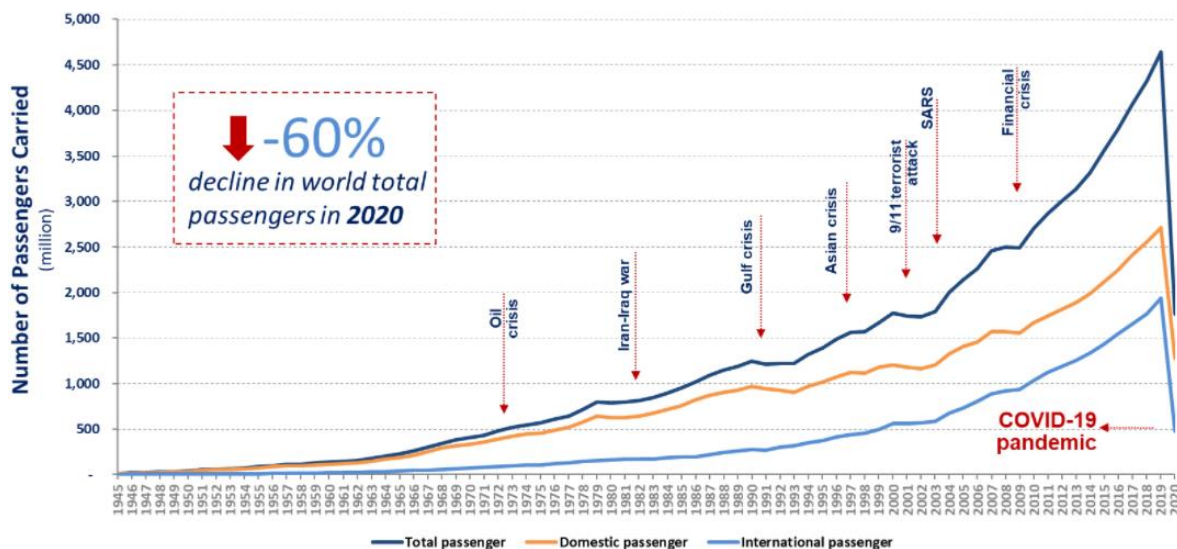


Figure 9. World passenger traffic evolution (1945 – 2020) (ICAO 2021)

In Europe, the aviation industry facilitated 3.6% of employment, approximately 13.5 million jobs, and made up 4.4% of all nation GDP about \$991 billion, statistically speaking (Aviation benefits beyond borders). In fact, the sector had prior posed a vulnerable position suffering from overcapacity and foreign travel dependence (KPMG 2021, 14). In 2020, the regional situation shared the same growing pattern with the global industry. The aviation industry

has also acted as a vital contributor to the European economy, yet unavoidably facing the deteriorating phase in the outbreak. From the year of the health crisis, the European Parliament reported €22.2 billion in net losses for airlines, €33.6 billion in revenue losses for airports, and €4.8 billion in in-year revenue losses for European Air Navigation Service Providers (Rodrigues et al 2021). To give an instance out of the situation, in the announcement in late 2020, Airports Council International (ACI) reported 193 European airports were labelled 'at risk of default' when passenger volume remains low. The statistics revealed that Europe's top 20 airports accumulated an additional debt of €16 billion, roughly accounting for 60% of the prior revenue. (Strauss 2020.) Overall, 2020 was completely a struggling year for the airline industry.

4.1.2 Companies Background

The challenge always rises with new opportunities. Businesses have to take advantage out of them to survive and grow. Conducting research to see how airlines cope with the situation and financially planning out their long-term developing strategies seem interesting to any market observers. The chosen aviation companies are national airlines of European countries, Lufthansa (Germany), Air France-KLM (France) and Finnair (Finland). The reason for the choices is due to the drastic damage the airline industry bore and the fact that authorities made substantial efforts to save their national carriers. In this part of the writing, the author will briefly introduce companies' overview and their situation under the COVID-19 scenario. Overall, the airlines shared the same patterns in business trends, which was constantly growing until the unwanted event occurred in 2020.

Lufthansa

Deutsche Lufthansa AG, known as Lufthansa, is the biggest player in the European aviation market, expressly ranked as the industry leader in the globe. Founded in 1953, the German airline has been operating for 67 years, owning six hubs in Germany, Austria and Switzerland and the officially registered corporate headquarter located in Cologne, Germany. The group concentrates on providing high-quality services to meet customer expectations and maintain the good function of the whole group. It set a mission to be the first choice for customers and stakeholders, being the leader in air transport to shape the future market. The company aims to continue expanding and try to secure its market share. Besides, enhancing social sustainability and the environment is also the group's prime focus in the decision-making processes. Consolidation, flexibility, and digitization are considered as core aiming to promote safety, quality, reliability, and continuous innovation for operation. (Lufthansa a.) In point of fact, Lufthansa was a state-owned business until 1994, publicly listed on a German stock market since 1966. The German Aviation Compliance

Documentation Act compels Lufthansa that a majority of its shares should be held by German shareholders to safeguard the international air traffic rights and its operating license (Lufthansa b). As a result, all shares are registered and subject to transfer restrictions.

For decades, Lufthansa has been advancing with excellent air services and consistent investments. As an industry veteran, it went through a different crisis such as the Gulf crisis, 9/11 or the 2008 financial crisis, with flexible strategies in response to the market. (Lufthansa c.) In the recession of COVID-19, the group made an effort in squeezing the operation to become completely cost-efficient to the current market demand through ReNew program with ReStructure, ReFocus, ReOrg and RePay measures. The adaptation of personnel to capacity and the application of resource-saving concepts become priorities along with flexible strategies responding swiftly to market changes. (Lufthansa a.) Overall, in 2020, almost 30 thousand staff were terminated along with the cut of 10 aircraft in services (Table 3). The group proposed the plan for a New Normal in 2023 with restructuring plans. The point is not solely to concentrate on stabilization but also to maintain its leading market position. (Lufthansa 2021, 99.)

	2017	2018	2019	2020
Number of employees (K)	129.4	135.5	138.4	110.1
Number of passengers (M)	130.0	141.9	145.3	36.4
Number of aircrafts	728	763	763	757

Table 3. Lufthansa business trends (2017-2020) (Lufthansa 2019; Lufthansa 2021)

Air France – KLM

Air France-KLM is a global airline operator established in 2004 by the merger of Air France and KLM Royal Dutch Airlines (KLM). As subsidiaries of Air France-KLM, both airlines continue to operate flights under their own brand identities. The Group organizes its networks around two major hubs: Paris-CDG and Amsterdam-Schiphol. (Air France-KLM a.) Three main businesses are aeronautical maintenance, cargo transport and passenger transport. It is a founding member of the Skyteam Alliance, owning 19 other airlines to form a global network of up to 2,300 flights per day. Air France-KLM's objective is to serve its clients with high-quality services that are adaptive to changing demands, enhancing the environment, customer experience leverage, personal and local development, aiming to become the world's largest and most successful airline. (Air France-KLM b.) The ownership structure of Air France-KLM varies to French State, Dutch state, China Eastern Airlines, Delta Air Lines, and some others (Air France-KLM c).

Air France – KLM face the same fate as other aviation businesses in the difficulties of 2020. The company performance was gradually rising in sales and passengers with an expansion of organization staffs and aircraft in services (Table 4). COVID-19 has forced them to drastically cost restructure in order to exist and maintain their market position. Moreover, pointing out the necessary call of sustainability development from the pandemic, the group design its strategic plans to continue focusing on environmental footprint reduction and commitment to corporate social responsibility. (Air France-KLM 2021b.)

	2017	2018	2019	2020
Number of employees	83,522	84,714	86,138	82,162
Number of passengers (M)	99	101.4	104	34.1
Number of aircrafts	545	548	554	546

Table 4. Air France-KLM business trends (2017-2020) (Air France-KLM 2019; Air France-KLM 2021a)

Finnair

Finnair is a Finnish airline and the country's flag carrier with the headquarter located in Vantaa, focusing on passenger and freight transport between Asia and Europe. The airline, founded in 1923 named Aero O/Y, is one of the world's oldest still-operating airlines (Finnair a). As one of the most timely and secure in the world, it is a member of the OneWorld Alliance and the only Nordic network provider with a 4-star Skytrax rating. Finnair's strategy has focused on Asian markets, making use of Helsinki's geographical advantage, which allows Finnair to offer the quickest connections between Asia and Europe. The company's vision is to provide its customers with a distinctive Nordic experience, while its objective is to provide the fastest connections via Helsinki, with the goal of becoming the dominant airline in the Nordic area. The company aims for sustainable growth in terms of profitability, human and brand value, thriving now and then to minimize the environmental impact within its operation. (Finnair a.) In addition, Finnair is a national airline that is partially controlled by the Finnish government. Legislation requires the Finnish government to possess more than half of Finnair Plc's shares, and any move to reduce ownership to less than 50% would need a reversal of the Parliament's decision. Furthermore, since it is publicly traded on the Nasdaq Helsinki Large Cap list, additional shareholders comprise public bodies, financial institutions, and individuals. (Finnair b.)

While the year 2019 witnessed the fastest growth of 9.2% in sales with the rising number of passengers (comparing to 2018), Finnair business performance plummeted to negative net

profit with an almost 75% decrease in traffic records under the scope of COVID-19 effects (Figure 14) The fact also leads to the drop in staffs when the company shrank its organization to fit in the market situation. Notwithstanding, in the annual report, Finnair announced to continue its long-term strategic course with the goal to secure its competitive position in the coming future. The board of management propose the objectives of sustainable and profitable expansion backed by Finnair's core business value as well as its solid ownership structure. (Finnair 2021, 3-4.)

	2017	2018	2019	2020
Number of employees	5,852	6,360	6,788	6,573
Number of passengers (M)	11.9	13.2	14.6	3.5
Number of aircrafts	79	81	83	83

Table 5. Finnair business trends (2017-2020) (Finnair 2019; Finnair 2021)

4.1.3 Public Financial Support

During the recession of 2020, aviation companies could have not maintained their market position if they were going solely with their own resources. Public financial supports acted as the key factor for their survival. (Nguyen 2021.) As the economic benefits of the industry, governments cannot sit back to let airlines go default. They launched substantial bailout packages to airlines to overcome temporarily the crisis include untargeted schemes to support liquidity, sectoral schemes, or firm-specific support measures (OECD 2020b). The role of governments became critical more than ever to ensure their existence; otherwise, there would be a collapse of airlines on a massive scale. The supports to the airline sector were extremely essential in the economic context of post-crisis, which the IATA general director commented to be one of the most vital investment at the time for the public agents. (IATA 2021.) By the end of 2020, authorities across the globe have injected over 200 billion USD into the industry and predicted to continue giving another 80 billion USD of the bailout in the coming period, all of which came in the form of loans, guarantees, wage subsidies, tax deferrals and equity injections. Policies were implemented to equally support all aviation operators, especially with tailored assistance packages to national airlines. However, it is noted to keep in mind that government intervention must target to balance to support the revision of the industry yet still maintain market competition among businesses (OECD 2020b). The OECD (2020b) pointed out that government should encourage downsizing and restructure operations toward resilience enhancement and sustainable development of the

whole aviation chain of value while letting inefficient operators exit the competition to optimize the use of public resources.

Within the European scope of the research, the European Commission authorized its member states with different financial aid packages to aim to restore balance sheet position and liquidity in the exceptional situation caused by the pandemic, while keeping the appropriate protections in place to minimize competitive distortions. The key intention is to compensate the airline for the harm caused by the coronavirus pandemic with the overall loss caused by complete travel restrictions during the early outbreak and the loss of particular routes imposed by limitations later. The supports shall be in alignment with the objectives to maintain the financial position of airlines and strengthen their resilience capacity, ready for financial recovery in the post-crisis period. (European Commission 2021.)

In 2020, Lufthansa agreed to a €9 billion stabilisation package with the Federal Republic of Germany's Economic Stabilisation Fund (WSF) and various state supports, comprising various instruments of both equity and debt. The package consists of stabilisation measures include direct equity participation through the subscription of the new shares by the German State of 20% of DLH's share capital (€300 million), grant-based funds from Belgium and Austria (€153 million), Silent Participation I classified as a non-convertible equity instrument (€4.7 billion); Silent Participation II of a convertible debt instrument (€1 billion), state-guaranteed loans provided by Switzerland, Austria and Belgium (€2 billion) and a syndicated credit facility by KfW and private banks (€1 billion) (Figure 15). The measures were expected to manage the economic impact of the coronavirus outbreak. In the annual report, the Group predicted repayment plans for practically all of these loans in the next three or five years. Solely aid statistics of the State of Germany for its national airline make a sum of €6 billion under the approval of the EU Commission. (Lufthansa 2021, 43 – 45.)

