

The impact of the Covid-19 Pandemic on financial performance of airlines' in terms of expenses and profitability: Turkish Airlines and Pegasus
Covid-19 Salgının havayolu şirketlerinin finansal performansına giderler ve karlılık açısından etkisi: Türk Hava Yolları ve Pegasus örneği

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ABSTRACT: The Covid-19 pandemic has had a detrimental impact on social, political, and economic facets, precipitating substantial shifts in societal structures and economic frameworks. The pandemic has also taken a toll on the airline passenger transportation sector. During the pandemic, airline travel underwent regulation, with reduced seat capacities and a transition from wide to narrow-body aircraft. Throughout this period, airline revenues experienced a decline while expenses escalated, causing a significant imbalance between income and expenses. This imbalance led to losses in operating activities for airlines. This study investigated the impact of the pandemic on airlines' expenses. Data were collected from the 2019-2022 financial statements of Turkish Airlines (THY) and Pegasus (PGSUS), which are traded on Borsa Istanbul. The study focused on revenues, costs of sales, gross profit, general administrative expenses, marketing costs, operating profits/losses, financing costs, profits/losses before tax from continuing operations, and net period profits/losses for the financial year. Trend, vertical, and ratio analyses were performed to evaluate the findings. The results showed that the expenses of and Pegasus increased drastically during the pandemic. Their revenues started to rise in 2021 and increased drastically in 2022. While they suffered losses due to high expenses during the pandemic, they showed a better profitability performance in 2022 than before the pandemic.

Keywords: Airlines, Expenses, Profitability, Financial analysis, Financial performance

ÖZ: Covid-19 Pandemisi toplum sağlığına verdiği zararın yanı sıra sosyal, siyasi ve iktisadi hayatı da olumsuz yönde etkileyerek toplum yapısında ve ekonomik düzende önemli değişimlere neden olmuştur. Havayolu yolcu taşımacılık sektörü de pandemiden olumsuz yönde etkilenmiştir. Pandemi ile birlikte havayolu seyahatleri kurallara bağlanmış, koltuk kapasiteleri azaltılmış ve geniş gövdeli uçaklardan dar gövdeli uçaklara doğru bir geçiş yaşanmıştır. Bu dönemde havayolu şirketlerinin gelirleri azalmış, giderleri ise artmış ve gelir gider dengesi bozularak esas faaliyetlerden zarar edilmesine neden olmuştur. Bu hususla çalışmada pandeminin havayolu şirketlerinin giderlerine etkisinin incelenmesi amaçlanmıştır. Borsa İstanbul'da işlem gören Türk Hava Yolları (THY) ve Pegasus (PGSUS) 2019-2022 dönemi finansal tablo verilerinden yararlanılmıştır. Hasılat, satışların maliyeti, brüt kar, genel yönetim giderleri, pazarlama giderleri, esas faaliyet karı/zararı, finansman giderleri, sürdürülebilir faaliyetler vergi öncesi kar/zararı ve dönem karı/zararı verileri kullanılmıştır. Trend, dikey ve oran analizi yapılarak bulgular değerlendirilmiştir. Analiz sonucunda pandemi döneminde şirketlerin giderlerinin anormal bir şekilde arttığı tespit edilmiştir. Şirketlerin hasılatlarının 2021 yılı itibariyle yükselmeye başladığı, 2022 yılında ise anormal bir oranda artış gösterdiği belirlenmiştir. Pandemi de yüksek tutarlarda giderlere katlanarak zarar eden şirketlerin, 2022 yılında pandemi önceki dönemden daha iyi bir karlılık performansı gösterdikleri bulgulanmıştır.

Anahtar Kelimeler: Havayolu şirketleri, Giderler, Karlılık, Finansal analiz, Finansal performans

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GENİŞLETİLMİŞ ÖZET

Literatür taraması

Ay, Seçme ve Topcu (2023) havayolu şirketlerinin kurumsal sürdürülebilirliğini COVovid-19 Pandemi döneminde incelemiştir. Analiz sonucunda şirketlerin performansının pandemiden olumsuz etkilendiği, beta katsayısı ve sistematik riskin arttığı tespit edilmiştir. Liao, Wu ve Yan (2022) Covid-19'un Çin'de faaliyet gösteren düşük maliyetli havayolu şirketlerine etkisini incelemiştir. Spring Airlines'ın diğer şirketlerden daha iyi bir performans gösterdiği tespit edilmiştir. Temel (2022) Covid-19 Pandemisinin havayolu şirketlerinin finansal performansına etkisini incelemiştir. Pegasus'un Türk Hava Yollarından daha fazla etkilendiği sonucuna ulaşılmıştır. Kurt ve Kablan (2022) Covid-19 Pandemisinin ulaştırma sektöründeki şirketlerin finansal performansına etkisini oran analizi yöntemi ile incelemiştir. Araştırma sonucunda pandeminin şirketlerin finansal performansını olumsuz yönde etkilediği, sektör tarihindeki en yüksek gelir kaybının yaşandığı ve maliyetleri azaltıcı tedbirlerin alınması gerektiği belirtilmiştir. Aman ve Altass (2021) Covid-19 Pandemisinin havayolu sektörüne etkisini incelemiştir. Sektörün eski performansına ulaşması için 4-5 yıl gerektiği belirtilmiştir. Warnock-Smith vd. (2021) Covid-19 Pandemisinin havayolu şirketlerinin faaliyetlerine etkisini incelemiştir. Analiz sonucunda pandeminin tüm şirketlerin operasyonlarını olumsuz yönde etkilediği ancak her şirketin pandemiden farklı derece de etkilendiği tespit edilmiştir. Erduru (2021) kara, deniz ve hava taşımacılık sektörlerinin Covid-19 Pandemi döneminde alınan tedbirlerden etkilenme durumunu araştırmıştır. Analiz sonucunda kara, deniz ve havayolu taşımacılık sektörlerinin aktif karlılık ile özsermaye karlılıklarının pandemiden negatif etkilendiği tespit edilmiştir. Dayı (2021) Covid-19 Pandemisinin havayolu şirketlerinin finansal performansına etkisini incelemiştir. Pandemi ile şirketlerin yolcu sayılarının azaldığı, borçlarının arttığı, gelirler ve net karlarının azaldığı tespit edilmiştir. Özdemir ve Akçakanat (2021) Covid-19 Pandemisinin turizm ve ulaştırma sektörüne etkisini incelemiştir. Hasılatın, esas faaliyet kar marjının ve özsermaye karlılık oranının 2Ç ve 3Ç verileri pandemi önceki ve sonraki dönemlerde farklılık gösterdiği tespit edilmiştir. Dağlı (2021) havayolu şirketlerinin finansal performanslarını Covid-19 Pandemi önceki ve sonraki dönemlerde incelemiştir. 2019 yılı 2Ç verilerine göre Pegasus, 2019 4Ç verilerine göre AFR-KLM şirketinin; 2020 2Ç verilerine göre ise Norveç Havayollarının en iyi performansı gösterdiği tespit edilmiştir. Maneenop ve Kotcharin (2020) Covid-19 Pandemisinin havayolu şirketlerinin değerine etkisini incelemiştir. Araştırma sonucunda şirketlerin finansal, istihdam, havalimanı hizmeti ve yönetim gideri politikalarında iyileştirici düzenleme yapmaları önerilmiştir.

