

COVID-19 and Global Passenger Airline Bankruptcies 2020 to 2022

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After the COVID-19 pandemic and worldwide government shutdowns took place in early 2020, many questioned the solvency of the passenger airline industry. This paper studies global airline bankruptcies in the two years from the beginning of the crisis and models the financial sufficiency of the largest U.S.-based passenger airlines to try to model the industrywide pressure that was borne from an exogenous shock with such a high magnitude.

Keywords: airline industry, COVID-19, corporate bankruptcy

INTRODUCTION

As the world plunged into a pandemic-driven global lockdown, the likes of which most citizens had never experienced, Boeing CEO David Calhoun predicted that an American airline would likely go bankrupt as a result of the COVID-19 outbreak (NBC Today Show, 5/12/20). The pandemic began in late 2019 and by early March 2020 had sent the U.S. stock market down nearly 40 percent, airline revenue sliced in half (and eventually down to near zero) and billions of people confined to their homes worldwide. Calhoun's prediction, although loathed by airline executives at the time, was prominent because of Boeing's place in the industry, namely as one of the two major airline manufacturers on the planet. However, the prediction made in early 2020 did not come to fruition in the years that followed as U.S. stimulus, both fiscal and monetary, staved off any bankruptcy filings for large, U.S. carriers.

The stimulus was beneficial to airlines both directly and indirectly. Directly, the U.S. government gave the airline industry a partial bailout in the CARES Act of 2020, which was legislation passed in direct response to the health crisis, as a result of a collective action effort by industry participants (Brown 2015). Indirectly, this act as well as others directly stimulated the American populace economically through avenues such as tax credits, forgivable loans, and extended unemployment benefits. Following these initial measures, the Federal Reserve Bank in the U.S. drastically cut its lending rate sending bond yields toward zero, which further stimulated the U.S. economy (Sider and Dickinson 2020). These rates, which approached zero in the U.S. and were negative in the European Union (Dickler 2020), catalyzed stock equity prices to increase precipitously, which also helped the fledgling airlines to raise affordable capital in their worst months and potentially exacerbated moral hazard as a result (Brown 2014).

Globally, on the other hand, governments handled the crisis differently (Ersoz, Kilic, and Aldemir 2022). While stimulus and lower rates were common, most nations were not as forceful as the United States in their economic response. For non-U.S. passenger airlines, this had different effects depending upon where they were domiciled. Some nations buffered their home airlines through subsidies, while others did little to alter the course of the pandemic's direct effect on airlines' financial statements. In this paper, I

analyze the different outcomes to global airlines as a result of the COVID-19 pandemic and government lockdowns to assess where the industry is situated three years after the first cases were reported. While the main purpose of the current research is to report on global airline bankruptcies, government subsidies are also important as these may have been the only reason that some firms have avoided.

The paper is broken down into several sections. The first section is a brief recount of the COVID-19 pandemic and a note on the history of airline bankruptcies. This is followed by the empirical section, which contains three reporting sub-sections on airline bankruptcies from 2020 through 2022. The sub-sections include bankruptcy filings in (i) the initial stages of COVID-19 from January 2020 to October 2020, (ii) the restabilization period of COVID-19 from November 2020 to December 2021, and (iii) the later stage of COVID-19 including all of 2022.¹ In the Discussion Section, I analyze U.S. airlines to surmise why none has filed for bankruptcy protection since the pandemic and to calculate bankruptcy prediction measures for these airlines to get a better understanding of the precarious financial position that many are in toward the end of 2022.

BACKGROUND

Covid-19

The COVID-19 outbreak began in late 2019 in Wuhan, China and quickly spread to the rest of the globe. By the end of May 2020, there were nearly six million confirmed cases and over 350,000 fatalities (coronavirus.jhu.edu). In addition to the biological issues with the virus, the economic fallout has been swift and painful. In the U.S., for example, the gross domestic product (GDP) in the first quarter of 2020 decreased 4.8 percent and the majority of the quarter was unphased by the virus (www.bea.gov). Second quarter 2020 GDP decreased of 31.2 percent in the United States. Europe fared a bit better with Q1 2020 GDP decreasing 3.8 percent followed by an 11.8 percent decrease in Q2 (www.cnbc.com). In addition to these figures, global unemployment increased simultaneously. In the six-week period from late March to late May 2020, over 38 million Americans applied for unemployment insurance (www.dol.gov). Weak economic conditions, global stay at home orders and the refusal for all or most nations to allow foreigners entry has led to a catastrophic situation for commercial airlines across the globe (Brown and Kline 2020).