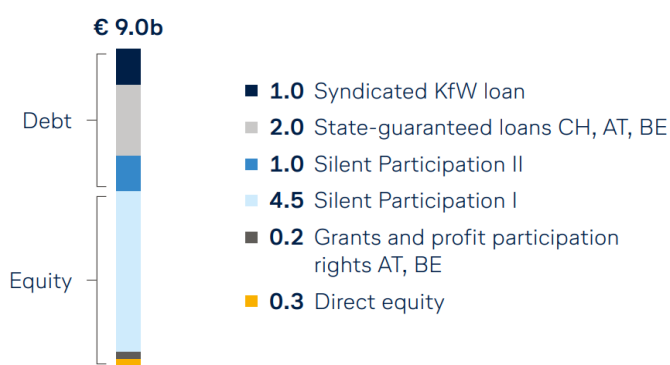


Figure 10. Stabilisation Package to Lufthansa (Lufthansa 2021, 43)

In the consideration of Air France-KLM, the international airline received two support packages from the States of France and Netherlands under the approval of the European

Commission. In detail, the French government announced the total financial aids of €7 billion under two forms of state loans, respectively a €4 billion loan with terms of an initial 12-month maturity, a one- or two-year extension option, a mandatory partial early repayment of 75% of any net new money raised through capital markets by the group and Air France subsidiary and subjection to some exceptions particularly in the event of organizational changes; and a subordinated loan of €3 billion with a maturity of four years and terms of two consecutive one-year extension exercisable options. On the other hand, the Dutch authority made €3.4 billion of the bailout to Air France-KLM Group includes two loans for KLM and its subsidiaries which are a state-guaranteed credit facility of €2.4 billion with a maturity of 5 years and a direct loan of €1 billion with a maturity of 5.5 years. The main requirements for the direct state financing are reasonable cost reductions, the airline being economically sustainable, and KLM's restored performance and competitiveness, including a complete restructuring plan and employee contributions. Under both agreements, the group cannot make any pay dividend payment until these two loans are fully repaid. With the taking up of the support package, there were over 119.5 million new shares issued for the year 2020. (Air France-KLM 2021a, 77-78.)

For Finnair, the European Commission determined that the State of Finland's guarantee of Finnair's pension premium loan up to €540 million in May 2020, as well as the State's involvement in the rights offering, are inextricably linked to the overall state assistance transaction. As the result, there were over 1,279 million new shares registered, making up the increase by 216.7% of the shareholder number. (Finnair 2021, 29-30.) For three years following, Finnair will be prohibited from purchasing more than a 10% share in rivals or others in the same line of business, including upstream or downstream activities. The decision also imposes remuneration on Finnair's management members, such as not paying bonuses or other variable or equivalent remuneration elements for the three fiscal years 2020-2022. Finnair is also committed to disclosing information about the use of aid received and to achieving corporate targets in favour of the EU objectives related to green and digital transformation, as well as carbon neutrality by 2050. Furthermore, the Finnish government has proposed to the EU Commission that €400 million be made available to Finnair in the form of an unsecured hybrid loan by the end of 2020. In March 2021, as the official approval from EU Commission, the support package shall be launched in the form of a hybrid loan of €351.38 million. (Finnair 2021, 72; European Commission 2021.)

4.2 Airlines Financial Situations

4.2.1 Market Value

The coronavirus health crisis set chaos of stock prices reported by global aviation businesses. As the operators within the industry, Lufthansa, Air France-KLM, and Finnair shared the same patterns while bearing the pressure of travel restrictions. Reflecting the pandemic situation with the share price development in Figure 11, there was an initial drop in share value of airlines affected by the disease detection, the geographic strategic partner of the global aviation industry. By the time the virus crossed the border of China, the financial market witnessed the remarkable tumble of airline share value. Not until the outbreak declaration of WHO on 11 March 2020, the declining period lasted within the global pandemic spread. Later in May, the airline stock market situation turned brighter thanks to the government efforts in saving corporations, the ease in travel restrictions and the upswing customer demand in air travel for their summer vacations. However, soon after that, the increased infection rates forced authorities to tighten travel restrictions, leading to the new low record of the year. Until the advancements in vaccines discovery at the year-end, aviation share prices surged again yet gradually due to the hesitation in customer travel behaviours and new variant detection (Appendix 1). Overall, during 2020, airline share prices dipped sharply, typical the 33% drop of Lufthansa's share price, the 48.5% drop of that Air France-KLM figure and the significant 87% plunge of Finnair market value of shares (Figure 11). It was noted that share prices of low-cost carriers (LCCs) showed the same declining patterns, but the recovery speeds were much faster.

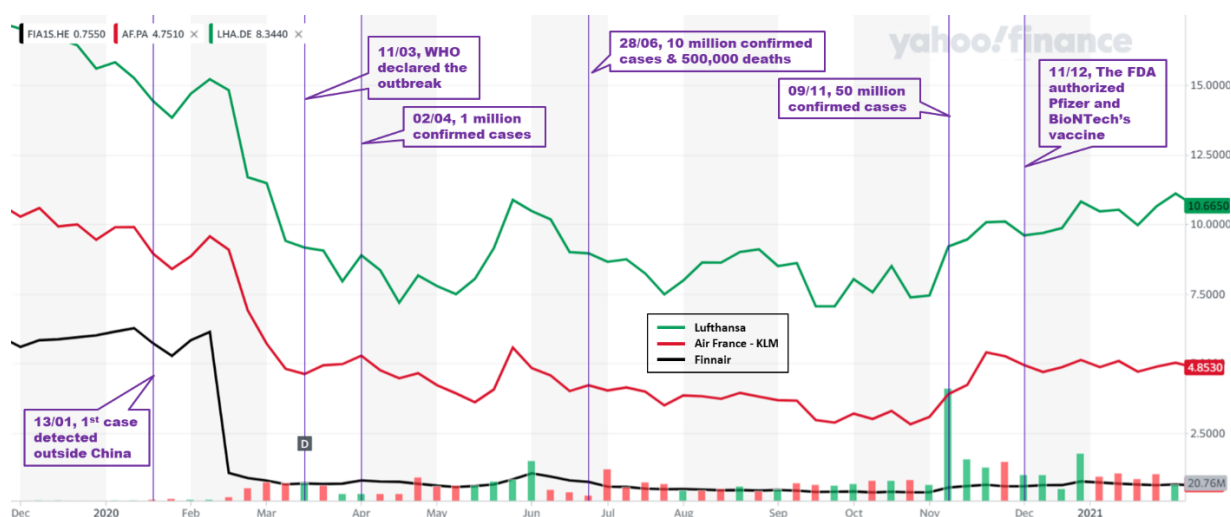


Figure 11. Stock price development of Lufthansa, Air France-KLM, and Finnair in response to the pandemic milestone in 2020 (Appendix 1)

In alignment with the market share, the companies' market capitalization shared the same patterns with the pandemic spread and financial aids provided by authorities, witnessing the dramatic drops of market cap in the second quarter of the year, then starting to recover their value later. In terms of enterprise value, there was a rising difference between it and the market cap of Lufthansa and Air-France toward the year ended since the new financing sources came from debt (Figure 12). Especially for Air France where €7 billion capital raised was mainly categorized as public debt, led its enterprise value was substantially higher than the value of its market cap figure reported. Although the two airlines had been through a complete-struggling year with significant market cap fluctuation, the overall value expanded considerably under public support. Whereas for Finnair, the rights of offering made debt funding much less proportionately than the other two big players. As the result, toward the end of the year, the Finnish airline's enterprise value remained low (Figure 12). Overall, for the annual picture, three airlines' market capitalization plummeted in 2020 yet the calculated enterprise values rose mostly due to differences in debt (Appendix 14).

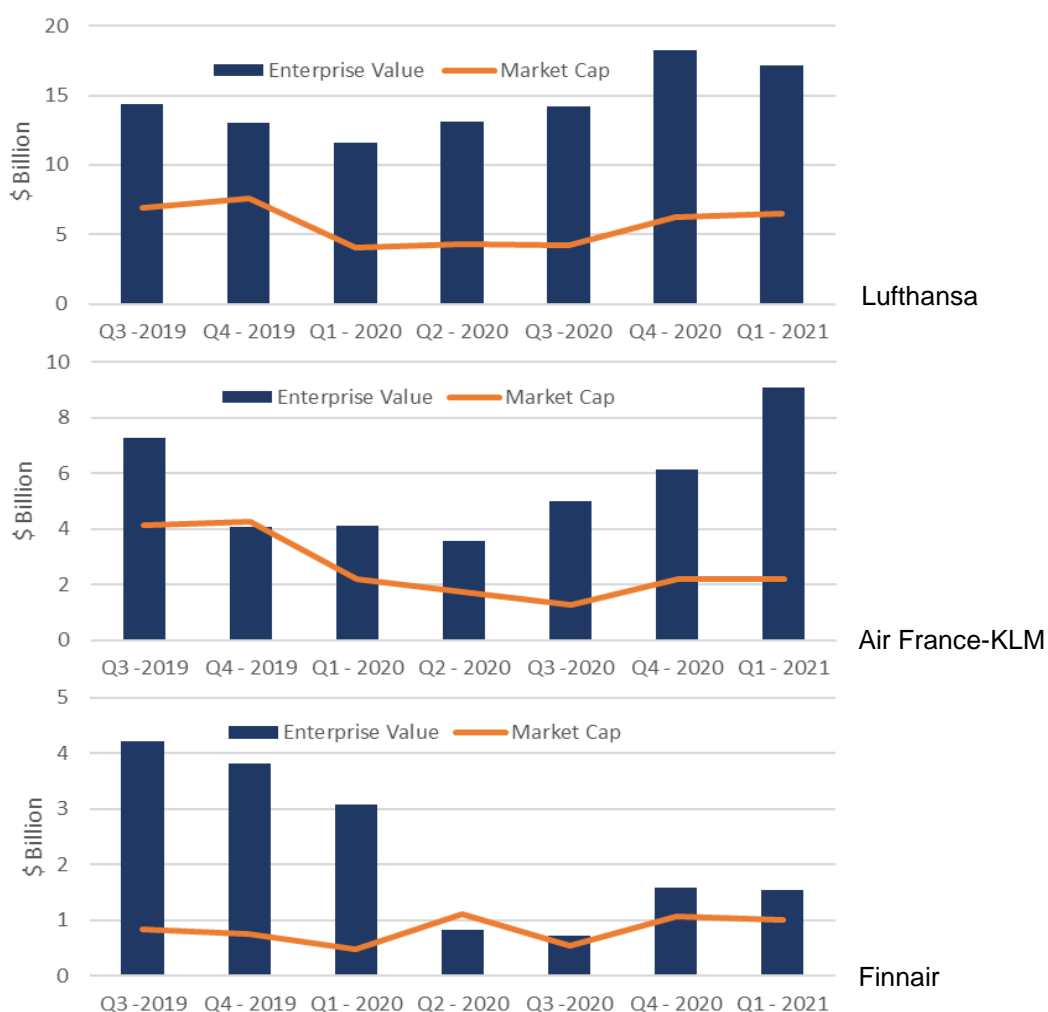


Figure 12. Quarterly Market Capitalization and Enterprise Value of Lufthansa, Air France-KLM, and Finnair in 2020 (Appendix 2)

4.2.2 Profitability Metrics

With the implemented strategy on developing modernisation, Lufthansa had been upgrading its operating efficiency over time. From 2017 to 2019, the revenue has been escalating as a consequence of unit cost reduction, rising passenger traffic and high customer satisfaction rate (Lufthansa 2019; Lufthansa 2020). However, the airline reported declining EBITDA margin due to uncertain externalities such as fuel cost rise and shrinkage of global cargo market or expenses facility maintenance. It should be recalled that at the end of 2019 Lufthansa had already presented the loss from flight cancellations from China and Hong Kong owing to the appearance of coronavirus (Lufthansa 2020). Turning to 2020, its revenue dropped by two-thirds under the global scale of pandemic causing travel restrictions and a plummet in travelling demand. Although the revenue had risen in summer, the year ended with severe lockdowns elsewhere, making Lufthansa financial position worsen than ever. By and large, the company's EBITDA margin was -26.4%, representing the inferior profit trend for the crisis year (Figure 13). (Lufthansa 2021.)

