Research Article

Analysis of A DuPont Approach and MABAC Method of The Financial Performance of Airlines in Europe

Avrupa'daki Havayolu Şirketlerinin Finansal Performanslarının DuPont Yaklaşımı ve MABAC Yöntemi ile İncelenmesi

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Abstract

The transportation sector is one of the sectors negatively affected by the COVID-19 Pandemic. In the transportation sector, passenger transportation is one of the sectors most affected by the pandemic. While the share of airline passenger transportation in the overall transportation sector may not be very high, it plays a crucial role in spreading the pandemic due to its extensive use in international travel. Airline passenger transportation, holding a substantial market share in the passenger transportation sector, was also adversely affected by the pandemic. This paper investigated the pandemic's impact by comparing airlines' financial performance before and after the pandemic. According to Skytrax, the study focused on 2019-2022 annual data for the seven best airlines in Europe. Unlike earlier studies, this study compared DuPont and MABAC analysis to evaluate the financial performance of the airlines. Microsoft Excel analyzed net profit/ loss, revenue, total assets, current liabilities, non-current liabilities, total liabilities and equity, and total equity data. Return on Sales (ROS), Asset Turnover, ROA (Return on Assets), equity multiplier, and ROE (Return on Equity) values were used in DuPont and MABAC analysis. The results show that KLM (2019, 2020, and 2022) and Turkish Airlines (2021) are the best in Europe because of their financial performance.

Keywords: DuPont, Airline Transportation, Skytrax, Financial Performance, MABAC

Öz

COVID-19 Pandemisinin olumsuz etkilediği sektörlerin başında ulaştırma sektörü gelmektedir. Ulaştırma sektöründe yolcu taşımacılığı pandeminin en çok etkilendiği sektörlerdendir. Havayolu yolcu taşımacılığı ülkeler arası ulaşımda yoğun bir şekilde kullanıldığından pandeminin yayılmasında önemli bir paya sahiptir. Yolcu taşımacılık sektöründe önemli bir pazar payına sahip olan havayolu taşımacılığının da pandemiden olumsuz yönde etkilendiği görülmektedir. Bu amaçla havayolu firmalarının finansal performanslarının pandemi öncesi ve sonraki dönemleri karşılaştırılarak pandemiden etkilenme durumlarının incelenmesinin literatüre katkı sağlaması amaçlanmaktadır. Çalışmada Skytrax'e göre Avrupa'daki en iyi 7 havayolu firmasının 2019-2022 yıllık verileri kullanılmaktadır. Finansal performans değerlendirmesinde kullanılan yöntemlerden farklı olarak bu çalışmada DuPont yaklaşımı ile MABAC yöntemi karşılaştırılarak firmaların finansal performansları değerlendirilmektedir. Finansal tablolardan elde edilen net kâr/zarar, hasılat, toplam aktif, kısa vadeli yabancı kaynaklar, uzun vadeli yabancı kaynaklar, toplam pasif ve özkaynaklar verileri Microsoft Excel programında oran analizi yöntemiyle analiz edilerek satışların karlılığı, aktif devir hızı, aktif karlılık oranı, özsermaye çarpanı ve özsermaye karlılık oranları hesaplanmıştır. Elde edilen oranlar DuPont ve MABAC

yöntemleriyle analiz edilmiştir. Analiz sonucunda en iyi performansı gösteren firmaların KLM (2019, 2020 ve 2022) ve THY (2021) olduğu tespit edilmiştir.

Anahtar Kelimeler: *DuPont, Havayolu Taşımacılığı, Skytrax, Finansal Performans, MABAC*

1. Introduction

Firms are established with various goals, including making a profit, ensuring survival, maximizing shareholders' welfare, fulfilling social responsibilities, or realizing ideological objectives. According to economic theory, profit maximization is set as a goal. According to finance, profit maximization is not a straightforward concept, so maximizing shareholder wealth is a more accurate approach (Gönenli, 1978, p.11). Profit maximization is not regarded as a goal since it does not consider the expected cash flows and riskiness of investments (Ercan & Ban, 2012, p.13). Therefore, firm management aims to maximize the welfare of its shareholders rather than solely focusing on profit maximization. The maximization of shareholders' welfare refers to maximizing shareholders' shares in the firm within a specified period (Okka, 2018, p.27). Firms should protect the interests of shareholders and carry out policies to meet their expectations. However, a firm needs effective risk management to manage its assets optimally by achieving target profit and profitability (Koşan & Karadeniz, 2013, p.45). For this, firm managers should make policies and decisions to meet shareholders' expectations by considering the balance between risk and return. However, natural disasters (earthquakes, floods, and pandemics) negatively affect the global economy. The COVID-19 pandemic has adversely affected all economies (Rababah et al., 2020, p.1). It has also negatively impacted global sectors and systems, including health, agriculture, manufacturing, energy, education, and socio-economic systems (Abid et al., 2022, p.1). The detrimental impact of the pandemic on firm performance is contingent on countries' health systems and development levels (Hu & Zhang, 2021, p.365).