Yöntem

Türk Hava Yolları Anonim Ortaklığı (THY) ve Pegasus Hava Taşımacılığı Anonim Şirketi (PGSUS) çalışmanın örneklemini oluşturmuştur. Çalışmada şirketlerin 2019, 2020, 2021 ve 2022 dönemi yıllık gelir tablosu verileri kullanılmıştır. Çalışmada hasılat, satışların maliyeti, brüt kar, genel yönetim, pazarlama ve finansman giderleri ile faaliyet, sürdürülebilir faaliyetler vergi öncesi ve dönem karı/zararı hesapları incelenmiştir. Gelir tablosundan elde edilen veriler ile dikey, trend ve oran analizleri yapılmıştır. Dikey analiz yönteminde finansal tablo hesaplarının yüzdesel dağılımı hesaplanmaktadır. Trend analizinde finansal tabloların yıllar içindeki gelişiminin trendi incelenmektedir. Oran analizi yöntemi finansal hesapların matematiksel olarak birbirlerine oranlanması esasına dayanmaktadır.

Bulgular ve tartışma

Bulgular incelendiğinde, 2020 yılında baz alınan yıla göre (2019) hesap grupları ve hesaplarda önemli bir değişimin olduğu görülmüştür. Pandemi'nin meydana getirdiği ekonomik sorunlar şirketlerin faaliyetlerine yansımıştır. THY'nin hasılatının pandemi de %38 azaldığı, 2021 yılında %30 ve 2022 yılında %314 arttığı tespit edilmiştir. PGSUS'un hasılatının pandemi de %56 ve 2021 yılında %3 azaldığı, 2022 yılında ise %288 arttığı belirlenmiştir. Pandemi de THY'nin satışların maliyetinin %29 azaldığı, 2021 yılında %21 ve 2022 yılında %280 arttığı bulgulanmıştır. PGSUS'un satışların maliyetinin pandemi de %27 azaldığı, 2021 yılında %27 ve 2022 yılında %288 arttığı tespit edilmiştir. Pandemi de THY'nin brüt karının %79 azaldığı, 2021 yılında %21 ve 2022 yılında %280 arttığı belirlenmiştir. PGSUS'un brüt karının pandemi de %147 azalarak zarar ettiği, 2021 yılında %96 azaldığı ve 2022 yılında ise %329 arttığı tespit edilmiştir. THY'nin genel yönetim giderlerinin pandemi de %10 azaldığı, 2021 yılında %25 ve 2022 yılında %177 arttığı tespit edilmiştir. PGSUS'un genel yönetim giderlerinin ise pandemi de %9 azaldığı, 2021 yılında %25 ve 2022 yılında %233 arttığı belirlenmiştir.

THY'nin pazarlama giderlerinin pandemi de %43 ve 2021 yılında % 6 azaldığı, 2022 yılında ise %190 arttığı tespit edilmiştir. PGSUS'un pazarlama giderlerinin ise pandemi de %46 ve 2021 yılında % 9 azaldığı, 2022 yılında %200 arttığı belirlenmiştir. THY'nin finansman giderlerinin pandemi de %238, 2021 yılında %339 ve 2022 yılında %535 arttığı tespit edilmiştir. PGSUS'un finansman giderleri ise pandemi de %15, 2021 yılında %116 ve 2022 yılında %402 arttığı belirlenmiştir.

Sonuç ve öneriler

Havayolu taşımacılık sektörü pandeminin neden olduğu ekonomik sorunlardan etkilendiği ve bu durumun havayolu şirketlerinin faaliyetlerine olumsuz yansıdığı görülmüştür. Pandemi de şirketlerin hasılatlarında yüksek tutarlarda düşüş görülmüştür. Bu dönemde satışların maliyetinin hasılatlar hesabından daha az oranda azaldığı; brüt satış zararının olduğu bulgulanmıştır. Pandemi de şirketlerin faaliyet giderlerinin azaldığı; finansman giderlerinin ise arttığı belirlenmiştir. Şirketler pandemi döneminde esas faaliyetlerinden zarar ettiği gibi dönem sonunda da dönem zararlarının olduğu bulgulanmıştır. Şirketlerin 2021 yılında faaliyetlerinde toparlanma olduğu ve 2022 yılında ise pandemi önceki dönemden (2019) daha iyi bir performans gösterdikleri tespit edilmiştir. Şirketlerin 2023 yılından itibaren daha iyi bir performans göstermeleri beklenmektedir.