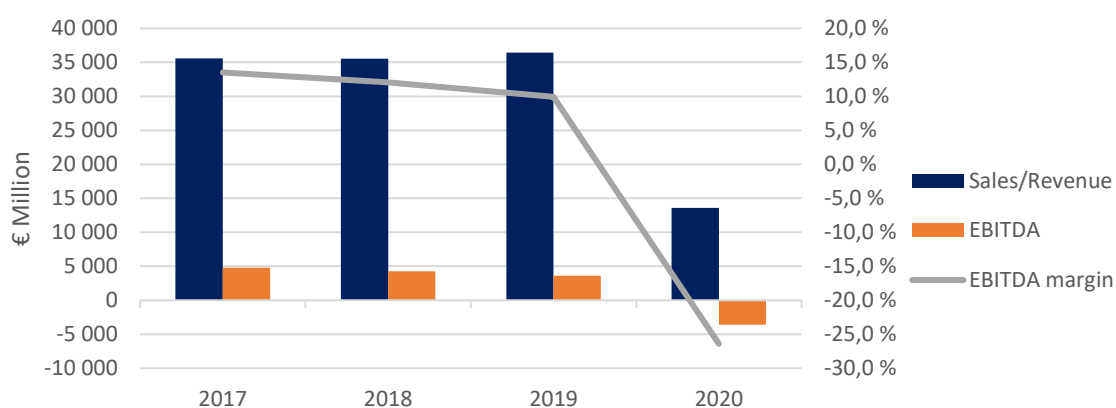


Figure 13. Lufthansa EBITDA margin (Appendix 3)

For Air France – KLM, the profit assessment is quite different. As stated, after the merger, Air France and KLM continue to operate separately where the operating margin of KLM is higher than that of Air France. In other words, although the French subsidiary generate higher revenue, its cost structure was also much higher than KLM due to the cost issue related to the French labour unions (Air France-KLM 2019; Air France-KLM, 2020). Overall, the corporate reported an EBITDA margin of around 15% over the chosen period until the substantial drop to 17.1% in 2020 (Figure 14). It faced the same fate as other aviation operators thanks to the loss in traveller demand and travel restriction effects. To maintain the balance network of both airlines, the objective was to run incremental cash positive flights, and numerous routes took advantage of high global freight demand due to industry capacity constraints. With the major owners belonging to governments, the corporate tended to operate

following the state's goals rather than prioritizing profit generation. Among three selected companies, Air France – KLM reported the most optimistic EBITDA margin.

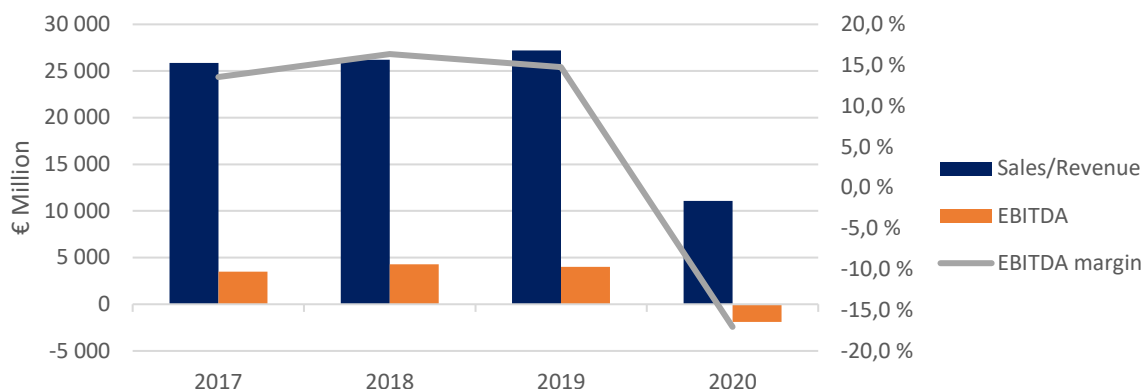


Figure 14. Air France-KLM EBITDA margin (Appendix 3)

In the selected years before the pandemic, Finnair reported accelerating performance of revenue generation while its EBITDA margin was decreasing from 18.4% in 2017 to 13.9% in 2019. The reason behind this was the overtime investment in digital services and distribution and the concentration to leverage customer experience in alignment with its objectives to promote socially and economically responsible growth. As the result, the high cost reduced the reported earnings despite the rise of passenger traffic and the cargo revenue. (Finnair 2019; Finnair 2020.) Till 2020, since China was claimed as the most demanded destination, the coronavirus outbreak there had harmed its financial position in the very early stage. Later, the situation turned worse in Europe with the Finnish travel restrictions along with the payback commitment to flight cancellation. At this phrase, revenue-generating activities came from the virtual flight innovative offer in response to the market situation and the limited on-going travelling demands yet costly to improve its operating hygiene standard. Overall, Finnair reported a negative EBITDA of -34.6%, implying its vulnerable position.

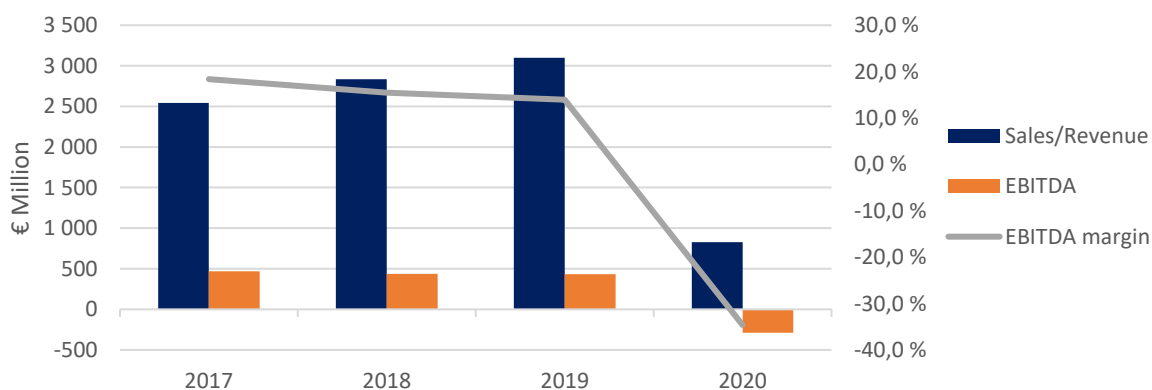


Figure 15. Finnair EBITDA margin (Appendix 3)

In the Figure 16 comparison, from the investor perspective, Lufthansa had slightly declined its profit distribution from 2017-2019 until the revenue loss from the catastrophic year of the aviation industry. It is noted that, in terms of share number, in 2020, the company propose only a few amounts of direct equity funding, yet some convertible bonds haven't got an impact on its EPS, because of the plunge in business revenue. For Air France, since financing aid mainly came from debt, the company's number of shares didn't change. Hence, the deepest drop in EPS could be blamed solely on the earnings capacity generation. On the far side, although Finnair earnings showed much different than the other two big airlines, the figure had been quite stable in the past years then reach slightly negative in 2020. With the offering rights, the investors have to endure the dilution from now to later due to the vast amount of new shared issued to the market. However, due to different operation sizes, they performed different reactions to an external event like the health crisis of 2020. In general, investors of three airlines bore a loss in the possession of their shares.

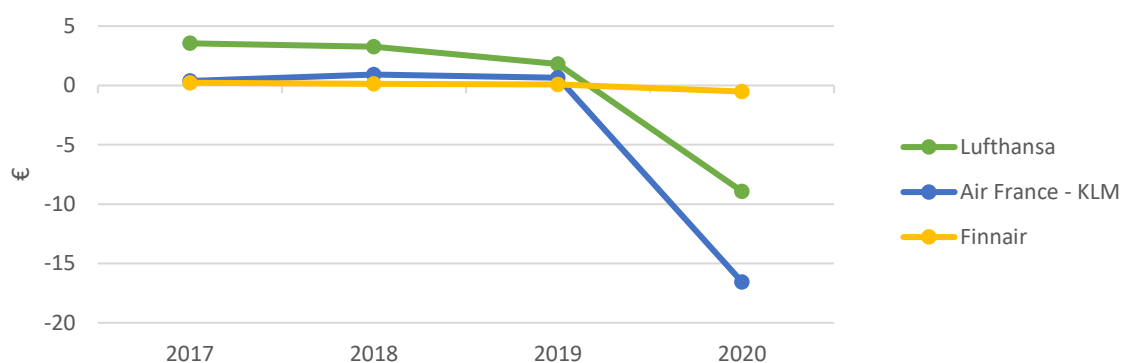


Figure 16. Basic Earnings per Share (Basic EPS) (Appendix 4)

4.2.3 Cash & Liquidity Management

With the consideration of sole assets possibly converted into cash in the shortest period of time, the analyst will apply the quick ratio formula to capture their liquidity position. For financial healthy airlines, Dr Venkatachalan and Dr Natarajan (2015) made a quick ratio recommendation of 1. Whereas, throughout the period, Air France-KLM and Lufthansa reported the quick ratios fluctuating around 0.6, illustrating the over-year disadvantage liquidity position (Figure 17). For the year 2020, the financing packages provided by states aimed to secure the liquidity positions of the two airlines within the pandemic crisis (Air France-KLM 2020, 11; Lufthansa 2020). Their balance sheet showed that increasing Cash and Short-term Investments had compensated for the substantial reduction in accounts receivable. The liquidity of Finnair seemed stronger with the ratio maintaining slightly above 1 over year. Especially, it reached nearly 2 in the crisis (Figure 17). However, it is underlined

that this excess of liquidity also implies a waste of funds and inefficient financial management by definition.

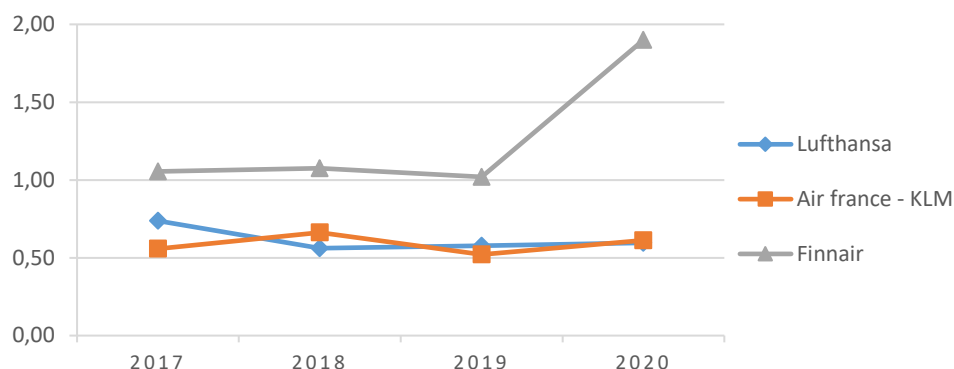


Figure 17. Quick Ratio (Appendix 5)

From an industrial insight, apart from public financial supports, cash and liquidity management was the key factor that help airlines maintain their financial position. Most aviation businesses calculate enough cash flows until they appear some short-term market recovery or at least maintain minimal operations. In other words, in the downturn, they should have enough short-term liquidity to continue operating at 0% capacity for some periods depending on their management points of view. (Nguyen 2021.) As can be derived, only Finnair was the case to reflect his comment on the good liquidity management of airlines.

When it comes to cash management assessment, over the selected period before 2020, Lufthansa reported a huge cash inflow from operating activities while stabilizing the net cash flow available by capital investment expense mostly in innovation and digitalisation to maximize future return (Figure 18). Even in the financial struggling period of the pandemic, there was still over 1 billion of non-current asset expenditure and additional to repairable spare parts. In 2020, with the indirect method, the company summarizes its loss of almost € 2.5 billion from operations due to the discontinued travelling demand and non-cash component changes such as impairment loss and valuation effects from financial derivatives (Lufthansa 2021, 203). In terms of financing activities, the cash inflow was highly positive by the virtual stabilization support package. It is noted that 2020 put a stop to the yearly dividend payment plan while also constraining its distribution in the coming year until fully pay its debts from WSF (Lufthansa 2021, 45). The key focus of corporate financial management is to strengthen its free cash flow over time.