The pandemic has adversely affected the entire economy, including the transportation and logistics sectors (Warnock-Smith et al., 2021, p.1; Alnıpak & Kale, 2021, p.140). Preventive measures in response to the pandemic brought road and air transportation activities to a standstill (Periokaitė & Dobrovolskienė, 2021, pp.34-36). After the first pandemic case, flights to countries with high transmission rates and high numbers of patients were canceled. Governments introduced travel restrictions and curfews to slow the spread of the virus. In specific periods, some countries decided to implement shutdowns (Hopancı et al., 2021, p.459). During these periods, airlines halted their operations entirely. After lifting the lockdown, countries decided to allow airlines to continue their operations with certain restrictions and safety measures, such as vaccination, leaving middle seats empty, wearing face masks, no food and beverage service onboard, and no carry-on baggage (Suau-Sanchez et al., 2020, p.2). Concerns about contamination and restrictions in airline transportation led to an increased preference for individual road transportation over collective air transportation. Airlines made a loss in 2020 due to reduced demand in the face of high fixed costs.

Unlike the previous ones, the study compares the findings obtained using the Dupont approach and the MABAC method. Researchers employ the DuPont approach to investigate the relationship between firms' asset turnover and net profit margin, aiming to unveil how the mutual effect between the ratios influences profitability (Akgüç, 1998, pp.83-85). The DuPont approach offers insights into how businesses can enhance their return on investment. Financial performance is assessed by analyzing the interplay between sales, assets, and profitability (Çabuk & Lazol, 2016, p.228). With the MABAC method, companies' financial performances over the years can be ranked.

If we examine the financial performance of a business, we can assess how it will achieve its goals and objectives. There is a large body of research into airlines' financial performance. However, only a few researchers have investigated the impact of the pandemic on airlines' financial performance. Unlike earlier studies, this study adopted the DuPont approach and MABAC method to address the effect of the pandemic on airlines' financial condition and performance.

2. Literature

This section reviewed the literature on the DuPont approach and provided a brief conceptual explanation. The studies in the literature were examined and collected under the title of literature review.

2.1. Dupont Approach

The DuPont approach was developed by F. Donaldson Brown, an engineer at DuPont Corporation, in 1919. The company also developed a ratio analysis method and combined it with the DuPont approach to assess its effectiveness. Based on a system of controls, the DuPont approach relies on ratio analysis to assess investment

returns. The return on investment or earning power of assets is calculated by multiplying the net profit margin by asset turnover (Horne & Wachowicz, 2009, p.150):

Return on Assets = Return on Sales X Asset Turnover

Net profit margin or asset turnover alone cannot assess a firm's efficiency. Net profit margin ignores the efficient use of firm assets, while asset turnover ignores sales profitability. Both net profit margin and asset turnover are used to fill the gap because there may be two companies with the same return on assets ratio but different net profit margin and asset turnover ratios. For example, Company A has a net profit margin of 0.1 and an asset turnover of 2. Company B has a net profit margin of 0.2 and an asset turnover of 1. This means that both companies have a return on assets ratio of 0.2. Therefore, an increase in sales, an increase in net profit margin, or both can enhance the earning power of the companies. Return on Equity (ROE) is another measure of firm performance. ROE is the net profit margin divided by equity (Horne & Wachowicz, 2009, pp.150-151):

Return on Equity = Net Profit / Total Shareholders' Equity

ROE also assesses return on sales and efficient use of assets. The more a firm reduces its expenses, manages its costs effectively, and capitalizes on investment opportunities, the higher its ROE will be. The DuPont approach is given below (Horne & Wachowicz, 2009, p.151):