Introduction

The novel coronavirus (Covid-19 pandemic) emerged in China in December 2019 and spread rapidly worldwide. Although governments took measures to slow its spread, it quickly spread across the globe. Governments enforced quarantines to control it, but mass lockdowns have been imposed without the desired success. The limited accessibility to public transportation and the suspension of intercity entrances and exits posed challenges, making transportation notably difficult. Due to restrictions, airline operations came to a standstill (Dayı, 2021). Airlines' investments and sales revenues decreased, negatively affecting their financial performance (Makni, 2023: 1). There was an unparalleled level of uncertainty surrounding shutdowns, encompassing uncertainties about their extent and duration, concerns about economic recovery, and speculation regarding the performance of financial markets in the future (Zhang, Ding, Hang and He, 2022: 1). The pandemic unleashed uncertainty with extensive adverse effects on healthcare, population mobility, and economic growth (Hu and Zhang, 2021: 365).

The uncertainty around the pandemic has significantly harmed the global economy and financial markets. It has also debilitated the capacity of the healthcare systems and initiated an adverse cascade, commencing with health repercussions and subsequently impacting social and economic spheres (Gandasari and Dwidienawati, 2020: 1). As the pandemic unfolded, its economic challenges had a detrimental impact on the airline transportation sector as well (Atems and Yimga, 2021: 1-2). While the sector played a pivotal role in fostering trade and tourism, the pandemic became a conduit for spreading infectious diseases. The preventive measures to curb coronavirus transmission prompted passengers to alter their transportation preferences (Rosa, 2022: 3103-3104). Furthermore, the uncertainty stemming from the pandemic, coupled with fluctuations in exchange rates and oil prices, directly contributed to the aviation sector's adverse conditions (Kim and Sohn, 2022: 1-2).

An effective management mechanism is crucial to stabilize crisis-related costs during the pandemic (Sucu, 2021: 2864). Airlines also took various measures to manage the crisis. During flight cancellations and grounding, airplanes were parked at various airports, incurring increased expenses due to parking fees. Nonetheless, certain airports, like Amsterdam Airport, chose not to levy parking fees for parked airplanes amid the pandemic. Long-term parking poses another challenge, as the risk of corrosion escalates when airplanes remain inactive for extended periods. Regular maintenance is essential for airplanes, even if not in use (Adrienne, Budd and Ison, 2020: 2). Airport businesses felt the adverse impact of the pandemic as well. The reduction in passenger numbers led to decreased revenues for airport operators (Wolle, 2021: 1). Airport operators incurred high fixed costs during the pandemic. Therefore, they needed to develop new business models based on sustainability for high operational efficiency, effective cost management, diversified revenues, and digitalization (Colak, Enoch and Morton, 2023: 1).

During the pandemic, airlines decreased flight frequency while maintaining operations with the personnel required for their scaled-down activities. They also sought resources to finance their expenses. Some airlines adopted a downsizing strategy by reducing their fleet size and canceling orders for new aircraft during the pandemic. We employed vertical, trend, and ratio analysis methods to analyze the expenses of two airlines before, during, and after the pandemic. Our findings will contribute to the literature by revealing the impact of the pandemic on airline costs.

Literature review

This section focuses on studies examining airlines' financial performance during the pandemic.

Ay, Seçme, and Topcu (2023) focused on corporate sustainability during the Covid-19 pandemic. They focused on corporate sustainability performance scores (2015-2021 period data) to assess 43 airlines' corporate sustainability. They developed a model consisting of nine variables. In addition to the three variables used for sustainability performance, they also included return on assets and beta in the model. They conducted panel data analysis and found that the pandemic negatively affected the airlines' financial performance. It increased beta coefficient and systematic risk.

Liao, Wu, and Yan (2022) investigated the impact of the Covid-19 pandemic on five low-cost Chinese airlines. They focused on the airlines' data for specific days in 2019, 2020, and 2021. They analyzed the companies' flight networks by routes, passenger numbers, and fleets during the pandemic. They found that Spring Airlines outperformed other airlines.

Temel (2022) investigated the impact of the Covid-19 pandemic on the performance of airlines. He used the ratio analysis to evaluate the financial performance of THY and Pegasus. He used financial statement information for 2020 and 2021 to calculate 18 ratios. The results showed that the pandemic measures negatively affected the airlines' liquidity, financial structure, operating performance, and profitability. They also found that Pegasus was more affected by the pandemic than Turkish Airlines (THY).

Kurt and Kablan (2022) used ratio analysis to examine the impact of the Covid-19 pandemic on the performance of nine transportation companies in the BIST. They used financial statement data from 2019-2020 to calculate nine ratios. They also included the General Directorate of State Airports Authority (DHMI), which is not traded on BIST, in the analysis for comparison. They used TOPSIS and MABAC methods to conduct the analysis. The results showed that the pandemic hurt the companies' financial performance. The companies experienced the highest revenue loss in the industry's history and had to take cost-cutting measures.

Aman and Altass (2021) used industry data from the world average and six continents to examine the impact of the Covid-19 pandemic on the airline industry. They focused on annual data from 2010-2020. They conducted ratio analyses to calculate operating profit margin (OPM), earnings before interest and taxes (EBIT), net profit margin (NPM), revenue passenger kilometers (RPK), available seat kilometers (ASK), and return on equity (ROE). They reported that while the sector performed well before the pandemic, revenues and profitability rates declined during the pandemic. They documented that the sector will reach its previous performance after four or five years.