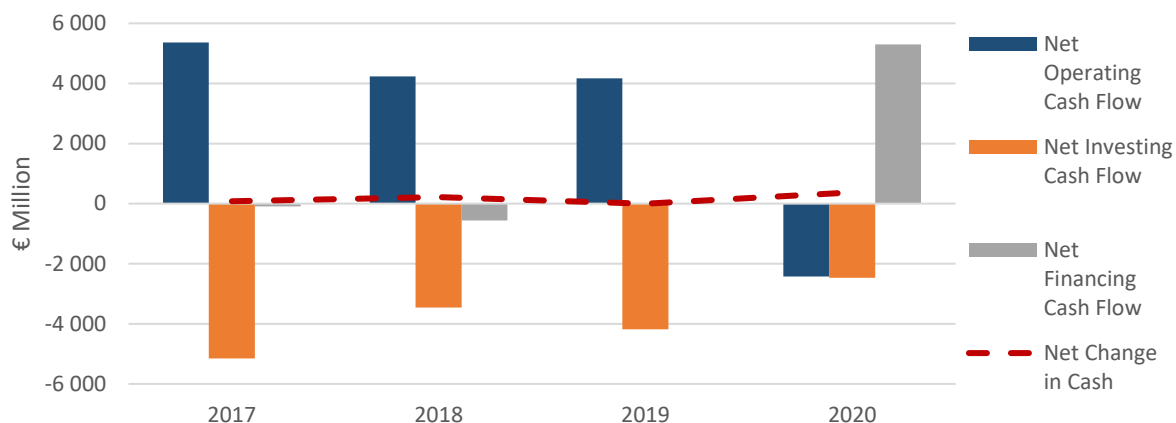


Figure 18. Lufthansa Cash Flow (Appendix 6)

Moving to Air France – KLM, the airline reported the same operating performance with Lufthansa throughout prior years until the pandemic outbreak. From 2017-2019, the operating cash inflow was stable at nearly €4 billion. In 2020, the airline witnessed negative operating cash flows as the result of revenue reduction and a substantial drop in its capital components (Figure 19). Despite the situation, activities on acquiring flight equipment and other assets remained yet conservatively for its capital expenditure plan for the coming years. With the financial-aid packages, Air France-KLM reported the high figure of net cash for 2020 on the strength of the compensation of public debt injected into the operation.

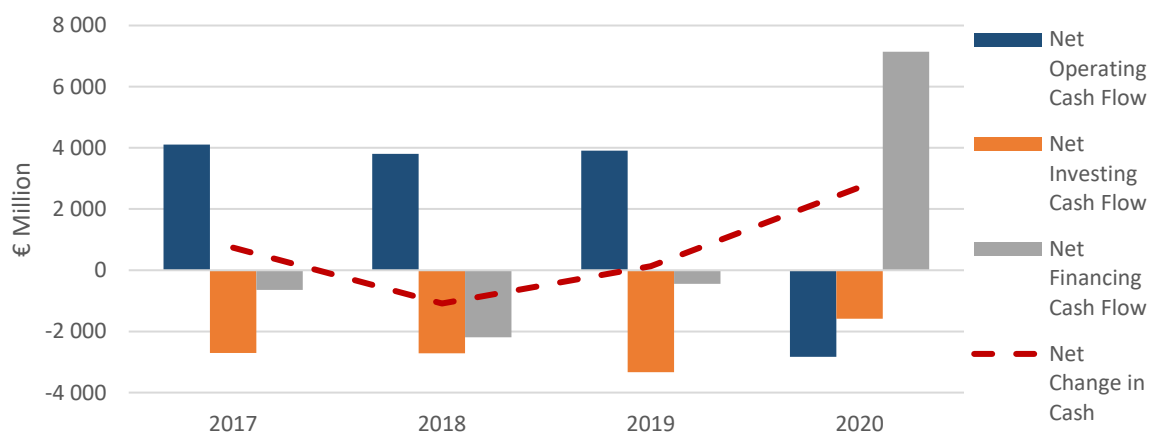


Figure 19. Air France-KLM Cash Flow (Appendix 6)

In three years before the COVID-19 era, Finnair had strong cash management with the increasing operating cash inflows, substantial investment in fleets, meeting its financial obligations or even paying their investors' dividends in 2018. The Finnish national airline was a good and stable investment in its domestic market until the pandemic outbreak. In 2020, the considerable negative operating cash flow was reported because of the working capital movements connected to flight cancellations and the reduction of financial results. However, the net change in cash was highly positive due to the compensation of the fully drawn

statutory pension premium loan, cash amount from the rights offering received and investing activities on currently committed aircraft with the strategies of operational excellence, network optimization and the cross-functional application of technology and digitalization (Finnair 2021, 19) However, the net investing cash flow showed positive due to the inflow from the postponed agreements in purchasing three A350 aircrafts to ensure liquidity reacting to the deterioration of passenger demand (Figure 20; Finnair 2020, 16).

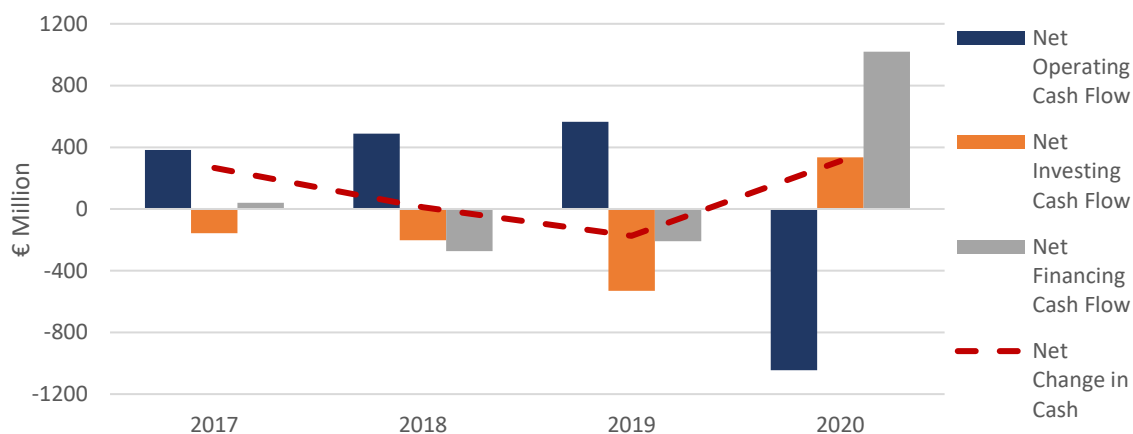


Figure 20. Finnair Cash Flow (Appendix 6)

4.2.4 Capital Structure

In the email response, Nguyen (2021) mentioned the capital surplus commonly set up by airlines to face any given crisis. It was the reason for them to keep the positive equity in the pandemic year even when the retained earnings plunged along with sales. Moreover, by the appearance of COVID-19 government bailouts, most airlines went through cost restructuring for the financial year 2020. Taking note, as airlines' cash flow generating capacity is widely accepted as stable, a high level of debt is fairly acceptable for the operators. However, the debt levels of airlines reached the alarm threshold in 2020, negatively affecting the operation over the coming five- or ten-year period. (Nguyen 2021.) In addition, the cost of financial aids would not be easy for these businesses. The capital injection in many forms raised higher financial obligations. The industrial expert pointed out the loss of equity ownership after the event, especially the cases of national airlines (Nguyen 2021).

Under the scope of analysis, leverage ratios of Lufthansa increased moderately prior to the pandemic outbreak. The debt ratio shows about 20% of their assets funded by debt from 2017 to 2019 then peaked at 0.38 under the stabilization package. With the same pattern, the D/E ratio previously developed towards 1 in 2019 when Lufthansa raised its debt financing to a higher proportion than equity. By 2020, the airline capital structure substantially changed with an increasing amount of debt, which was double that of 2018 and decreasing total equity reported with a D/E figure of 11.09. In the consideration of solely long-term

leverage utilization, the airline demonstrated a double-figure of long-term debt to capitalization compared to 2019. Interest coverage indicator also declined throughout the period with the bottom of -26.90 in 2020 (Figure 21).





Lufthansa	2017	2018	2019	2020	Trend
Debt Ratio	0.19	0.17	0.23	0.38	
Debt to Equity Ratio	0.75	0.70	0.98	11.09	
Long-term Debt to Capitalization	0.40	0.34	0.45	0.90	
Interest Coverage	16.02	26.71	7.58	-26.98	

Figure 21. Lufthansa Leverage ratios (Appendix 7)

The debt structure of Air France was volatile with a slight rise in 2018 then lessen in 2019, concerning either total or long-term liabilities. The interest coverage showed the inverse trend with leverage usage. In 2020, the airline reported the negative equity value setting a warning alarm to their investors. A negative D/E ratio resulted from the accruing financial losses when a corporate excessively borrow money to offset its incurred losses, causing the company's liabilities higher than its assets. Putting aside the benefit of capital surplus indicated by Nguyen (2021), Air France-KLM appeared with low equity reported by shareholders prior to the outbreak. The negative equity record could be blamed for the high debt level it had been taken on (Appendix 8). The situation of interest coverage was not better with the high negative figure of -15.50, also revealing the insolvent position in paying its financial cost (Figure 22).





Air France - KLM	2017	2018	2019	2020	Trend
Debt Ratio	0.43	0.39	0.38	0.62	
Debt to Equity Ratio	7.01	8.21	6.12	-3.44	
Long-term Debt to Capitalization	0.85	0.87	0.84	1.48	
Interest Coverage	1.22	2.43	1.87	-15.50	

Figure 22. Air France-KLM Leverage ratios (Appendix 8)

About Finnair's insolvency, it showed a similar tendency with Air France-KLM. The capital structure of 2018 experienced a slightly higher debt usage and extreme changes in 2020. It is worth noticing the substantial drop in interest coverage indicator from 15.21 in 2017 to 2.35 in 2018, implying a gloomy position to its creditors. Within the outbreak, since the Finnish airline operator reported the rising sources of financing in both equity and debt, compared to the two airlines, it showed less volatility in leverage ratios. The declining level of interest coverage to -6.72 in 2020 was less than that of the others (Figure 23).

Finnair	2017	2018	2019	2020	Trend
Debt Ratio	0.32	0.50	0.46	0.65	
Debt to Equity Ratio	1.12	2.74	2.31	3.40	
Long-term Debt to Capitalization	0.49	0.71	0.67	0.76	
Interest Coverage	15.21	2.35	1.96	-6.72	

Figure 23. Finnair Leverage ratios (Appendix 9)

4.2.5 Operating Performance

Over years, Lufthansa capital structure reported a gradual decrease of profitability indicators, then drastically reach the bottom with the negative net income reported in 2020. Along with the slightly rising debt in capital structure, the airline also reported a substantial increase in total assets, closing the gap of ROA and ROE. This implied the ease in financial leverage utilization at the same time raising operating leverage in the prior period of the pandemic outbreak. In addition, ROIC was higher than WACC in 2017 and 2018 yet got lower in 2019, warning of the inefficient use of invested capital. Despite the huge modification in the balance sheet in 2020, WACC only drop slightly. By 2020, there was about a 50% difference with the ROIC, demonstrating the weak position to generate profit while bearing the cost structure burden (Figure 24). Taking notice, Lufthansa previously reported the highest ROE out of the other two researched airlines yet tumbled the deepest when the pandemic came.