ROE = Return on Sales X Asset Turnover X Equity Multiplier

Return on equity is calculated by multiplying the return on sales, asset turnover, and equity. In this way, return on sales, efficient use of assets, and the impact of debt on profitability are measured together. By comparing the assets of two firms with the same ROE, we can evaluate whether they are utilizing their assets efficiently (Horne & Wachowicz, 2009, p.151). Figure 1 shows the DuPont approach tailored to airlines.
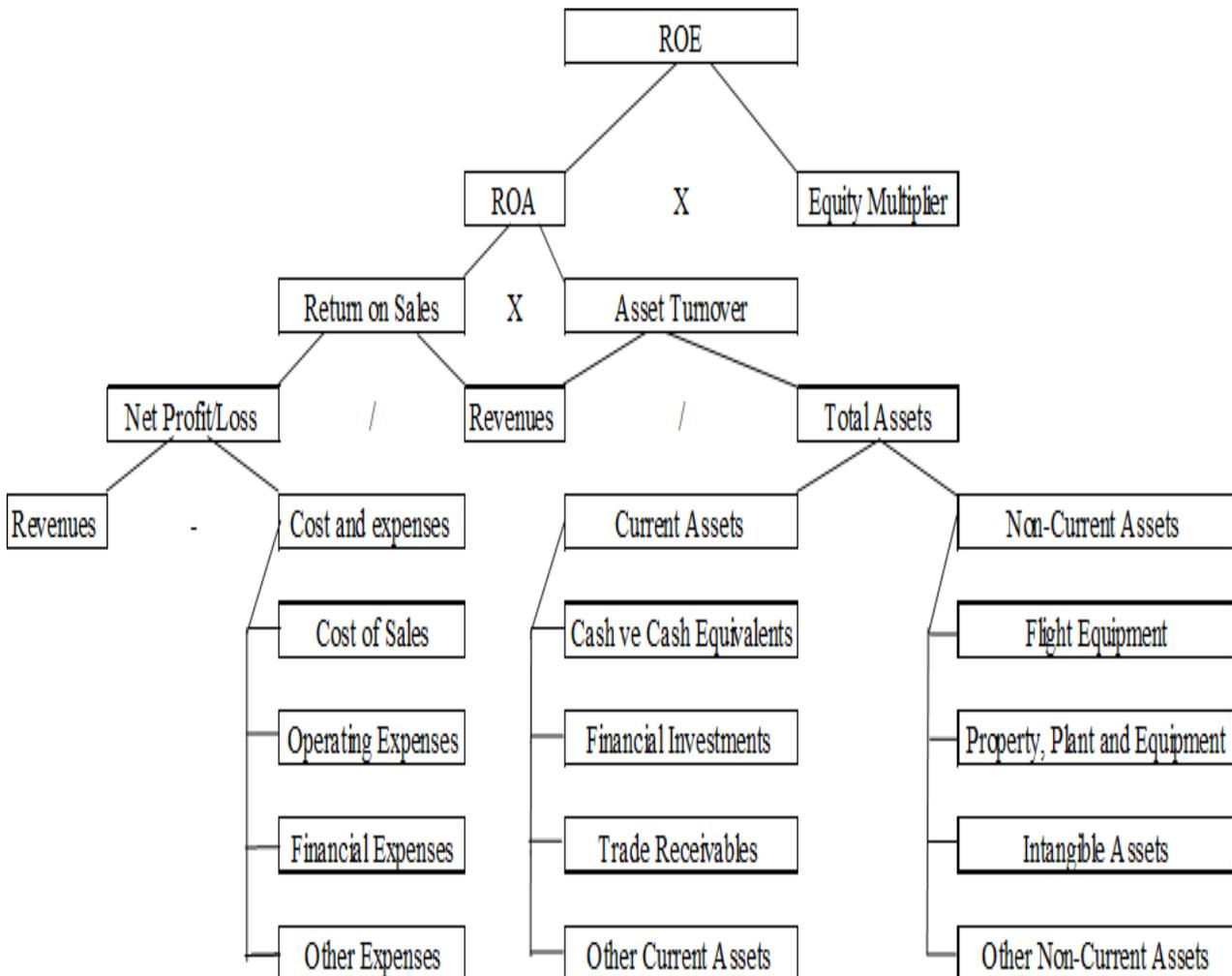