Airline Bankruptcies

The airline industry has been prone to failure for quite some time (Gong 2007). U.S. airlines have filed for bankruptcy protection many times in the aggregate (www.airlines.org) while airlines domiciled elsewhere have received bailouts or other protectionist favors (Bock, Forsyth, Niemeier and Mantin 2019; Abate, Christidis and Purwanto 2020). Large U.S. bankruptcy filings include Continental Airlines (1983 and 1990), Eastern Airlines (1989 and 1991), Pan Am (1991 and 1995), TWA (1991 and 2001), United Airlines (2002), US Airways (2002 and 2004), Northwest (2005), Delta (2005), and American Airlines (2011).²

Non-U.S. airline failures are also not uncommon and while a full discussion of global airline bankruptcies is not feasible here, I will mention a few notable and/or recent pre-COVID failures. The 2001 bankruptcy of Swissair (Suen 2002) was one of the more notable national airline failures as many similarly situated airlines (i.e., those associated with a nation) have been bailed out or subsidized in lieu of a court filing (Bock et. Al. 2019). Mexicana Airlines filed for bankruptcy in its home country in 2010 with a corresponding Chapter 15 bankruptcy filing in the United States. In addition to Swissair and Mexicana, several other airlines have filed for bankruptcy (or its international equivalence) and ceased operations including Monarch Airlines (2017), Wow Airlines (2019) and Thomas Cook Airlines (2019).

The precarious nature of commercial aviation stems from value chain pressures that are unlike many other industries (Fontanet-Perez, Vazquez, and Carou 2022). Downstream, airlines are often at the whim of both corporate travelers and leisure travelers. In periods of economic stress, marginal flyers in either group can dictate airlines' financial conditions. However, the upstream pressures on airlines are even more prevalent. These include (i) labor issues, including a highly specialized and highly unionized labor pool; (ii) fuel volatility, including a cartelized market for crude oil and an oligopolistic market for jet fuel

refinement; and (iii) aircraft supplier market power, as there are only two global producers of commercial airliners.³ Downstream and upstream pressures are then added to the nature of frequent exogenous shocks to the industry from economic (i.e., recessions), political (i.e., terrorism, government missile attacks, etc.), and natural (i.e., volcanic activity, disease, etc.) causes.

COVID-RELATED GLOBAL BANKRUPTCY FILINGS

First-Stage January 2020 to October 2020

TABLE 1
GLOBAL AIRLINE BANKRUPTCIES 2020-2022

Year	Firm	Home Country
2020	Flybe	United Kingdom
	Germanwings	Germany
	Norwegian Airlines	Norway
	Virgin Australia	Australia
	Air Mauritius	Mauritius
	Avianca Airlines	Colombia
	TAME Airlines	Ecuador
	Latam Airlines	Chile
2021	Air Namibia	Namibia
	Interjet Airlines	Mexico
	Alitalia	Italy
2022	Scandinavian Air Services	Denmark

Table 1 includes the major airline bankruptcies during the study's time frame (2020 to 2022). The first stage of airline bankruptcies occurred between January and October 2020 as the economic pressures from the pandemic became apparent. Maybe as expected, the initial failures were spread out globally just as the pandemic was. While not discussed in detail below, it is important to note that on May 26, 2020 the German government passed a bail out package for Lufthansa, the world's largest airline. The bail out was over \$9 Billion and has the German government taking a 20 percent equity stake in the airline (Bender 2020). What follows are descriptions of these initial non-U.S. airline bankruptcies.⁴

Flybe

On March 5, 2020, after several years of financial trouble, Flybe, which had a 40 percent market share of domestic air travel in the United Kingdom, entered administration, which is the equivalent of bankruptcy (www.flybe.com). Flybe was virtually insolvent as far back as 2018 and had requested state aid in 2019. After complaints by British Airways and Ryan Air about unfair advantages of potentially garnering state aid, the U.K. government gave Flybe limited help by deferring some of its unpaid taxes. The airline ceased operations on the same day it went into administration with no further plans for reorganizing as a future going concern (Perper and Slotnick 2020; Topham 2020).