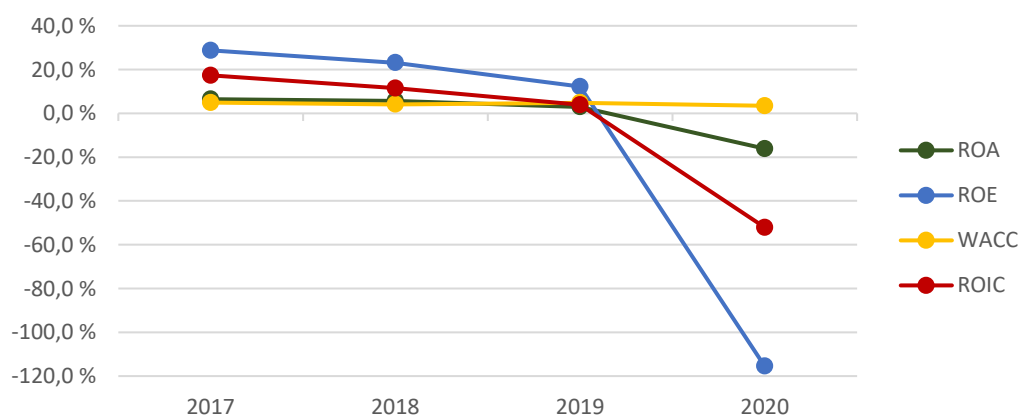


Figure 24. Lufthansa Key Financial Metrics (Appendix 10)

Moving to Air France-KLM, in the consideration of the 2017-2019 period, the airline demonstrated ROA of slightly above zero yet with high ROE peaking at 24.5% in 2018 due to the over double record of net profit compared to the previous year (Figure 25). At the same time, ROIC was increasingly higher than WACC demonstrating the improving efficiency in capital utilization. Within the outbreak, the equity got a negative balance with all huge negative profit metrics and a high burden of debts. The author will not visualize the airline ROE

in 2020 since it resulted from both negative net income and equity (Appendix 11). Its bad position can be concluded in terms of profit returns. Thus, at the moment, Air France-KLM needs to find its way to restructure toward positive equity to at least create some value for its shareholders in the coming years.

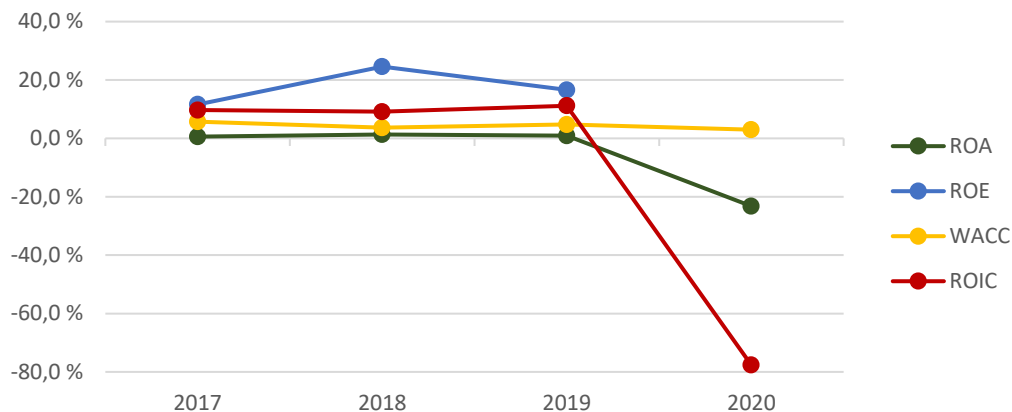


Figure 25. Air- France Key Financial Metrics (Appendix 11)

Looking into Finnair, the development of its financial metrics was similar to Lufthansa's when the airline reduced financial debt yet increased its total asset. Especially, the company reported the soaring ROIC figure of 41.8% in 2017 then drastically fell to 7.2% in the following year. Over time, the airline generated a declining return from its investment not until the collapse of 2020. It should be recalled that the offering right hadn't shown a visual impact on Finnair ROE yet. The Finnish airline shared the same fate with other operators with negative net income reported for the financial year of 2020, which was considered as the main reason for the steep in profitability indicators (Figure 26).

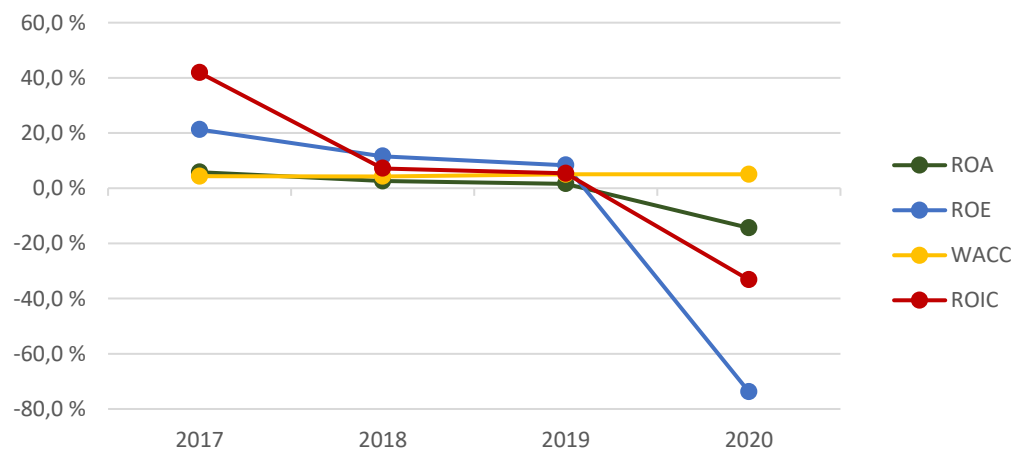


Figure 26. Finnair Key Financial Metrics (Appendix 12)

4.2.6 Degree of Leverage

Overall, Lufthansa and Finnair showed the same trends yet with different levels in leverage usage. Prior to the pandemic, in 2019, the airlines tried to maximize returns with a high fixed cost and debt use in their capital structure, illustrated by high degrees of leverage (Figure 27). The increasing cost structure was aforementioned as the investment in digitalization and modernization with the hope to leverage customer experience. Their financial situation should have been soaring if it hadn't been for the pandemic outbreak. For Air France-KLM, their leverage utilization was not so united over time. As aforementioned, its two subsidiaries had a different structure, and the French side was working on cost restructure issues.

In 2020, as aforementioned, with the government financial help, the airlines went through capital restructure, resulting in a high level of debt. Additionally, aviation companies tried to cut their fixed cost, applying cost-saving measures, and broadening the use of variable costs. It was because heavily operating with fixed assets and committed salary payments restraint them to cut costs easily towards the unpredictable development of coronavirus spread. Conclusively, the reported degree of combined leverage calculated below 1 implied the conservative behaviour in leverage usages in the pandemic event (Figure 27). The goal was to become more flexible in operating management, strengthening financial position.


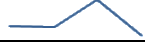




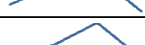
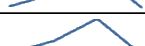
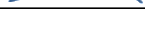
		2017	2018	2019	2020	Trend
Lufthansa	Degree of Operating Leverage	2.05	2.61	4.64	0.69	
	Degree of Financial Leverage	1.08	1.05	1.43	0.95	
	Degree of Combine Leverage	2.21	2.75	6.66	0.66	
Air France KLM	Degree of Operating Leverage	5.29	3.84	5.31	0.52	
	Degree of Financial Leverage	4.26	1.51	1.81	0.92	
	Degree of Combine Leverage	22.53	5.78	9.62	0.48	
Finnair	Degree of Operating Leverage	1.36	3.00	3.88	0.80	
	Degree of Financial Leverage	1.04	2.42	4.82	0.88	
	Degree of Combine Leverage	1.42	7.25	18.68	0.70	

Figure 27. Degree of Leverage (Appendix 13)

4.3 Interview with an Industry Expert

To enhance research validity, an e-mail interview was conducted with an aviation industry expert, Mr Toan Nguyen. The practice followed the traditional qualitative interview guidance, which includes four implemented steps of preparation, pre-interview, the interview, post-interview (Ghuri et al 2020, 115 -124). However, the actual conducted procedures in this research were a bit different due to feasibility and practicality in the context.

It should be recalled that the interviewee was introduced as Sales and Development director of one Vietnamese low-cost airline with no direct involvement to the three chosen European airlines. Hence, questions about the overview of the airline industry were raised to exploit beneficial information to the research (Appendix 15). Normally, before a qualitative interview, there should be a pretest phase when the interviewer ensures the interviewee understands the background and concepts within the research. Nevertheless, COVID-19 is the current concern for the global industry as airlines across the world has been facing the same operating challenges. The Vietnamese expert was expected to have had a comprehensive insight into the topic, making his comments highly valid for the sector research. Moreover, although there was no actual pretest done, the author had carefully listed out the thesis objectives and interview purpose in the initial request. As the result, it was safe to presume that the respondent (Mr Nguyen) and the interview designer (Author) were on the same page of the topic background. After the answers were received, the interview process was closed by a thank you letter, projecting to the data processing and interpreting phrases.

Beyond, the objective of the interview was to reach the outlook of the industry in the post-COVID-19 era. The author understands the subjective could arise when there is solely one respondent. The received response was elected and combined with related available information from reliable sources to ensure the validation of the research at this point. The collected material has also been used effectively to assist the interpretation of financial analysis procedures.

4.4 Aviation Industry Outlook

After a long period of devastating the global economy, COVID-19 has been gradually under control in many parts of the world with the help of large-scale vaccination. In reality, air transportation around the world has begun to restore along with the popularity of the 'COVID-19 passport', namely IATA Travel Pass or EU Digital COVID Certificate. (Katz 2021.) With that, the travelling demand will rebound fast after days consumers are restricted from leisure and travel activities. Soon, EY predicts leisure trips will be the hope for the whole industry in alignment with the reviving speed of travel demand. Since work-from-home became the norm, even after the crisis period, business travel arrangements will become less demanding. (Wollaston et al 2021.) In addition, as aforementioned, the aviation industry plays a key role in national economic development. Nguyen (2021) emphasized its leading contribution to any national economies, regarding tourism and trading (import and export). Air transportation will be a necessary condition for other industries' development, especially when the mobility need regains its importance. Moreover, the aviation industry took the dominance with the funding and policy support from the government and investors.

(Nguyen 2021.) Altogether formed an expectation for the airline sector to have a fast and recovery rate.

Speaking of the industrial coming disadvantages, the sales director of Vietnamese low-cost airline worried about the huge capital deficit and the pressure of debts and liabilities put on aviation corporates' cash flow management. The rising debt level from public financial rescue packages made repayment challenging with poor credit scores and rising interest expense commitment after 2020. In addition to the industry's financial outlook, the world had witnessed a resurgence of state ownership in aviation businesses, which he also mentioned as a hindrance for airlines in the recovering phase. Some businesses are even on the verge of bankruptcy due to the high number of overdue debts and the repayment risk on due short-term liabilities. (Nguyen 2021.) By the same token, according to McKinsey & Company, the equity dilution after-event would make the government role became more important in the sector (Bouwe et al 2021).

Another obstacle for airlines on the way to recovery is the selling price of tickets. As being in financial difficulty, airlines expect to raise fare prices. With the economic recession and its related consequence of social low income, the high-ticket price will restrict the returns of airlines in the coming period. (Bouwe et al 2021; Nguyen 2021.) When being asked about market positions of national carriers, the industrial expert believes that it appeared harder for them to compete in the market later and again the loss of equity ownership to states. He highlighted their troublesome positions which mostly were categorized in Full-Service Carriers business model (FSCs) in the competition with LCC operators (Nguyen 2021). In the recovering phase, obviously with the cheaper fares and low-cost operation, the structure of LCCs is well-positioned to capture more market shares. However, it should be recalled the airline categories discussion of Stoenescu and Gheorghe (2017). According to them, in recent years, there have been the tendency of blended application in airline operation. For example, some LLCs have been providing some services at the standard of traditional FSCs. Or some national airlines offer some low-cost services competing with those of LLCs. The price levels of these offer a place in the middle range of the two mentioned business models. As can be derived, some airlines have already been inflexible operating positions prior to the COVID-19 market event.

On the far side, although the whole industry was backed up by authorities across the globe, these were just immediate solutions not to bring great results in any longer timeframe. When a new level of restriction is implemented, more flights will be suspended, come along with sales loss and travel demand plummet. The fact potentially led to permanent flight route elimination among some travel destinations. As can be seen from the case of Lufthansa,

Air France-KLM and Finnair, businesses shrank to minimum activities to be cost-efficient, digitalization merged and flexible operating structure. Their hygiene standards had been leveraged as well in offering services and facilities in reacting to the health crisis. On the positive side, they had been concentrating more on their strengths, effectively using resources and operating restructure to safeguard their core value demanding (Wollaston et al 2021). Notwithstanding, some businesses have restructured to be more efficient while others simply tried to get by in facing COVID-19. Hence, in the future, there will be a wider discrepancy in performance among them in the market competition. (Bouwe et al 2021.) Afterwards, it can be positively said that the outbreak reshaped aviation businesses with flexibility, more resilient scheduling, and sustainability in future operations.