Figure 1: DuPont approach

Source: Edited by the authors

Return on equity (ROE) is the return on assets (ROA) multiplied by equity multiplier (EM). Return on assets is the return on sales (ROS) multiplied by asset turnover (AT). Asset turnover is sales divided by total assets. These ratios allow researchers to determine whether a company uses its assets efficiently. A firm has a high asset turnover if it uses its current and non-current assets efficiently. It can use its current assets effectively only if it uses cash and cash equivalents, financial investments, trade receivables, and other receivables effectively. Moreover, it can use its fixed assets efficiently only if it uses its flight crew, property, plant and equipment, intangible assets, and other fixed assets effectively. Return on sales is net profit divided by sales. A firm interested in increasing its net profit margin should examine the factors affecting it and take measures to increase the profitability of its sales. It should reduce the costs of sales, operating, marketing, financial expenses, and other expenses. Among firms with the same sales revenues, those that effectively reduce their expenses can earn higher net profits, consequently increasing the profitability of their sales. To achieve the target profitability, a firm should carry out its activities by considering ratios and accounts (Akgüç, 1998, pp.83-86).

2.2. Literature Review

The pandemic has had a detrimental impact on the performance of airlines. Performance is a very comprehensive concept. Therefore, many researchers have examined the financial and operational performance of firms. This section addressed the literature concerning the effect of COVID-19 on the financial performance of firms.

Mintah and Gulko (2023) focused on the annual data of 16 airlines for 2018-2020 (net profitability margin, leverage ratio, and liquidity ratio) to investigate the impact of the COVID-19 pandemic on their financial and social performance. They found that the pandemic adversely affected the financial performance of the airlines, leading to increased debts and decreased liquidity and profitability.

Ay, Seçme, and Topcu (2023) focused on the data of 43 airlines for the period 2015-2021 to examine the relationship between corporate sustainability performance, financial performance, and systematic risk during the pandemic. They analyzed panel data using environmental, social, and governance performance scores, return on assets ratio, and Beta coefficient variables. They reported a positive correlation between corporate sustainability performance and financial performance. They concluded that the pandemic adversely affected the airlines' financial performance.

Fontanet-Perez, Vazquez, and Carou (2022) focused on annual data for the period 2014-2019 and developed a model of eight variables to investigate the impact of the pandemic on ten American domestic airlines' financial performance. Despite significant financial losses, they documented that ultra-low-cost and low-cost airlines outperformed traditional airlines.

Temel (2022) stated that the preventive measures in response to the pandemic adversely impacted the airline sector, causing significant damage to the global economy and healthcare system. He focused on the 2020-2021 data of Turkish Airlines (THY) and Pegasus. He calculated 18 ratios based on ratio analysis to investigate the pandemic's impact on their financial performance. The results indicated that the preventive measures adversely affected the airlines' financial conditions. He added that the pandemic affected Pegasus more adversely than THY.

Kurt and Kablan (2022) focused on data from the 2019-2020 period to examine the impact of the pandemic on the financial performance of nine firms in the transportation sector. They calculated nine ratios through ratio analysis and analyzed them using the TOPSIS and MABAC methods. Additionally, they compared the data from the State Airports Authority (DHMI). The results indicated that the firms exhibited abysmal financial performance during the pandemic.

Batu Ağırkaya and Keleş (2022) assessed the relationship between performance, employment, and growth to investigate the impact of the pandemic on airlines' financial performance. They calculated 16 ratios by performing a ratio analysis based on the data of the Central Bank of the Republic of Turkey's (CBRT) transportation sector balance sheet for 2019 and 2020. They reported that the pandemic adversely affected the aviation sector.

Periokaitė and Dobrovolskienė (2021) stated that the pandemic had positive and negative effects on the Lithuanian transportation sector, but the adverse effects were more severe. They emphasized that the impact of the pandemic was most pronounced in air transportation. They mentioned that road transportation was also negatively affected by the pandemic. They determined that the crisis caused by the pandemic negatively affected the financial performance of the firms according to their activity levels.

Erduru (2021) used three-year (2018, 2019, and 2020) sectoral balance sheet data from CBRT database to investigate the impact of preventive measures on the transportation sector during the pandemic. They conducted a DuPont analysis to evaluate the findings. The results showed that the pandemic negatively affected the transportation sector's profitability (return on assets and equity). The results also indicated that the pandemic hit the airline industry most severely, while it hit maritime transportation the least.