Germanwings

On April 8, 2020, Lufthansa Airlines, Germany's flagship carrier, announced the shuttering of operations of Germanwings followed by an April 22, 2020 bankruptcy filing. The low-cost subsidiary of

Lufthansa was forced into insolvency early in the COVID lockdowns, an event worse financially for the airline than the 2015 pilot suicidal crash that killed 150 passengers. At the time, Germanwings flew approximately 15 jets and employed over 350 employees (Taylor 2020).

Norwegian Airlines

While Norwegian Airlines, as a whole, did not file for bankruptcy protection, on April 20, 2020, four of its subsidiaries in Sweden and Denmark did (Nikel 2020). Weeks later, after threatening bankruptcy for the entire firm, Norwegian's bond holders and the government of Norway agreed to reorganize the company through both a partial government bailout and a debt for equity swap for bondholders (Kollewe 2020).

Virgin Australia

On Monday, April 21, 2020, Virgin Australia entered bankruptcy and hired voluntary administrators to determine if it could become more efficient and remain a going concern (Church 2020). The company, owned partially by the Virgin Group, Singapore Airlines, Etihad Airways and the HNA Group, had been unprofitable for years prior to the pandemic. It had debts in excess of \$3 Billion USD and was rejected by the Australian government for a bailout the same week as its filing. While not nearly as large as many other global airlines, Virgin Australia was the second largest Australian carrier to the dominant Qantas Airlines (McGuirk 2020). In order to protect assets in the United States, on April 29, 2020, Virgin Australia filed for Chapter 15 bankruptcy protection (Deloitte 2020). Chapter 15 is meant for foreign domiciled corporations that file for bankruptcy protection in their home country but which also need court protection in the United States.

Air Mauritius

On April 24, 2020, Air Mauritius, the national airline of Mauritius, entered Voluntary Administration to restructure its financial condition. While voluntary administration is different than bankruptcy in Mauritius, they are treated as equivalent processes. In addition to this African airline, several other airlines on the continent were in discussions to enter similar court proceedings including Kenya Airways and South Africa Airways (Bhuckory 2020).

Avianca Airlines

Avianca Airlines, based in Bogota, Colombia, filed for bankruptcy in its home country on May 10, 2020 and simultaneously filed for Chapter 11 protection in the United States (*In Re: Avianca Holdings S.A.*). Total liabilities for Avianca topped \$7 Billion USD with the number of creditors between 25,000 and 50,000. While many of these creditors were customers who had already paid for flights that had not taken place as of May 10, 2020, some notable upstream creditors were listed by the firm. First, secured creditors were owed approximately \$1.3 Billion with collateralized property including intellectual property, credit card receivables and, most importantly, airplanes. Unsecured creditors included a number of suppliers owed trade debt, many of which are in weak financial positions themselves. For example, unpaid maintenance contracts were owed to General Electric (\$33.4 Million), Rolls Royce (\$28.3 Million), Lufthansa (\$4.4 Million), Boeing (\$3.7 Million), Airbus (\$2.8 Million) and Pratt and Whitney (\$1.7 Million). Fuel suppliers were owed an aggregated amount of nearly \$10 Million. These claims include Terpel (\$4.9 Million), World Fuel Services (\$4.9 Million), Puma (\$3.2 Million) and Chevron (\$2 Million). Technology firms including Microsoft, IBM, Accenture and SAP were owed more than \$11 Million.⁵

TAME Airlines

TAME Airlines, domiciled in Ecuador, began liquidation proceedings on May 19, 2020 at the behest of Ecuador's President Lenin Moreno (Casey 2020). While a relatively small airline, TAME lost approximately \$80 million per year before the COVID shock leading to an expedited decision once the then current state of the airline passenger industry became clearer. TAME was the only airline serving the New York City metropolitan area with direct flights from Ecuador's capital—Quito—and a replacement service had yet to return three years later.