Overall, the aviation industry has a positive recovery prediction yet is still in need of international supports. However, they all agreed that the recovery path of airlines from the 2020 outbreak will be different from any prior crisis. For the Financial Crisis or 9/11, which was solely the temporary decrease in spending, COVID-19 might permanently alter aviation businesses and consumer behaviour. At the end of the day, the most expected turning point should be a scenario for airlines to operate again with no or low constraints by coronavirus appearance along with consumer demand recover as pre-crisis level. (Nguyen 2021.) According to the forecast published by Bain & Company, under four potential market outlooks, the world demand for air transport is expected to accelerate in the coming year (Figure 28). On the same boat, Nguyen (2021) stated a certain growth will come to the industry in the next following years right after the pandemic ease. He optimistically predicts even a double or triple accelerating growth rate of sales in the post-COVID-19 era with his reasoning made by the global trend of international trading.

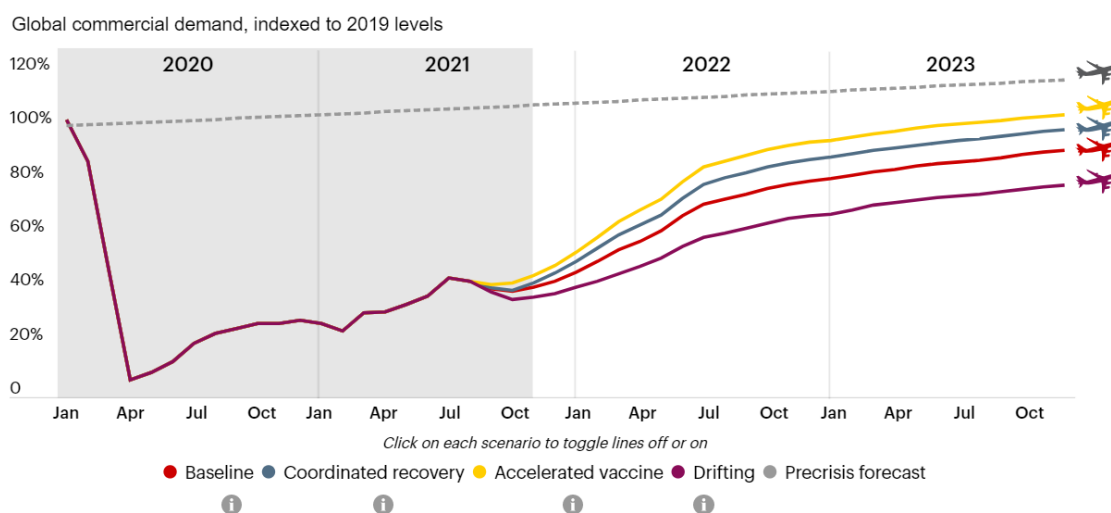


Figure 28. Recovery scenarios for global air travel demand (Weston et al 2021)

5 Key Findings, Reflection and Suggestions

The section is intended to summarize key findings from the research, including answers to research (sub)questions and validity discussion. In addition, several ideas for additional investigation will be recommended.

5.1 Answers to Research Questions

Question no.1: How did the COVID-19 pandemic affect the global economy?

During COVID-19, border blockade and lockdown were mandatory announcements of countries because the most priorities should always be health and people life. The world sudden stillness attacked the economy from its foundation. Human resources, the key economic input, was negatively influenced when coronavirus preventive measures constraints economic activities, directly reduce employment. Through many channels, both the economic supply and demand sides were severely harmed. Analysing its impact on the economic supply side, the health crisis constrained industries involved transportation whereas manufacturing fields were hindered by the impact of supply disruption. It even appeared worse for service-based sectors such as entertainment and hospitality where technology could not help much to remain core activities. On the demand side, with a direct reduction in employment, the pandemic declined personal income and brought hesitation in consumer spending behaviours. Another result was the turbulence detected in the global financial markets, implying the vulnerable positions of corporates in the current world. Altogether formed a market deteriorating cycle, turning the health crisis into an economic recession ever in modern time.

Question no.2: What kind of supports did governments grant to revive the economy?

In general, governments around the world made huge efforts in boosting economic activities by injecting capital resources into the system. To condense, implemented measures aim the general goals:

- Ensure sufficient human and material resources for the public healthcare sectors
- Ensure social wellbeing to meet the basic human needs
- Support SMEs and businesses with high vulnerability
- Capital injection to maintain liquidity of the financial system
- Support vulnerable industries hit by preventive measures (aviation, tourism, etc.)

Question no.3: What were the financial situations of airlines in 2020?

Financial Analysis Objectives	Outcomes
Evaluate market value	Airlines' market value developed in response to the global evolution of pandemic spread. Overall, aviation corporates experience extreme loss for the year 2020.
Evaluate profit-generating capacity	Travel restrictions and declined customer demand constrained revenue while bearing the high operating cost due to capital-intensive structure. Airlines reported huge net losses even when being compensated with public bailouts.
Assess cash position and liquidity management	Financial-aid packages ensure corporate liquidity position. Airlines reported negative operating cash flow and a substantial cash injection from financing while still maintaining investing activities for the recovery phase.
Inspect operating performance and capital restructure	Airlines didn't generate returns from their invested capital for the financial year of 2020. They went through restructuring to maintain businesses where debt financing increased substantially, and fixed costs were minimized.
Examine leverage usages under the unfavorable market condition	In the event of the 2020 pandemic, enterprises use leverage conservatively to protect their financial position.

Table 6: Outcomes of Financial Analysis

Question no.4: What is the financial outlook of the airline industry on the way to recovery?

Depending on the source of financing they had been equipped with, aviation businesses will operate with extremely high financial obligations and cash management pressure in the post-COVID era. The low-cost airlines, restructure activities to boost productivity, reconstruction of flight route facilities and hygiene standard leverage are main contributors to the recovery of the overall sector. Regarding that, the business model of airlines will affect the recovery speed of airlines as well. From experts' predictions, the recovery of airlines will certainly take place soon. Once it happens, it will be a skyrocket record. However, it still much depends on the virus transmission scale and the uncontrollable evolve of virus variants. The key driver for this industrial rebound is the regained air transport demand of consumers.

Main Research Question: How did Aviation Businesses survive through the COVID-19 Economic Recession of 2020?

Within 2020, the international aviation sector was immediately thrown into disarray Under the attack of demand shock and direct influences of the pandemic preventive measures.

Airline operators could not maintain their core activities to generate revenue. They incurred a serious drop in market value and the severe loss caused by high-operating costs. Thus, authorities around the world had intensified efforts to financially support airlines to at least survive till the economic rebound. With the public aids, in the financial year of 2020, aviation businesses had gone through cost restructure with substantial changes in capital structure and the decline in leverage usages. Taking note, one of the factors that help airlines to maintain their market position is their strong financial health recorded before the catastrophic event. As a consequence of the supply and demand economic shock, the loss in personal income and changes in spending behaviours raise hesitation for air transport demand, which lead to the delay of airlines to rebound.

5.2 Validity and Reliability

By the time the research finished, all the research questions were answered thoroughly. With respect to research validity, both theoretical and empirical studies were conducted through reliable data banks and highly academic sources which include published books, official publications from reputable authorities and well-grounded Internet sources. The majority of theory was released within the past five-year period; whereas, for some sources prior to that timeframe, it is noted that those collected information still remained highly valid, particularly when speaking of financial statements and theories of financial ratios. Under the fundamental components of economics, the descriptive study on COVID-19 Economic Recession has been conducted thoroughly with information available at the current time. Based on the research objectives, the author tried to combine multiple sources to describe the phenomena and the possible underlying causes. Regarding the empirical study, the investigation into aviation businesses to conclude their situation in the 2020 outbreak. Under the scope of financial analysis, quantitative research was conducted based on the predefined procedures of mathematics and number interpretation. Official company fillings were intensively exploited for financial data analysis and business performance assessment. In addition, the interview with the industrial expert in reflection with some published industrial predictions to reveal the struggle position of the airlines in the outbreak also leveraged the overall score of validity. Overall, the research was done with careful observations of how the one-in-a-century event impacted the global economy. If the practice is repeated, the results would not differ much due to the high validity in data collection and data processing practice. Thus, it is proper to say that the thesis is trustworthy research with reliable findings.

5.3 Suggestion on Further Research

COVID-19 is a resourceful topic inspiring many researchers at the time it first appears. After conducting the research, in this part, the author will propose several recommendations that could be dived further. As mentioned in the first chapter, the biggest limitation of this thesis is the timeframe since it is still too early to assess the impacts of an ongoing market shock event. Thus, the suggestion is to conduct another research in the further timelines to get the full recovery picture of airlines. Moreover, since a certain decision may have underlain with short- and long-term impact, it would be better to have a direct discussion with the companies' financial controllers/managers to assess the complete intention behind their financial decisions. In addition, as having been solely evaluated by three European national airlines, the author recommends a look into a larger pool of aviation businesses with different geographic locations and operation scales to reach a more accurate conclusion on airline financial recovery. As proven, different business models propose different outlooks for aviation corporate to revive after the historical market event. The last noticing point is the look into other financial metrics and the Environmental, Social and Governance (ESG). Along with the positive effect of modernization processes reported, it is beneficial to consider the ESG criteria in the evaluation as the rising concerns of business performance align with nature protection.

6 Summary

The historic COVID-19 pandemic has caused unprecedented effects to the globe not solely the economic aspect. In today world, individuals in the globes operate interdependently. Each action doubtlessly brings impacts to others in one way or another, incorporating to be an all-encompassing problem of the world. The pandemic negatively influenced almost all markets around the globe in different ways with prominent mechanisms in correspondence with the supply-side and the demand-side. With the hope laid on vaccination, possible actions were mainly driven from avoidance of human interactions, which contracts to the basic needs of social connections and the ongoing global trend of cooperation. The fact interrupts the economic activities, putting pressure on individuals and businesses to remain their financial health. Obviously, it hadn't been an exception for the aviation industry not to mention its highly vulnerable position. The research aimed to reveal the 2020 market crash impact on airlines and the financial recovery picture of aviation businesses.

During the study, an inductive approach was used in conjunction with a quantitative and qualitative methodology. The results were concluded from the manipulation of both secondary and primary data sources. The former was gathered from credible literature and electronic data banks, while the latter was collected from company official fillings and a valid interview with an industry expert. It is noted that the quantitative practice was conducted in the form of financial analysis with the purpose to interpret financial data based on predefined theory. Despite large-scale financial statement and ratio analysis procedures, the author selectively chose the suitable practice in alignment with the research objectives to assess the airlines' financial situations during the historical outbreak.

The research begins with an overview of the COVID-19 Economic Recession on its impacts caused to the globe. As can be seen, there has never been an event comparable to the 2020 pandemic that happened. Loss in employment and historical GDP plummet put a stop to the global economic growth period. The writing carefully reflects the author's observation of how a health crisis could affect the global economy. No matter how modern the world is evolving, the fundamental economic components, namely supply and demand, remain the key driving forces. The event raised the question of the efficiency of international cooperation and emphasize how vulnerable the business world has been. It pushed many firms on the verge of bankruptcy but still generated opportunities for some businesses and encouraged the merge of digitalization within the operation. On the whole, it was completely a shock to realize the unreadiness of the global economy in reaction to an extraordinary external market event. Ever before, the world confirmed the importance of government in economic development. In the unfavourable market event, macroeconomic policies are

essential to recovering the economy. With different political points of view and economic strategies, authorities implemented distinguishable practices depending on what was their most important concern at the current time. As the damage came from the foundation, most of the policies focus on directly supporting and strengthening the economy cells.

With respect to airlines investigation, the unpredictable speed of the coronavirus pandemic put pressure on aviation businesses around the world. The hardest-hit sector had drawn substantial public attention at the early of the outbreak. As a consequence of receiving public financial supports, airlines went through operation restructure and the dilution in equity ownership. The third chapter described the applied methodology, which guided the author through financial analysis processes to reach the research analysing objectives. With effectively data visualization, the following chapter assesses three European airlines to reveal their financial health and capital structure under the effects of the 2020 pandemic. Beyond, governments have increased their power in the sector after the event. To properly conclude the financial situation of airlines, collected information from the interview with an industry expert had been validated with reliable published data sources.