Dayı (2021) focused on operational and financial statement data of 20 airlines for the period 2016-2020 to investigate the impact of the pandemic on their financial and operational performance. He used various metrics (passenger revenue, number of passengers, aircraft, and net profit) to assess operational and financial performance. During the pandemic, firms experienced a decline in passenger numbers and revenue while they had higher debts and losses.

Özdemir and Akçakanat (2021) focused on quarterly data for 2018-2020. They compared the financial performance of 15 firms before and after the pandemic to investigate the impact of the pandemic on the tourism sector. They used the Wilcoxon signed rank test on such variables as current ratio, operating profitability, and net profit margin. The results showed that the operating profit margin and equity profitability ratio Q2 and Q3 data differed before and after the pandemic. Net profitability margin showed a significant difference only in Q2 data.

Dağlı (2021) focused on quarterly data from 2019 and 2020 to investigate the pandemic's impact on seven airlines' financial performance. He used the TOPSIS method to analyze 13 ratios calculated from financial statements. The results suggested that Pegasus, AFR-KLM, and Norwegian Airlines performed the best in different periods.

Saban and Trabzon (2021) focused on the 2019-2020 data of THY to determine the impact of the pandemic on airlines' financial and operational performance. They used comparative tables and ratio analysis methods to evaluate THY's performance based on financial and operating metrics. They found that THY's low revenues and high costs led to a loss for the period.

There is a large body of research into airlines' financial performance during the pandemic. The researchers have used various methods (ratio analysis, TOPSIS, et al.). Unlike earlier studies, this study employed the DuPont approach involving return on sales, asset turnover, and equity multipliers. This study conducted a company-based analysis rather than a sector-based analysis that was in line with the purpose of the DuPont approach. It was also compared with the MABAC method. We believe this original study will contribute to the literature and pave the way for further research.

3. Aim, Dataset, and Method

Skytrax conducts surveys and collects data from passengers to determine the year's best airline. This study investigated whether the top airlines in 2023 achieved the same success in their financial performance. This is one of the first studies to adopt the DuPont approach to assess airlines' financial performance. The DuPont approach focuses on return on sales, return on assets, and return on equity. The MABAC method, one of the multi-criteria decision-making techniques, is used in the study. MABAC is a method that evaluates the functions of the criteria in decision alternatives according to the border area distance. It is a method that determines the best among alternatives based on the criteria determined in a decision-making process with many criteria (Acuner ve Yerdelen Kaygın, 2021). There are seven stages in the MABAC method. In the first stage, the decision matrix is created. In the second stage, the moralization process is carried out. In the third stage, decision matrices are weighted. In the fourth stage, the border proximity area matrix is created. In the fifth stage, the distances of the decision alternatives to the border proximity area are determined. In the sixth stage, situations are determined according to their proximity. In the seventh stage, decision alternatives are listed (Sönmez, 2023). In the MABAC method, the ratios used (ROE, ROA, ROS, Asset Turnover, and Equity Multiplier) in the DuPont approach are analyzed by giving equal weight by comparing the findings obtained from the two methods. Therefore, we think this study will significantly contribute to the literature and pave the way for further research. The sample consisted of the top ten airlines in Europe (Skytrax, 2023). Turkish Airlines (THY) was recognized as the best airline in the Skytrax Europe region in 2023. THY's data were derived from the Public Disclosure Platform (KAP, 2023). Data for the other six companies were obtained from their annual reports on their websites (look at table 1).

Table 1 shows the top ten airlines according to Skytrax (2023). The data source and the currencies of the companies are also given in the table.

Table 1: Top Ten Airlines according to Skytrax

Rank	Airlines	Currency	Reference	Codes
1	Turkish Airlines	Turkish Lira	(THY, 2023)	THY
2	Air France	Euro	(AirFranceKLM, 2023)	AFKLM
3	*Swiss Int. Air Lines*	*	*	SWISS
4	Iberia (IAG)	Euro	(IAG, 2023)	IAG
5	*British Airways*	*	*	BA
6	Lufthansa	Euro	(LG, 2023)	LG
7	Virgin Atlantic	GBP	(VA, 2023)	VA
8	Finnair	Euro	(FA, 2023)	FA
9	KLM Royal Dutch Airlines	Euro	(KLM, 2023)	KLM
10	*Austrian Airlines*	*	*	AA

Note: "*" It was left blank as it was not used in the analysis.   **Source:** Skytrax, 2023.