Latam Airlines

By far the largest airline bankruptcy filing in 2020 occurred on May 26, 2020 when Latam Airlines filed for bankruptcy protection in Chile along with a Chapter 11 bankruptcy filing in the U.S. (*In Re: Latam Airlines Group S.A.*). At nearly three times the amount of liabilities as Avianca, Latam was more problematic to its vertical partners. Similar to Avianca, Latam had a number of secured credit facilities securitized by its jets and leases. Latam had over \$2 Billion in secured loans against 61 individual jets and 56 engines. Leading creditor categories in the top 20 largest unsecured creditors were bonds and other lending facilities in excess of \$4 Billion. Latam was much more traditionally indebted than its Latin American rival Avianca, while having less owed in trade debt to suppliers. Since bankruptcies in one level of industry can have profound effects on other levels that interact vertically, it is important to note that World Fuel Services, owed more than \$30 Million by Latam, is especially vulnerable as it is a common unsecured trade debt creditor to both Latam and Avianca. Also noteworthy is the equity structure of Latam Airlines. Two major global airlines own large portions of Latam's equity, with Delta Airlines ownership listed at 19.99 percent and Qatar Airways listed at 10 percent.⁶

Restabilization Stage November 2020 to December 2021

The period between November 2020 and the end of 2021 is referred to as the "Restabilization Stage" due to the introduction of COVID vaccinations. The first vaccines approved in the U.S. were those by Pfizer-BioNTech and Moderna with the first administered doses outside of clinical trials given on December 8, 2021 (Loftus and West 2020). The announcements of the vaccine approval occurred prior to this date and widespread vaccine adoption occurred after this date. Therefore, I reconciled the cutoff between the first and second stages as November 1, 2020 although other dates could be argued for as well.

In November 2020, the passenger airline industry had gone through eight months of revenues that, at times approached zero. In spite of this, the industry had some relative positive news to operate on considering the massive stimulus in the United States and the prospect of a globally vaccinated populace in coming quarters. The number of airline bankruptcies adds credence to this stability as only three large airlines filed for protection during this time frame even though the Restabilization Stage is 50 percent longer than the other two stages used in the current work.

Air Namibia

The order from Namibia's High Court read "The company known as Air Namibia LTC has been provisionally wound up by order of the High Court of Namibia dated, 26th day of February 2021" (www.airnamibia.com). This official declaration followed an announcement by the firm that it was ceasing operations two weeks earlier on February 11, 2021 in response to the pandemic traffic loss. Air Namibia had weathered multiple shocks in its 75 history and had held on to solvency for the first two years of COVID-19, but the bleak outlook on the African nation's economy, specifically, and aviation, generally, lead to a reversal and appointment of joint liquidators (Boon 2021).

Interjet

Interjet, a Mexican low-cost airline, filed for bankruptcy in April 2021 after shareholders voted for such a move. The company connected Mexico internationally with the United States, Central America and northern South America in addition to many domestic flights within its home country. While the bankruptcy filing was approved in April 2021, the airline had not flown for several months prior and many of its assets were seized by employee creditors in the months preceding the filing (Navarro 2021).

Alitalia

Alitalia had been in a precarious financial position before the pandemic. The national airline of Italy had begun shortly after World War II and, while it was successful in the few decades that followed, it was plagued by losses and inefficiencies for much of the decades that preceded its 2021 cessation of operations. As a result of the effects of the COVID-19 virus, especially since northern Italy was one of the worst hit areas globally, Italy renationalized the airline in early 2020 and liquidated in 2021 with its final flight taking

place in October 2021. A new national airline, Italia Transporto Aereo (ITA), acquired the assets of Alitalia and is now servicing domestic and international routes (Pallini and Raines 2021).