Warnock-Smith et al. (2021) examined the impact of the Covid-19 pandemic on airlines' operations. They used operational and financial data from January 2017 to December 2020 to compare the domestic and international operations of the ten largest Chinese companies. They developed a model with total demand, fares, revenue ASK, RPK, and passenger numbers. They performed t-tests and trend and comparative analyses. The results showed that the pandemic had an adverse impact on the operations of all companies, but the pandemic affected each company to a different degree.

Erduru (2021) conducted a DuPont analysis on CBRT sector balance sheet data for the 2018-2020 period to investigate how Covid-19 pandemic measures affected the land, sea, and air transportation sectors. The results showed that the pandemic negatively affected the return on assets and equity of the land, sea, and air transportation sectors.

Dayı (2021) focused on annual reports and financial statement data from 2016-2020 to examine the impact of the Covid-19 pandemic on the financial performance of 20 airlines. He analyzed the variables of passenger revenue, number of passengers, number of aircraft, current assets, non-current assets, total assets, total debts, equity, revenue, and net profit. The results showed that the passenger numbers, revenues, and net profits decreased, leading to an increase in debts due to the pandemic.

Özdemir and Akçakanat (2021) focused on 11 quarters of data from 15 companies for 2018, 2019, and 2020 to investigate the impact of the Covid-19 pandemic on the tourism and transportation sectors. They developed a model of current ratio, sales, operating profitability, net profit margin, return on equity, and financial leverage. Using the Wilcoxon Signed Test, they analyzed the difference between the pre- and post-pandemic periods. The results showed that revenues, operating profit margin, and return on equity for the second-quarter and third-quarter data differed before and during the pandemic. They also found a significant difference in net profit margin in the second quarter data.

Dağlı (2021) focused on quarterly data for 2019 and 2020 to compare the performance of seven airlines before and after the Covid-19 pandemic. He used financial statements to calculate 13 ratios. He then

analyzed them using the TOPSIS methodology. He found that Pegasus (second quarter 2019 data), AFR-KLM (fourth quarter 2019 data), and Norwegian Airlines (second quarter 2020 data) performed the best.

Maneenop and Kotcharin (2020) examined the impact of the Covid-19 pandemic on airlines' value. For this purpose, they conducted an event analysis using daily data from January 13, February 21, and March 11, 2020, for 52 airlines listed on the stock exchange. They reported that stocks fell drastically after the World Health Organization and Donald Trump announcements. The researchers suggested that companies improve their financial, employment, airport service, and management expense policies.

Many researchers have studied the financial performance of airlines during the pandemic. However, there is a very small body of research on companies' expenses during the pandemic. This study examined the impact of the pandemic on the expenses of two airlines. Unlike previous studies, we focused directly on primary data (income statement data) to compare companies' expenses and profitability before, during, and after the pandemic. We made recommendations based on the results.

Methodology

This study investigated the impact of the Covid-19 pandemic on the expenses of two airlines: THY and Pegasus (PGSUS). Both companies are traded in Borsa Istanbul (BIST) (KAP, 2023). Data were collected from the companies' annual income statements for 2019, 2020, 2021, and 2022, pre- and post-pandemic periods were compared. This study is among the studies that do not require ethics committee approval due to use of publicly available data. 2019 was designated as the pre-pandemic period, 2020 as the pandemic period, and 2021 and 2022 as the post-pandemic period. This study focused on revenues, costs of sales, gross profits, general administrative expenses, marketing costs, operating profits/losses, financing costs, sustainable profits/losses before taxes (sustainable operations EBIT), and profits or losses for the financial year. Other expenses from operating and investing activities were not included in the analysis because their amounts were very low. The costs of the sales account, which constitutes an integral part of revenue, were analyzed in detail.

Vertical, trend, and ratio analyses were performed on the data from income statements. Financial analysis is based on the analysis of companies' current and prior year financial statement accounts using financial statement analysis methods. Financial analysis allows us to compare companies' past financial performance. Vertical, horizontal, trend, and ratio analyses are employed to analyze financial statements. Analysis methods should not be considered alternatives to each other because they complement each other's shortcomings. In other words, if we use financial statement analysis methods together, we can make a more realistic assessment of the financial position of companies (Karapınar and Zaif, 2016: 83).

Vertical analysis allows us to calculate the percentage distribution of financial statement accounts. The revenue account is typically considered 100 in income statements, while other accounts are allocated proportionately over this 100. Thus, we can quickly examine the percentage distribution of other accounts in revenue (Akgüç, 2013: 449). Trend analysis is another method for analyzing financial statements. Researchers use trend analysis to examine the trend of the development of financial statements over the years. In trend analysis, one year is chosen as the base year and is assumed to be 100. Values of other years are calculated over 100 based on the base year. Thus, the changes in companies compared to the base year are evaluated over 100 (Akdoğan and Tenker, 2007: 609). The relationship between interrelated accounts is analyzed using ratio analysis based on the mathematical ratio of financial accounts to each other. Thus, Ratio analysis enables researchers to assess and compare various aspects such as liquidity, financial structure, activity, and profitability of companies. It allows for comparisons with previous years' performance as well as with other companies within the same sector. This evaluation is conducted based on specific financial ratios, providing insights into the company's financial health and performance (Okka, 2015: 130-131). Table 1 shows the income statements of THY and PGSUS for 2019-2022.