The exhaustion of airline enterprises had been a foretold consequence at the early of the outbreak. What actually threatened businesses were the virus of scare spreading among citizens. When money flows were interrupted, there was less money injected in any form to either individuals or businesses to fuel investment or boost trading activities. The fact delays the recovery of airlines in post-COVID. Being one of the core economic sectors, the aviation industry will contribute an important role in the turning back of global economies. As the world keeps developing interdependently, the industry will probably follow the global trend to grow again. As proof, even within the crisis, some airlines tried to maintain investing activities with the hope to surge right after the outbreak. They accelerated the digitalization processes and restructure to maximize efficiency, developing toward more sustainable and greener operating models in the post-pandemic era. Fortunately, the situation has been brighter. The vaccination progress has been conducted rapidly together with the agreement on an electronic health certificate system across regions. The rise of air transport demand is predicted to be huge to revive the whole industry. Nevertheless, the recovery speed depends on the prolonged restricting period implemented by local authorities and the disease spreading speed, which is still uncontrollable.

In conclusion, the thesis achieved its end purpose by accurately addressing all research questions with a high level of validity and reliability. However, a long-time period is expected to facilitate a proper judgment on the effectiveness of any actions given out in the period. With the narrow scope on three European airlines, the author understands the subjective

limitations that occurred in the research. Furthermore, as COVID-19 is the hottest ongoing topic, there are many more investigation ideas that are suggested to reveal the full evaluation of the impacts this one-in-a-century event has brought to the globe. However, the conclusions are still useful for many practices, such as assessing aviation segment performance at the outbreak, potentially proposing a condition to make reasonable financial decisions in risk hedging and corporate financial management later.

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Appendices

Appendix 1. Stock price development of Lufthansa, Air France-KLM, and Finnair in response to the pandemic milestone in 2020

Date	Event
13.01.2020	The first coronavirus case was detected outside China (WHO 2020).
11.03.2020	WHO declared COVID-19 to be a pandemic (WHO 2020).
04.04.2020	Over 1 million cases of COVID-19 had been confirmed worldwide (WHO 2020).
28.06.2020	Over 10 million confirmed cases & 500,000 deaths were reported (Xinhua 2020).
09.11.2020	Over 50 million cases of COVID-19 had been confirmed worldwide (The New York Times 2020).
11.12.2020	The U.S. Food and Drug Administration (FDA) approved the first COVID-19 Vaccine, Pfizer-BioNTech (FDA 2021).

Note:

FDA. 2021. FDA Approves First COVID-19 Vaccine. Press Release. Retrieved on 9 November 2021. Available at <https://www.fda.gov/news-events/press-announcements/fda-approves-first-covid-19-vaccine>

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Appendix 2. Quarterly Market Capitalization and Enterprise Value of Lufthansa, Air France-KLM, and Finnair in 2020

Value in USD Billions	Q3 - 2019	Q4 - 2019	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	Q1 - 2021
Lufthansa							
Market Cap	6.93	7.58	4.09	4.28	4.22	6.21	6.49
Enterprise Value	14.4	13.05	11.62	13.12	14.17	18.27	17.2
Air France-KLM							
Market Cap	4.12	4.25	2.19	1.73	1.27	2.19	2.18
Enterprise Value	7.255	4.09	4.11	3.573	4.978	6.141	9.094
Finnair							
Market Cap	0.822	0.753	0.469	1.11	0.541	1.07	0.999
Enterprise Value	4.211	3.804	3.077	0.827	0.716	1.589	1.542

Note:

Trading Economics a. Lufthansa | LHA - Market Capitalization. Retrieved on 24 November 2021. Available at <https://tradingeconomics.com/lha:gr:market-capitalization>

Trading Economics b. Air France-KLM SA | AF - Market Capitalization. Retrieved on 24 November 2021. Available at <https://tradingeconomics.com/af:fp:market-capitalization>

Trading Economics c. Finnair Oyj | FIA1S - Market Capitalization. Retrieved on 24 November 2021. Available at <https://tradingeconomics.com/fia1s:fh:market-capitalization>

Trading Economics d. Lufthansa | LHA – Enterprise Value. Retrieved on 24 November 2021. Available at <https://tradingeconomics.com/lha:gr:enterprise-value>

Trading Economics e. Air France-KLM SA | AF - Enterprise Value. Retrieved on 24 November 2021. Available at <https://tradingeconomics.com/af:fp:enterprise-value>

Trading Economics f. Finnair Oyj | FIA1S - Enterprise Value. Retrieved on 24 November 2021. Available at <https://tradingeconomics.com/fia1s:fh:enterprise-value>

Appendix 3. Profitability and EBITDA margin calculation of Lufthansa, Air France-KLM, Finnair (2017-2020)

All values EUR Millions.		2017	2018	2019	2020
Lufthansa	Revenue	35,579	35,542	36,424	13,589
	EBITDA	4,808	4,283	3,611	-3,588
	EBITDA margin (%)	13.5 %	12.1 %	9.9 %	-26.4 %
Air-France - KLM	Revenue	25,864	26,224	27,188	11,088
	EBITDA	3,501	4,291	4,018	-1,891
	EBITDA margin (%)	13.5 %	16.4 %	14.8 %	-17.1 %
Finnair	Revenue	2,542	2,836	3,098	829
	EBITDA	467	439	432	-287
	EBITDA margin (%)	18.4 %	15.5 %	13.9 %	-34.6 %
Applied formula: EBITDA margin = EBITDA/Revenue Sources: WSJ a, WSJ b, WSJ c					

Note:

WSJ a. LHA.XE | Deutsche Lufthansa AG Financial Statements. Wall Street Journal, Markets. Retrieved on 24 November 2021. Available at <https://www.wsj.com/market-data/quotes/XE/LHA/financials>

WSJ b. Wall Street Journal, Markets. Retrieved on 24 November 2021. Available at <https://www.wsj.com/market-data/quotes/FR/XPAR/AF/financials>

WSJ c. FIA1S.FI | Finnair Oyj Financial Statements. Wall Street Journal, Markets. Retrieved on 24 November 2021. Available at <https://www.wsj.com/market-data/quotes/FI/XHEL/FIA1S/financials>

Appendix 4. Earnings per share (Basic) (2017-2020)

Value in EUR.		2017	2018	2019	2020
Lufthansa	Earnings per share (Basic)	3.55	3.27	1.82	-8.93
	Basic Shares Outstanding in Millions	658	662	667	753
Air France–KLM	Earnings per share (Basic)	0.37	0.92	0.64	-16.56
	Basic Shares Outstanding in Millions	371	427	427	427
Finnair	Earnings per share (Basic)	0.23	0.13	0.09	-0.51
	Basic Shares Outstanding in Millions	693	695	692	1,052

Note: WSJ a, WSJ b, WSJ c

Appendix 5. Quick Ratio calculations of Lufthansa, Air France-KLM, Finnair (2017-2020)

Value in EUR Millions		2017	2018	2019	2020
Lufthansa	Cash & ST Investments	3,948	3,235	3,385	5,460
	Total Accounts Receivable	5,371	5,868	5,847	3,267
	Total Current Liabilities	12,638	16,215	15,986	14,659
	Quick Ratio	0.74	0.56	0.58	0.60
Air France-KLM	Cash & ST Investments	5,076	3,896	4,498	7,017
	Total Accounts Receivable	3,098	2,692	2,709	1,942
	Total Current Liabilities	12,054	12,342	12,649	11,778
	Quick Ratio	0.56	0.66	0.52	0.61
Finnair	Cash & ST Investments	1,088	1,073	953	824
	Total Accounts Receivable	314	173	179	85
	Total Current Liabilities	1,113	1,305	1,222	596
	Quick Ratio	1.05	1.07	1.02	1.90
Applied formula: Quick Ratio = (Cash & ST Investments + Total Accounts Receivable)/Total Current Liabilities					

Note:

WSJ a, WSJ b, WSJ c

Appendix 6. Cash flows of Lufthansa, Air France-KLM, Finnair (2017-2020)

All Value in EUR Millions		2017	2018	2019	2020
Lufthansa	Net Operating Cash Flow	5,363	4,234	4,165	-2,428
	Net Investing Cash Flow	-5,153	-3,462	-4,179	-2,465
	Net Financing Cash Flow	-93	-558	16	5,299
	Net Change in Cash	80	216	-3	373
Air France-KLM	Net Operating Cash Flow	4,108	3,804	3,909	-2,826
	Net Investing Cash Flow	-2,701	-2,710	-3,332	-1,583
	Net Financing Cash Flow	-640	-2,188	-447	7,147
	Net Change in Cash	734	-1,087	131	2,711
Finnair	Net Operating Cash Flow	382.2	487.8	565	-1045.5
	Net Investing Cash Flow	-157.5	-202.6	-529.5	335.6
	Net Financing Cash Flow	40.8	-273.4	-209.6	1020.4
	Net Change in Cash	265.5	11.8	-174.1	310.5
Note: Net Change in Cash = Net Operating Cash Flow + Net Investing Cash Flow + Net Financing Cash Flow + Exchange Rate Effect					

Note: WSJ a, WSJ b, WSJ c

Appendix 7. Lufthansa Leverage Ratios calculations (2017-2020)

All Value in EUR Millions	2017	2018	2019	2020
Total Assets	36,498	38,804	43,421	40,072
Total Debt	6,832	6,724	10,047	15,382
Total Equity	9,110	9,573	10,256	1,387
Debt Ratio	0.19	0.17	0.23	0.38
Debt to Equity Ratio	0.75	0.70	0.98	11.09
Applied formula: Debt Ratio = Total Debt/Total Assets & Debt to equity ratio = Total Debt/Total Equity				
Long-term Debt	6,142	5,008	8,396	12,252
Long-term Debt to Capitalization	0.40	0.34	0.45	0.90
Applied formula: Long-term Debt to Capitalization = Long-term debt/ (Long-term debt + Total Equity)				
Net Income	2340	2163	1213	-6725
Income Tax	784	588	615	-1865
Interest Expense	208	107	278	307
Interest Coverage	16.02	26.71	7.58	-26.98
Applied formula: Interest Coverage Ratio = (Net Income + Income Tax + Interest Expense)/Interest Expense				

Note: WSJ a.

Appendix 8. Air France-KLM Leverage Ratios calculations (2017-2020)

All Value in EUR Millions	2017	2018	2019	2020
Total Assets	29,963	29,637	30,735	30,211
Total Debt	12,761	11,456	11,597	18,664
Total Equity	1,820	1,395	1,896	-5,418
Debt Ratio	0.43	0.39	0.38	0.62
Debt to Equity Ratio	7.01	8.21	6.12	-3.44
Applied formula: Debt Ratio = Total Debt/Total Assets & Debt to equity ratio = Total Debt/Total Equity				
Long-term Debt	10,459	9,682	9,823	16,596
Long-term Debt to Capitalization	0.85	0.87	0.84	1.48
Applied formula: Long-term Debt to Capitalization = Long-term debt/ (Long-term debt + Total Equity)				
Net Income	146	395	273	-7,078
Income Tax	-21	224	76	97
Interest Expense	570	433	399	423
Interest Coverage	1.22	2.43	1.87	-15.50
Applied formula: Interest Coverage Ratio = (Net Income + Income Tax + Interest Expense)/Interest Expense Sources: WSJ a, WSJ b, WSJ c				

Note: WSJ b.

Appendix 9. Finnair Leverage Ratios calculations (2017-2020)

All Value in EUR Millions	2017	2018	2019	2020
Total Assets	2,887	3,944	3,878	3,647
Total Debt	916	1,973	1,773	2,377
Total Equity	818	720	768	699
Debt Ratio	0.32	0.50	0.46	0.65
Debt to Equity Ratio	1.12	2.74	2.31	3.40
Applied formula: Debt Ratio = Total Debt/Total Assets Debt to equity ratio = Total Debt/Total Equity				
Long-term Debt	784	1,747	1,589	2,190
Long-term Debt to Capitalization	0.49	0.71	0.67	0.76
Applied formula: Long-term Debt to Capitalization = Long-term debt/ (Long-term debt + Total Equity)				
Net Income	157	89	62	-541
Income Tax	42	26	19	-131
Interest Expense	14	85	84	87
Interest Coverage	15.21	2.35	1.96	-6.72
Applied formula: Interest Coverage Ratio = (Net Income + Income Tax + Interest Expense)/Interest Expense Sources: WSJ a, WSJ b, WSJ c				

Note: WSJ c.