Late-Stage January 2022 to December 2022

By 2022, the world had been dealing with the COVID pandemic for two years, vaccines were widespread globally, and economies in the developed world were re-growing rapidly. Passenger airlines were recovering volume from before the pandemic as travelers began to yearn for vacations that they had put off for some time. However, there were other looming threats that had the potential to impede the stabilization progress, most notably heavy debt loads at airlines secured during the depths of the lockdowns. This balance sheet issue was coupled with troubling macroeconomic data that included a weakening global economy, declining global equity markets, rampant inflation not only in the developing world but also in major, developed economies and supply chain shortages that included staffing problems. While the health scare had dissipated, industry participants were arguably in a worsening financial position in 2022.

Scandinavian Airlines (SAS)

The only large airline bankruptcy in 2022 was Scandinavian Airlines (SAS), which filed for Chapter 11 bankruptcy protection in the United States on July 5, 2022 (Katz 2022). The airline was financially battered by the lack of traffic from 2020 through mid-2022, but it was a pilot's strike that was the final catalyst for court protection. Based in Copenhagen, Denmark, it chose to file in the United States due to the flexibility in the U.S. reorganization process. According to its petition, the airline had over \$1.5 Billion in bonds and borrowings from private lenders and governments including Sweden, Denmark and Switzerland (*In Re Scandinavian Airline Systems* 2022).

DISCUSSION

What About American Carriers?

This paper began with a quote from Boeing's CEO concerning the inevitability of an American carrier filing for bankruptcy due to the pandemic's effects. However, through the end of 2022, this has not yet occurred. This section will discuss the government stimulus provided to U.S. carriers and an analysis of their current financial position. One way to understand publicly traded corporations and their distance to bankruptcy is through bankruptcy prediction models, such as the Altman Z Score. The Altman Z is calculated using financial statement information as well as the market value of equity (Altman 1968, 2000). More specifically, it is a linear equation represented as:

$$Z - Score = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 0.99x_5$$

where X_1 = Working Capital / Total Assets
 X_2 = Retained Earnings / Total Assets
 X_3 = Earnings Before Interest and Taxes (EBIT) / Total Assets
 X_4 = Market Value of Equity (MVE) / Book Value of Equity
 X_5 = Revenue / Total Assets

The Altman Z is not perfect but has had a history of accurately predicting bankruptcies over time. The score generally falls between 0.00 to 3.00 although negative values and values greater than +3.00 are possible. The cutoff for bankruptcy prediction is 1.80 in what Altman called the "Danger Zone". The Danger Zone, a score below 1.80, entails a 72 percent probability of bankruptcy within 24 months of the data being utilized.

The Altman Z, however, is prone to err when the data is affected by exogenous events, such as negative economic shocks (in which case safe scores may change rapidly to poorer scores) and positive economic shocks (in which case Danger Zone level scores may never come to fruition). The latter of these two scenarios is most likely the reasoning between the scores calculated in mid-2020 and the absence of a major

U.S. airline bankruptcy filing through 2022. Table 2 is the Altman Z Scores for all major, publicly traded U.S. passenger airlines as calculated in 2020. Scores calculated in 2020, therefore, that fall below 1.80 would predict a firm’s bankruptcy by 2022.

Using Altman’s model, all major U.S. carriers except for Allegiant and Southwest were predicted to file for bankruptcy. While these two firms were not in Altman’s “Safe Zone” (over 3.0), they were nowhere near the “Danger Zone”. As mentioned above, however, none of the firms filed for bankruptcy through mid-2022, which is the 24 month cutoff for the prediction. The first exogenous shock that saved (or at least delayed) possible bankruptcy filings was the CARES Act of 2020, which injected capital into the industry thereby shoring up the firms’ balance sheets (Sider 2020). Altman’s equation is heavily dependent upon the balance sheet for the right-side variables with the exception of two income statement items (revenue, EBIT) and one market value item (market capitalization). Adding to the capital provided by the U.S. government was the extraordinary increase in U.S. equities beginning in mid-2020 and extending until January of 2022. As equity values rise, a firm’s cost of capital decreases in regard to issuing new shares to the public. Many of the major airlines saw their share prices increase 200 to 300 percent from trough to peak in this time frame, adding insulation from bankruptcy.