Table 1: 2019-2022 Comparative income statements (TL)

	2019	2020	2021	2022
THY				
Revenue	75.118.000.000	46.448.000.000	97.378.000.000	311.169.000.000
Cost of sales	62.039.000.000	43.765.000.000	75.233.000.000	235.528.000.000
Gross Profit	13.079.000.000	2.683.000.000	22.145.000.000	75.641.000.000
General and Administrative Expenses	1.695.000.000	1.518.000.000	2.123.000.000	4.701.000.000
Marketing Expenses	8.015.000.000	4.542.000.000	7.573.000.000	23.209.000.000
Real Operating Profit/Loss	5.042.000.000	-1.382.000.000	13.547.000.000	48.811.000.000
Financing Expenses	1.746.000.000	5.906.000.000	7.660.000.000	11.081.000.000
Pre-tax Income from Continuing Operations	5.056.000.000	-6.101.000.000	9.191.000.000	51.403.000.000
Period Income/Loss	4.536.000.000	-5.588.000.000	8.214.000.000	47.432.000.000
PGSUS				
Revenue	11.025.224.523	4.803.559.909	10.664.406.707	42.732.213.696
Cost of sales	8.326.180.393	6.062.262.535	10.546.868.537	31.155.507.983
Gross Profit	2.699.044.130	-1.258.702.626	117.538.170	11.576.705.713
General and Administrative Expenses	302.553.091	274.563.009	378.551.090	1.007.032.961
Marketing Expenses	311.965.775	168.837.261	284.441.314	935.511.653
Real Operating Profit/Loss	2.061.983.008	-1.360.923.789	-611.875.719	9.675.473.711
Financing Expenses	755.105.856	871.821.987	1.632.686.297	3.790.556.116
Pre-tax Income from Continuing Operations	1.394.264.730	-2.024.844.603	-2.056.785.796	6.618.948.494
Period Income/Loss	1.334.567.915	-1.965.097.057	-1.972.478.349	7.100.145.148

THY's revenue, which was 75.118.000.000 liras in 2019, more than tripled to 311.169.000.000 liras in 2022. PGSUS' revenue increased 2.8 times from 11.025.224.523 liras in 2019 to 42.732.213.696 liras in 2022. THY's cost of sales, which was 62.039.000.000 liras in 2019, increased 2.79 times to 235.528.000.000 liras in 2022. PGSUS' cost of sales, which was 8.326.180.393 liras in 2019, increased 2.8 times to 31.155.507.983 liras in 2022. THY's gross profits increased 4.78 times from 13.079.000.000 liras in 2019 to 75.641.000.000 liras in 2022. PGSUS' gross profits increased 3.28 times from 2.699.044.130 liras in 2019 to 11.576.705.713 liras in 2022. THY's gross profits increased at a higher rate than those of PGSUS. THY's operating profit increased 8.68 times from 5.042.000.000 liras in 2019 to 48.811.000.000 liras in 2022. PGSUS' operating profit increased 3.69 times from 2.061.983.008 liras in 2019 to 9.675.473.711 liras in 2022. The operating profit of THY increased at a higher rate than PGSUS'. THY's profit for the period increased more than nine times from 4.536.000.000 liras in 2019 to 47.432.000.000 liras in 2022. PGSUS' profit for the period increased 4,3 times from 1.334.567.915 liras in 2019 to 7.100.145.148 liras in 2022. Comparing the 2019 and 2022 income statements, we see that THY's revenue, gross profits, operating profit, and profit for the period increased more than those of PGSUS, suggesting that THY outperformed PGSUS.

Findings and discussion

Financial statements analysis methods were used to investigate the impact of the Covid-19 pandemic on the expenses of THY and PGSUS. Trend, vertical, and ratio analyses were performed. The first, second, and third sections present the findings of trend analysis, percentage analysis, and ratio analysis, respectively.

Trend analysis results

In trend analysis, a base year is first determined. An ordinary period during which companies conduct their activities should be selected for the base year. This study aimed to examine the impact of the pandemic on airline expenses. The pandemic started in China in December 2019. Since Türkiye reported

its first confirmed case on March 11, 2020, 2019 was a normal operating period for airlines. 2019 was set as the base year to examine the impact of the pandemic on expenses. The 2019 income statement data was assumed to be 100 for trend analysis. Table 2 shows the findings.

Table 2: Trend analysis of income statements

	THY			PGSUS		
	2020	2021	2022	2020	2021	2022
Revenue	62	130	414	44	97	388
Cost of sales	71	121	380	73	127	374
Gross Profit	21	169	578	-47*	4	429
General and Administrative Expenses	90	125	277	91	125	333
Marketing Expenses	57	94	290	54	91	300
Real Operating Profit/Loss	-27*	269	968	-66*	-30*	469
Financing Expenses	338	439	635	115	216	502
Pre-tax Income from Continuing Operations	-121*	182	1017	-145*	-148*	475
Period Income/Loss	-123*	181	1046	-147*	-148*	532

* Values were negative due to losses in the related periods.

** Changes in 2020, 2021, and 2022 compared to the base year were calculated out of 100. The findings are evaluated below.

In 2020, there was a significant change in account groups and accounts compared to the base year (2019). The economic problems caused by the pandemic were reflected in the activities of THY and PGSUS. THY's revenue decreased by 38% during the pandemic but increased by 30% in 2021 and 314% in 2022. PGSUS' revenue decreased by 56% during the pandemic and 3% in 2021 and increased by 288% in 2022. The two companies' revenues dropped significantly during the pandemic, but their sales increased in the post-pandemic period. In particular, the revenues account showed a drastic increase in 2022.

THY's cost of sales decreased by 29% during the pandemic but increased by 21% in 2021 and 280% in 2022. PGSUS' cost of sales decreased by 27% during the pandemic but increased by 27% in 2021 and by 288% in 2022. The cost of sales decreased during the pandemic but steadily increased in 2021 and beyond. The cost of sales decreased to a lesser extent than revenues during the pandemic. Therefore, while revenues decreased, the cost of sales increased during the pandemic.

THY's gross profits decreased by 79% during the pandemic but increased by 21% in 2021 and 280% in 2022. PGSUS' gross profits decreased by 147% during the pandemic but decreased by 96% in 2021 and increased by 329% in 2022. PGSUS had a gross loss during the pandemic. PGSUS survived the pandemic in 2022. In 2022, the gross profits of the two companies increased drastically. Their gross profits increased at a higher rate than the increase in their costs of sales. In particular, THY's gross profits increased more than its revenues.