Appendix 10. Lufthansa operating performance metrics calculation (2017-2020)

All Value in EUR Millions	2016	2017	2018	2019	2020
Total Debt (D)		6,832	6,724	10,047	15,382
Interest Expense		208	107	278	307
Tax Rate		24.71%	28.30%	28%	4.22%
Cost of Debt After tax (Rd)		2.29%	1.14%	1.98%	1.91%
Market Capitalization (E)		17,100	11,060	9,270	7,630
Equity Risk Premium		5%	5%	6%	5%
Risk free rate		3.5%	3.5%	3.0%	2.5%
Historical beta		1.65	1.65	1.65	1.65
Cost of Equity (CAPM) (Re)		6.0 %	6.0 %	8.0 %	6.6 %
Weighted Average Cost of Capital (WACC)		4.9 %	4.1 %	4.8 %	3.5 %
Applied formula: Cost of Debt After tax = Interest Expense/Total of debt x (1 – Tax Rate) Cost of Equity = Risk free rate + Historical beta x (Equity Risk Premium – Risk free rate) WACC = (E/(D+E) x Re) + (D/(D+E) x Rd x (1-Tax Rate)) Note: Equity Risk Premium and Risk-free rate recommended by Duff & Phelps (Duff & Phelps, 2020), Lufthansa 5-year historical beta (Yahoo! Finance), Tax Rate is Effective Tax Rate					
Net Income	1,776	2,340	2,163	1,213	-6,725
Total Equity	7,149	9,110	9,573	10,256	1,387
Total Assets	35,805	36,498	38,804	43,421	40,072
Return on Asset (ROA)		6.5%	5.7%	3.0%	-16.1%
Return on Equity (ROE)		28.8%	23.2%	12.2%	-115.5%
Applied formula: ROA = Net Income/Average Asset & ROE = Net income/Average Equity					
Earnings Before Interest and Tax (EBIT)		2,769	2,102	919	-6,149
Invested Capital		11,994	13,062	16,918	11,309
Return on Invested Capital (ROIC)		17%	12%	4%	-52%
Applied formula: Invested Capital = Total Equity + Total Debt – Cash & ST Investment ROIC = Net income/Invested Capital					

Note:

Duff & Phelps. 2020. Duff & Phelps Recommended U.S. Equity Risk Premium (ERP) and Corresponding Risk-free Rates (R f); January 2008–Present. Retrieved on 24 November 2021. Available at <https://www.duffandphelps.com/-/media/assets/pdfs/publications/articles/dp-erp-rf-table-2020.pdf>

WSJ a.

Yahoo Finance. Deutsche Lufthansa AG (LHA.DE). Retrieved on 24 November 2021. Available at <https://finance.yahoo.com/quote/LHA.DE/>

Appendix 11. Air France-KLM operating performance metrics calculation (2017-2020)

All Value in EUR Millions	2016	2017	2018	2019	2020
Total Debt (D)		12,761	11,456	11,597	18,664
Interest Expense		570	433	399	423
Tax Rate		-16.00%	36.50%	22%	-1.40%
Cost of Debt After tax (Rd)		5.18%	2.40%	2.68%	2.30%
Market Capitalization (E)		6,860	4,780	5,010	2,580
Equity Risk Premium		5%	5%	6%	5%
Risk free rate		3.5%	3.5%	3.0%	2.5%
Historical beta		2.14	2.14	2.14	2.14
Cost of Equity (CAPM) (Re)		6.7 %	6.7 %	9.4 %	7.9 %
Weighted Average Cost of Capital (WACC)		5.7 %	3.7 %	4.7 %	3.0 %
Applied formula: Cost of Debt After tax = Interest Expense/Total of debt x (1 – Tax Rate) Cost of Equity = Risk free rate + Historical beta x (Equity Risk Premium – Risk free rate) WACC = (E/(D+E) x Re) + (D/(D+E) x Rd x (1-Tax Rate)) Note: Equity Risk Premium and Risk-free rate recommended by Duff & Phelps (Duff & Phelps, 2020), Air France-KLM 5-year historical beta (Yahoo! Finance), Tax rate is Effective tax rate					
Net Income		146	395	273	-7,078
Total Equity	696	1,820	1,395	1,896	-5,418
Total Assets	22,932	29,963	29,637	30,735	30,211
Return on Asset (ROA)		0.6%	1.3%	0.9%	-23.2%
Return on Equity (ROE)		11.6%	24.6%	16.6%	401.9%
Applied formula: ROA = Net Income/Average Asset & ROE = Net income/Average Equity					
Earnings Before Interest and Tax (EBIT)		745	1,289	891	-4,771
Invested Capital		9,505	8,955	8,995	6,229
Return on Invested Capital (ROIC)		9.1%	9.1%	7.7%	-77.7%
Applied formula: Invested Capital = Total Equity + Total Debt – Cash & ST Investment ROIC = Net income/Invested Capital					

Note:

Duff & Phelps. 2020.

WSJ b.

Yahoo Finance. Air France-KLM SA (AF.PA). Retrieved on 24 November 2021. Available at <https://finance.yahoo.com/quote/AF.PA/>

Appendix 12. Finnair operating performance metrics calculation (2017-2020)

All Value in EUR Millions	2016	2017	2018	2019	2020
Total Debt (D)		916	1,973	1,773	2,377
Interest Expense		14	85	84	87
Tax Rate		19.80%	20.10%	20%	-20.00%
Cost of Debt After tax (Rd)		1.23%	3.44%	3.80%	4.39%
Market Capitalization (E)		1,930	1,060	880	1,250
Equity Risk Premium		5%	5%	6%	5%
Risk free rate		3.5%	3.5%	3.0%	2.5%
Historical beta		1.51	1.51	1.51	1.51
Cost of Equity (CAPM) (Re)		5.8 %	5.8 %	7.5 %	6.3 %
Weighted Average Cost of Capital (WACC)		4.3 %	4.3 %	5.0 %	5.0 %
Applied formula: Cost of Debt After tax = Interest Expense/Total of debt x (1 – Tax Rate) Cost of Equity = Risk free rate + Historical beta x (Equity Risk Premium – Risk free rate) WACC = (E/(D+E) x Re) + (D/(D+E) x Rd x (1-Tax Rate)) Note: Equity Risk Premium and Risk-free rate recommended by Duff & Phelps (Duff & Phelps, 2020), Finnair 5-year historical beta (Yahoo! Finance), Tax rate is Effective tax rate					
Net Income		157	89	62	-541
Total Equity	2,529	2,887	3,944	3,878	3,647
Total Assets	659	818	720	768	699
Return on Asset (ROA)		21.3%	11.6%	8.3%	-73.8%
Return on Equity (ROE)		5.8%	2.6%	1.6%	-14.4%
Applied formula: ROA = Net Income/Average Asset & ROE = Net income/Average Equity					
Earnings Before Interest and Tax (EBIT)		337	145	106	-623
Invested Capital		646	1,620	1,588	2,252
Return on Invested Capital (ROIC)		41.8%	7.2%	5.4%	-33.2%
Applied formula: Invested Capital = Total Equity + Total Debt – Cash & ST Investment ROIC = Net income/Invested Capital					

Note:

Duff & Phelps. 2020.

WSJ b.

Yahoo Finance. Finnair Oyj (FIA1S.HE). Retrieved on 24 November 2021. Available at <https://finance.yahoo.com/quote/FIA1S.HE/>

Appendix 13. Degree of Leverage Calculations of Lufthansa, Air France – KLM, and Finnair (2017-2020)

All Value in EUR Millions		2017	2018	2019	2020
Lufthansa	Gross profit	5,664	5,488	4,268	-4,229
	Earnings Before Interest and Tax (EBIT)	2,769	2,102	919	-6,149
	Interest Expense	208	107	278	307
	Earnings Before Tax (EBT)	2,561	1,995	641	-6,456
	Degree of Operating Leverage (DOL)	2.05	2.61	4.64	0.69
	Degree of Financial Leverage (DFL)	1.08	1.05	1.43	0.95
	Degree of Combined Leverage (DCL)	2.21	2.75	6.66	0.66
Air France - KLM	Gross profit	3,942	4,945	4,732	-2,498
	Earnings Before Interest and Tax (EBIT)	745	1,289	891	-4,771
	Interest Expense	570	433	399	423
	Earnings Before Tax (EBT)	175	856	492	-5,194
	Degree of Operating Leverage (DOL)	5.29	3.84	5.31	0.52
	Degree of Financial Leverage (DFL)	4.26	1.51	1.81	0.92
	Degree of Combined Leverage (DCL)	22.53	5.78	9.62	0.48
Finnair	Gross profit	459	435	411	-498
	Earnings Before Interest and Tax (EBIT)	337	145	106	-623
	Interest Expense	14	85	84	87
	Earnings Before Tax (EBT)	323	60	22	-710
	Degree of Operating Leverage (DOL)	1.36	3.00	3.88	0.80
	Degree of Financial Leverage (DFL)	1.04	2.42	4.82	0.88
	Degree of Combined Leverage (DCL)	1.42	7.25	18.68	0.70
<p>Applied formula: Degree of operating leverage = Gross profit/EBIT For example, DOL = 3. It means, that in if sales increase by 1%, the company can expect its operating result to increase by 3.0% Degree of financing leverage = EBIT/EBT For example, DFL = 1.5. It means, that if EBIT increase by 1%, the company can expect its EPS to increase by 1,5 % Degree of financing leverage = Gross profit /EBT For example, DCL = 4. It means, that if sales increase by 1%, the company can expect its EPS to increase by 4 %</p>					

Note: WSJ a. WSJ b. WSJ c.

Appendix 14. Annually Market Capitalization and Enterprise Value calculations of Lufthansa, Air France-KLM, and Finnair (2017-2020)

All values EUR Millions.		2017	2018	2019	2020
Lufthansa	Market Capitalization	17,100	11,060	9,270	7,630
	ST Debt & Current Portion LT Debt	690	1,716	1,651	3,130
	Long-term Debt	6,142	5,008	8,396	12,252
	Cash & Short-Term Investments	3,948	3,235	3,385	5,460
	Enterprise Value	19,984	14,549	15,932	17,552
Air France-KLM	Market Capitalization	6,860	4,780	5,010	2,580
	ST Debt & Current Portion LT Debt	2,302	1,774	1,774	2,068
	Long-term Debt	10,459	9,682	9,823	16,596
	Cash & Short-Term Investments	5,076	3,896	4,498	7,017
	Enterprise Value	14,545	12,340	12,109	14,227
Finnair	Market Capitalization	1,930	1,060	880	1,250
	ST Debt & Current Portion LT Debt	132	226	184	187
	Long-term Debt	784	1,747	1,589	2,190
	Cash & Short-Term Investments	1,088	1,073	953	824
	Enterprise Value	1,758	1,960	1,700	2,803
Applied formula: Enterprise Value = Market Capitalization + ST Debt & Current Portion LT Debt + Long-term Debt - Cash & Short-Term Investments					

Note: WSJ a. WSJ b. WSJ c.

Appendix 15. Email Interview Questions

Structure of emails with Mr. Toan Nguyen – Sales & Distribution Director of VietJet

- What are the key factors that helped airlines maintain their market positions during the COVID-19 market crash in 2020?
- What were the positions of national airlines compared to the competitors?
- What are the advantages and disadvantages of the airline industry compared to others in the recovery phase of the economy?
- Will the aviation industry grow or shrink in the coming years?

Note: VietJet Aviation Joint Stock Company, also known as VietJet Air or VietJet, is a Vietnamese low-cost carrier that operates internationally with a subsidiary, Thai VietJet Air. Established in November 2007, it was the first privately owned airline of Vietnam in the modern world. (Alternative Airlines.)

Alternative Airlines. VietJet Air. Retrieved on 24 November 2021. Available at <https://www.alternativeairlines.com/vietjet-air>