TABLE 2
2020 ALTMAN-Z SCORES FOR U.S. PASSENGER AIRLINES

Company	Z-Score	Prediction
American Airlines Group	0.072	Bankrupt
United Airlines Holdings	0.824	Bankrupt
Delta Airlines	0.861	Bankrupt
JetBlue Airways	1.019	Bankrupt
Spirit Airlines	1.109	Bankrupt
Skywest	1.256	Bankrupt
Alaska Air Group	1.257	Bankrupt
Hawaiian Holdings	1.317	Bankrupt
Allegiant Travel Co	2.033	Safe
Southwest Airlines	2.436	Safe

In 2022, some of these events had reversed as the U.S. equity markets entered into a bear market and government stimulus, in the face of growing inflationary fears, has ceased. It is, therefore, important to revisit the Altman Z model with mid 2022 measures to surmise where the industry participants stand and to add new predictions. Table 3 includes the 2022 Altman Z scores for the same publicly traded airlines as listed in Table 2. Table 4 lists the 2020 and 2022 scores along with the differential for each firm.

TABLE 3
2022 ALTMAN-Z SCORES FOR U.S. PASSENGER AIRLINES

Company	Z-Score	Prediction
American Airlines Group	-0.082	Bankrupt
United Airlines Holdings	0.342	Bankrupt
Delta Airlines	0.232	Bankrupt
JetBlue Airways	0.645	Bankrupt
Spirit Airlines	1.108	Bankrupt
Skywest	1.102	Bankrupt
Alaska Air Group	2.944	Safe
Hawaiian Holdings	1.651	Bankrupt
Allegiant Travel Co	2.054	Safe
Southwest Airlines	3.068	Safe

TABLE 4
ALTMAN-Z SCORE COMPARISONS 2020 AND 2022

Company	Z-Score 2020	Z-Score 2022	Delta
American Airlines Group	0.072	-0.082	-0.154
United Airlines Holdings	0.824	0.342	-0.482
Delta Airlines	0.861	0.232	-0.629
JetBlue Airways	1.019	0.645	-0.374
Spirit Airlines	1.109	1.108	-0.001
Skywest	1.256	1.102	-0.154
Alaska Air Group	1.257	2.944	1.687
Hawaiian Holdings	1.317	1.651	0.334
Allegiant Travel Co	2.033	2.054	0.021
Southwest Airlines	2.436	3.068	0.632

Viewing Tables 3 and 4, it is apparent that many of the U.S. airlines have weakened financially denoted by a negative differential. Spirit Airlines is unchanged although some of their market-based metrics are affected JetBlue's acquisition of Spirit. The reverse is true for JetBlue, which could explain some of the negative differential in its Z-Score from 2020 to 2022. Alaska Air Group was one airline with a large upward differential, moving it from the "Danger Zone" to safety. Southwest Airlines continued with its solid financial performance increasing its 2020 safe Z-Score to an even safer score.

ENDNOTES

1. The cutoff between early stage and restabilization was chosen because of the approval of the first vaccines in early November 2020. The author realizes that 2022 is not over at the time of submission and will include any new bankruptcy filings that occur between submission and the end of 2022 if granted a revision.
2. All information listed retrieved from Airlines for America at <https://www.airlines.org/dataset/u-s-bankruptcies-and-services-cessations/#>

3. This information is aggregated from airline annual reports (10-K) used in this study.
4. Also noted here, but not included in the paper, are upstream and downstream suppliers that were forced to file for bankruptcy due to the airlines' grounding of flights. For example, Global Eagle which was a wi-fi service company for in flight connectivity (Yerak 2020).
5. All information in this sub-section was derived from Avianca Holdings S.A. Chapter 11 Voluntary Bankruptcy filing, cited as *In Re: Avianca Holdings S.A.*
6. All information in Section 3.5 derived from Latam Airlines Group S.A. Chapter 11 Voluntary Bankruptcy filing, cited as *In Re: Avianca Holdings S.A.*

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