THY's general administrative expenses decreased by 10% during the pandemic but increased by 25% in 2021 and 177% in 2022. PGSUS' general administrative expenses decreased by 9% during the pandemic but increased by 25% in 2021 and 233% in 2022. Their general administrative expenses increased as of 2021. The increases in THY's general administrative expenses in 2021 and 2022 were lower than its revenue growth. PGSUS' general administrative expenses in 2021 increased more than its revenue.

THY's marketing costs decreased by 43% during the pandemic and 6% in 2021 but increased by 190% in 2022. PGSUS' marketing costs decreased by 46% during the pandemic and 9% in 2021 and increased by 200% in 2022. Their marketing costs were similar to each other. In 2021 and 2022, the increases in their marketing costs were less than their revenues.

THY's operating profit turned into an operating loss during the pandemic. Its operating profit increased by 169% in 2021 and 868% in 2022. PGSUS' operating profit turned into an operating loss during the pandemic and in 2021. Its operating profit increased by 369% in 2022. THY outperformed PGSUS in terms of operating profit.

THY's financing costs increased by 238% during the pandemic, 339% in 2021, and 535% in 2022. PGSUS' financing costs increased by 15% during the pandemic, 116% in 2021, and 402% in 2022. Their financing costs increased steadily in the period 2020-2022. The increases in their financing costs were higher than their revenues.

THY's loss before taxes from sustainable operations increased by 221% during the pandemic, while profit before taxes from sustainable operations increased by 82% in 2021 and 917% in 2022. PGSUS' loss before taxes from sustainable operations increased by 245% during the pandemic and 248% in 2021. Its profit before taxes from sustainable operations increased by 432% in 2022. THY's increase in profit before taxes from sustainable operations was higher than that of PGSUS.

THY's loss for the period increased by 123% during the pandemic, while its profit for the period increased by 81% in 2021 and 946% in 2022. PGSUS' loss for the period increased by 147% during the pandemic and 148% in 2021. Its profit for the period increased by 432% in 2022. THY's profit for the period increased more than that of PGSUS.

Table 3 shows the trend analysis findings of the cost of sales account, which has a significant revenue share.

Table 3: Trend analysis of cost of sales account

	THY			PGSUS		
	2020	2021	2022	2020	2021	2022
Fuel Cost	50	115	497	50	103	466
Depreciation and Amortization Expenses	135	178	359	141	182	288
Personnel Expenses	62	98	302	71	105	326
Ground Handling and Station Expenses	72	132	339	60	125	338
Overflight Expenses	65	130	317	62	133	334
Maintenance Expenses	69	116	326	61	165	339
Landing Expenses	61	129	301	49	114	309
Passenger Service and Catering Expenses	41	68	297	44	83	264
Other	119	116	226	88	160	351
Total	71	121	380	73	127	374

THY's fuel costs decreased by 50% in 2020 and increased by 15% in 2021 and 397% in 2022. PGSUS' fuel expenses decreased by 50% in 2020 and increased by 3% in 2021 and 366% in 2022. THY's depreciation and amortization expenses increased by 35% in 2020, 78% in 2021, and 259% in 2022. PGSUS' depreciation and amortization expenses increased by 41% in 2020, 82% in 2021 and 188% in 2022. Their depreciation and amortization expenses were similar in all years except for 2022. THY's personnel expenses decreased by 38% in 2020 and 2% in 2021, while it increased by 202% in 2022. PGSUS' personnel expenses decreased by 29% in 2020, while it increased by 5% in 2021 and by 226% in 2022. The increase in their personnel expenses was similar. While THY's ground handling and station expenses decreased by 28% in 2020, they increased by 32% in 2021 and 239% in 2022. PGSUS' ground handling and station expenses decreased by 40% in 2020, while they increased by 25% in 2021 and 238% in 2022. The increases in their ground handling and station expenses were similar except for the pandemic period. THY's overflight costs decreased by 35% in 2020 and increased by 30% in 2021 and 217% in 2022. PGSUS' overflight expenses decreased by 38% in 2020 and increased by 33% in 2021 and 234% in 2022. While THY's maintenance expenses decreased by 31% in 2020, they increased by

16% in 2021 and 226% in 2022. PGSUS' maintenance expenses decreased by 39% in 2020 and increased by 65% in 2021 and 239% in 2022. Pegasus had a drastic increase in maintenance expenses in 2021. The increases in their maintenance expenses were similar in all years except 2021. THY's landing expenses decreased by 39% in 2020 and increased by 29% in 2021 and 201% in 2022. PGSUS' landing expenses decreased by 51% in 2020, while they increased by 14% in 2021 and 209% in 2022. PGSUS had lower landing cost increases than THY in all years except for 2022. THY's passenger service and catering expenses decreased by 59% in 2020 and 32% in 2021, while they increased by 107% in 2022. PGSUS' passenger service and catering expenses decreased by 56% in 2020 and 17% in 2021, while they increased by 164% in 2022. PGSUS' passenger service and catering expenses increased more than THY's in all years except 2022.

Vertical analysis results

Vertical analysis was performed to examine the distribution of expenses in the income statement and the cost of the sales account group. The analysis included account groups and accounts with a significant share in airline expenses. A vertical analysis of the data for the 2019-2022 period was made by accepting the revenue account as 100. Data from 2019 was used for comparison. Table 4 shows the findings of the vertical analysis of the income statement.