International Airlines Group (IAG, 2023) has consolidated financial statements by combining British Airways, Iberia, Vueling, Aer Lingus, and LEVEL. Air France and KLM merged to form Air France-KLM. Lufthansa Group includes Lufthansa German Airlines and Swiss Int. Air Lines, Austrian Airlines, Brussels Airlines, and Eurowings (LG, 2023). Swiss Int. Air Lines, British Airways, and Austrian Airlines were not included in the analysis because it was impossible to analyze their financial performance.

Since the pandemic hit in 2020, comparing the periods before and after the pandemic was necessary to assess whether 2022 was an average year. Firms may have performed worse in 2022 than in 2019. Annual data for the 2019-2022 period were used in the present study. Thus, this study also examined the impact of 2023 data on the operating performance of the top airlines in 2022. Net profit/loss, revenue, total assets, current liabilities, non-current liabilities, total liabilities, and total equity were calculated based on the airline's financial statements. These parameters were analyzed (Microsoft Excel) to calculate return on sales (ROS), asset turnover, ROA, equity multiplier, and ROE. The DuPont approach tabulated these ratios.

The DuPont approach is based on examining firms' equity profitability. Ratios that affect equity profitability are used to analyze it. Return on sales, asset turnover, and equity multiplier are used to examine the factors affecting equity profitability on a firm-by-firm basis. The sector-based DuPont approach may lead to erroneous firm-by-firm decisions because firms with the same equity profitability may have different operating results. One firm may use its assets more efficiently, while the other may have a higher return on sales. Hence, the decisions made at the sector level differ from those made by individual firms. Firms should make decisions autonomously to enhance their financial performance. Thus, the DuPont Approach and its MABAC Method allow us to make recommendations for firms to improve their financial performance by individually comparing before and after the pandemic.

4. Findings and Discussion

This section presented DuPont and its MABAC findings regarding the airlines. The DuPont approach also provides the financial accounts necessary for calculating ratios. This allows us to examine the impact of ratios on firms' performance. In addition, the airlines' performance was analyzed using the ratios calculated for the DuPont approach in the MABAC method. These allow us to examine the impact of ratios on firms' performance. Thus, the findings obtained from the two methods were compared. In addition, the financial performance of Turkish Airlines, as the national airline company, is also evaluated. Figure 2 shows the findings of the DuPont analysis using 2019 data from the airlines.

Net Profit/Loss	
THY	4.536.000.000
AFKLM	293.000.000
IAG	1.715.000.000
LG	1.245.000.000
VA	-54.700.000
FA	74.500.000
KLM	449.000.000

Return on Sales	
THY	0,060
AFKLM	0,011
IAG	0,067
LG	0,034
VA	-0,019
FA	0,024
KLM	0,041

ROA	
THY	0,031
AFKLM	0,010
IAG	0,048
LG	0,029
VA	-0,017
FA	0,019
KLM	0,038

Revenue	
THY	75.118.000.000
AFKLM	27.188.000.000
IAG	25.506.000.000
LG	36.424.000.000
VA	2.927.100.000
FA	3.097.700.000
KLM	11.075.000.000

Asset Turnover	
THY	0,511
AFKLM	0,885
IAG	0,719
LG	0,854
VA	0,904
FA	0,799
KLM	0,941

Total Assets (₺)	
THY	146.871.000.000
AFKLM	30.735.000.000
IAG	35.451.000.000
LG	42.659.000.000
VA	3.237.800.000
FA	3.877.900.000
KLM	11.771.000.000

ROE	
THY	0,111
AFKLM	0,128
IAG	0,251
LG	0,121
VA	0,287
FA	0,077
KLM	0,288

Current Liabilities	
THY	35.417.000.000
AFKLM	12.649.000.000
IAG	12.748.000.000
LG	15.986.000.000
VA	1.351.600.000
FA	1.222.400.000
KLM	4.701.000.000

Total Liabilities and Equity	
THY	146.871.000.000
AFKLM	30.720.000.000
IAG	35.451.000.000
LG	42.659.000.000
VA	3.237.800.000
FA	3.877.900.000
KLM	11.771.000.000

Equity Multiplier	
THY	3,600
AFKLM	13,450
IAG	5,191
LG	4,159
VA	-17,005
FA	4,013
KLM	7,546