Table 4: Vertical analysis of income statement (%)

	2019		2020		2021		2022	
	THY	PGSUS	THY	PGSUS	THY	PGSUS	THY	PGSUS
Cost of Sales	82,6	75,5	94,2	126,2	77,3	98,9	75,7	72,9
General and Administrative Expenses	2,3	2,7	3,3	5,7	2,2	3,5	1,5	2,4
Marketing Expenses	10,7	2,8	9,8	3,5	7,8	2,7	7,5	2,2
Financing Expenses	2,3	6,8	12,7	18,1	7,9	15,3	3,6	8,9

The highest expense in revenue was naturally the cost of the sales account group. The cost of sales as a percentage of revenue increased to 94.2% for THY and 126.2% for PGSUS during the pandemic compared to the previous period. PGSUS' cost of sales was 26% higher than the revenue. Overall, the companies' sales cost as a revenue percentage started to decline in 2021, falling to 75.7% for THY and 72.9% for PGSUS in 2022, outperforming 2019.

Marketing, financing, and general administrative expenses are the expenses with the highest share of revenue after the cost of sales. In 2019-2022, the share of general administrative expenses in revenues varied between 1,5% and 3,3% for THY and 2,4% and 5,7% for PGSUS. General administrative expenses increased during the pandemic. As of 2021, the share of general administrative expenses in revenue has decreased. The share of general administrative expenses in revenue in 2022 was lower than in 2019.

In 2019-2022, marketing costs as a percentage of revenue ranged between 7.5% and 10.7% for THY and between 2.2% and 2.8% for PGSUS. PGSUS had a lower share of marketing costs in revenues than THY. THY's share of marketing costs increased during the pandemic, while PGSUS' share decreased. As of 2021, the share of marketing costs in revenue decreased. The share of marketing costs in revenue was lower in 2022 than in 2019.

In 2019-2022, the share of financing costs in revenue varied between 2.3% and 12.7% for THY and 6.8% and 18.1% for PGSUS. During the pandemic, the share of their financing costs in revenue increased. The share of financing costs in revenue started to decrease as of 2021 but did not decrease to the rate in 2019. Investigating the reasons for the increase in financing costs due to the pandemic is recommended. Table 5 shows the vertical analysis of the cost of sales account group.

Table 5: Vertical analysis of income statement (%)

	2019		2020		2021		2022	
	THY	PGSUS	THY	PGSUS	THY	PGSUS	THY	PGSUS
Fuel Cost	35	38	25	26	34	31	46	47
Depreciation and Amortization Expenses	13	18	25	35	20	26	13	14
Personnel Expenses	15	15	13	15	12	12	12	13
Ground Handling and Station Expenses	7	9	8	7	8	9	7	8
Overflight Expenses	5	7	5	6	5	7	4	6
Maintenance Expenses	7	5	7	4	7	6	6	4
Landing Expenses	6	4	5	3	6	3	5	3
Passenger Service and Catering Expenses	6	1	3	1	3	1	4	1
Other	5	4	9	5	5	5	3	4
Total	100	100	100	100	100	100	100	100

The expenses with the highest share in the cost of sales account group were fuel, depreciation, amortization, and personnel expenses, respectively. In all years except 2020, fuel expenses had the largest share in the cost of sales account group. In 2019-2022, fuel costs as a percentage of revenue ranged between 25% and 46% for THY and 26% and 47% for PGSUS. Fuel costs fell during the pandemic. As of 2021, the share of fuel expenses in the cost of sales increased. In 2019-2022, depreciation and amortization expenses as a percentage of revenue ranged between 13% and 25% at THY and between 14% and 35% at PGSUS. While depreciation expenses increased during the pandemic, they started to decline as of 2021. THY's depreciation and amortization as a percentage of the cost of sales was lower than that of PGSUS. In the 2019-2022 period, the share of personnel expenses in revenue varied between 12% and 15%. The personnel expenses of the two companies were in line with each other. During the pandemic, THY's share of personnel expenses in revenue was lower than that of PGSUS.

Between 2019 and 2022, the share of ground handling and station expenses in cost of sales ranged between 7% and 8% for THY and 7% and 9% for PGSUS. The share of THY's ground handling and station expenses in cost of sales was lower than that of PGSUS in all years except for the pandemic. During 2019-2022, the share of overflight expenses in the cost of sales varied between 4% and 5% for THY and 6% and 7% for PGSUS. THY had a lower share of overflight expenses in the cost of sales than PGSUS. In 2019-2022, the share of maintenance expenses in the cost of sales varied between 6% and 7% for THY and 4% and 6% for PGSUS. PGSUS had a lower share of maintenance expenses in the cost of sales than THY. During 2019-2022, the share of landing expenses in the cost of sales varied between 5% and 6% for THY and 3% and 4% for PGSUS. PGSUS had a lower share of landing expenses in the cost of sales than THY. During 2019-2022, passenger services and catering as a percentage of the cost of sales varied between 3% and 6% at THY, compared to 1% at PGSUS. PGSUS is a low-cost company, and therefore, catering is charged. On the other hand, THY's passenger and catering services are free of charge. Therefore, PGSUS had a lower share of passenger service and catering expenses in the cost of sales than THY.

Ratio analysis results

Ratio analysis was used to examine the profitability of THY and PGSUS. The data from 2019 was used for comparison. Gross profit margin, operating profit margin, and net profit margin were calculated within the scope of ratio analysis. Table 6 shows the findings of the ratio analysis.

Table 6: Ratio analysis findings

	2019		2020		2021		2022	
	THY	PGSUS	THY	PGSUS	THY	PGSUS	THY	PGSUS
Gross Profit Margin	0,17	0,24	0,06	-0,26*	0,23	0,01	0,24	0,27
Operating Profit Margin	0,07	0,19	-0,03*	-0,28*	0,14	-0,06*	0,16	0,23
Net Profit Margin	0,06	0,12	-0,12*	-0,41*	0,08	-0,18*	0,15	0,17

* Ratios are negative as there is a loss in the related account.

THY's gross profit margin was 17% in 2019, 6% in 2020, 23% in 2021, and 24% in 2022. PGSUS' gross profit margin was 24% in 2019, -26% in 2020 (gross loss margin), 1% in 2021, and 27% in 2022. Their gross profits decreased during the pandemic. During the pandemic, their sales declined, and their revenues fell. Their cost of sales as a share of revenue increased, and gross profit margins rose. The gross profit margin started to increase in 2021 and reached its highest rate in 2022. Their gross profit margin in 2022 was also higher than in 2019.

THY's operating profit margin was 7% in 2019, -3% in 2020 (operating loss margin), 14% in 2021, and 16% in 2022. PGSUS' operating profit margin was 19% in 2019, -28% in 2020 (operating loss margin), 6% in 2021 (operating loss margin), and 23% in 2022. THY profited from its main operations in all years except for the pandemic. PGSUS incurred a loss from its main operations during the pandemic and in 2021, but its operating profit in 2022 was higher than the previous three years.

THY's net profit margin was 6% in 2019, -12% in 2020 (net loss margin), 8% in 2021, and 15% in 2022. PGSUS' net profit margin was 12% in 2019, -41% in 2020 (net loss margin), 18% in 2021 (net loss margin), and 17% in 2022. THY had a net loss during the pandemic. Its net profit margin in 2021 and 2022 was higher than in 2019. PGSUS' loss for the period during the pandemic was high. It continued to make a loss in 2021, but in 2022 it reached a higher net profit margin than in 2019. It is noticeable that when collectively assessing the profitability ratios of the companies, there was a period during the pandemic marked by substantial losses. However, in 2021, there was a notable recovery in operations, and by 2022, they demonstrated a better profitability performance compared to the pre-pandemic period of 2019.

Results and recommendations

The economic challenges triggered by the pandemic significantly affected the airline transportation sector, negatively impacting airline operations. Restrictive measures taken during the pandemic period caused airlines' revenues declined sharply. During this period, the cost of sales decreased to a lesser extent than the revenue account, and airlines were making gross losses. While airlines' operating expenses decreased, their financing costs increased during the pandemic. During the pandemic, airlines incurred losses from their main operations. During the pandemic, they had losses for the period. They experienced a rebound in activity in 2021 and outperformed the pre-pandemic period (2019) in 2022. During the pandemic period, airlines' revenues dropped suddenly and sharply. Even though airlines stopped their operations, they continued to incur expenses. For this reason, the decrease in airlines' revenues was higher than their expenses during the pandemic period. While the restriction measures taken did not reduce the expenses of the companies, they increased their revenues at a low rate.

THY's and PGSUS' revenues decreased during the pandemic, increased from 2021 onwards, and peaked in 2022. Changes in the cost of sales accounts were similar over the years. Their fuel, personnel, ground

handling, overflight, and maintenance and repair expenses had a significant share in their cost of sales. Their marketing, financing, and general administrative expenses have the highest share in revenue after the cost of sales. Their general administration and marketing costs increased during the pandemic and decreased in the following periods. On the other hand, their financing costs increased at an abnormal rate during the pandemic, trended downward in 2021, but increased at a higher rate in 2022 than in 2019. Fuel, depreciation and amortization, and personnel expenses accounted for the largest share of the cost of sales. In all years except 2020, fuel costs are the greatest expense in sales. During the pandemic, fuel expenses decreased due to the fall in oil prices but increased in the following years. Depreciation and amortization expenses increased during the pandemic but entered a downward trend as of 2021. Personnel expenses decreased only at THY during the pandemic. Measures may have been taken to reduce personnel costs in the cost of sales. THY's share of maintenance, landing, passenger service, and catering expenses in the cost of sales was higher than Pegasus'. On the other hand, PGSUS had higher overflight costs than THY. THY had higher catering costs than PGSUS.

While THY and PGSUS made losses during the pandemic, they recovered their operations in 2021 and performed better in 2022 than in the pre-pandemic period (2019). After the pandemic, gross profit margin increased as the cost of sales decreased as a share of revenue. Operating profit margin increased after the pandemic due to lower operating expenses. While THY and PGSUS had losses for the period during the pandemic, they switched to profit in 2021. Their net profit margins in 2022 were higher than in the pre-pandemic period (2019). PGSUS made losses in 2020 and 2021. THY incurred losses only during the pandemic and generally performed better than PGSUS in terms of profitability.

All in all, THY outperformed PGSUS. Although THY and PGSUS performed successfully in the years after the pandemic, they will face economic problems caused by the pandemic in the coming years. Therefore, governments are trying to reduce consumption, lower inflation, and increase savings by introducing tight monetary and fiscal policies to curb global inflationary pressures in the post-pandemic period. Higher interest rates cause airlines to face higher financing costs. Since airlines cannot increase their sales in the short term, they can only increase their profits by reducing their costs and expenses. They should pursue a policy of minimum cost and maximum benefit without compromising on quality. They can use derivative financial instruments to reduce fuel costs and hedge currency risk. Even if they use derivative financial instruments to hedge currency risk, they need to pay more attention to financial analysis in determining financial position and performance. They should base their human resource management on efficiency and effectiveness to reduce personnel costs. In order to reduce ground handling costs, they should choose the optimum options between performing and outsourcing services. They should negotiate with airport operators to reduce landing and overflight costs. Airlines should avoid unnecessary costs by canceling destinations with high-cost flights. In cities with more than one airport, they should use airports that offer lower-cost services. Costs and expenses will increase for a few more years due to high inflation in Türkiye. Airlines need to consider rising costs and exchange rates when planning their domestic and international passenger schedules. Researchers should employ statistical or econometric methods to examine the impact of expenses on revenues and profits.

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Ethical approval

This study is among the studies that do not require ethics committee approval due to use of publicly available data.

Contribution rate of researchers

The authors contributed equally to the study.

Conflict of interest

There is no potential conflict of interest in this study.