Non-Current Liabilities	
THY	70.659.000.000
AFKLM	15.787.000.000
IAG	15.874.000.000
LG	16.417.000.000
VA	2.076.600.000
FA	1.689.100.000
KLM	5.510.000.000

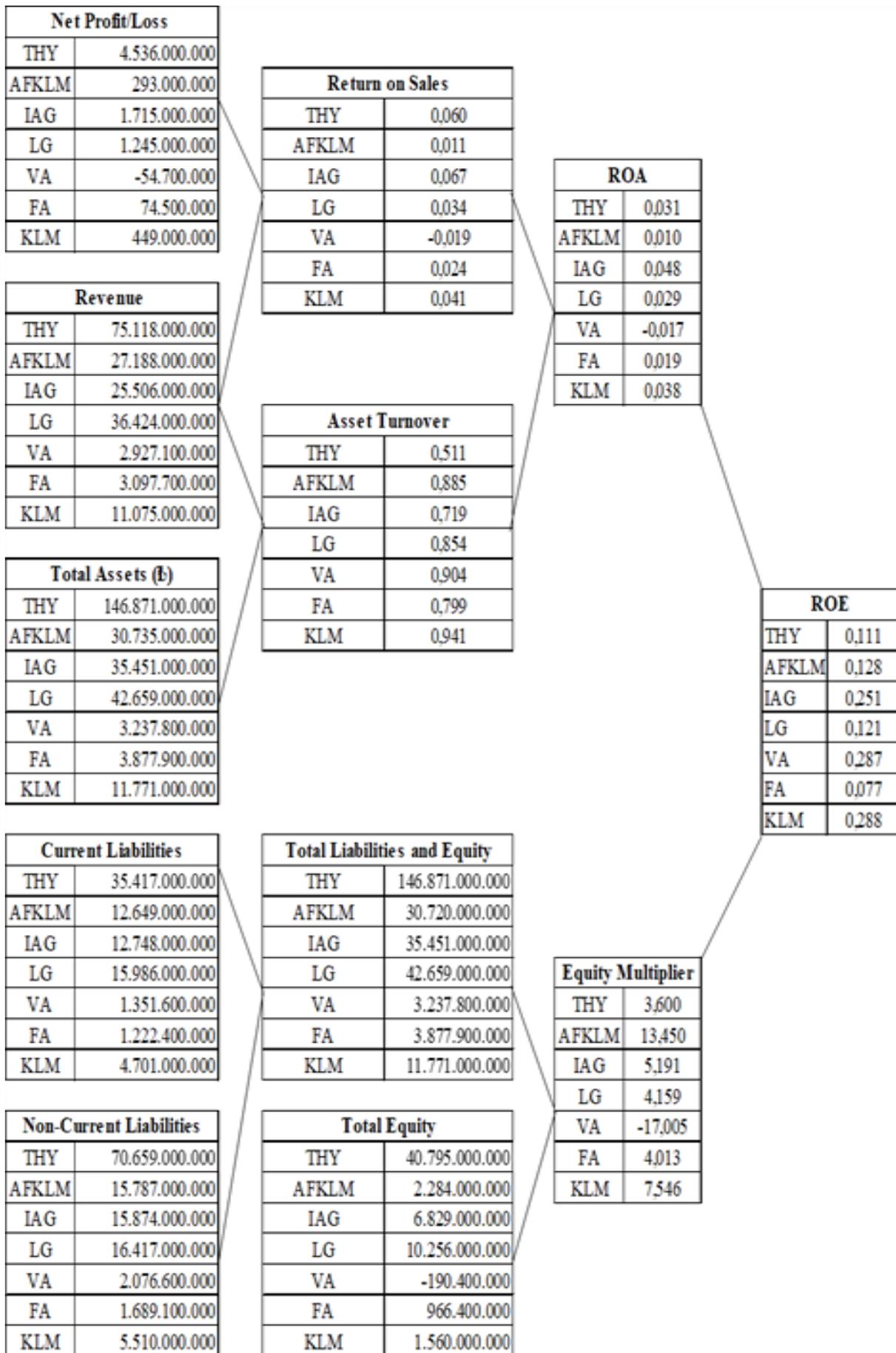| Total Equity	
THY	40.795.000.000
AFKLM	2.284.000.000
IAG	6.829.000.000
LG	10.256.000.000
VA	-190.400.000
FA	966.400.000
KLM	1.560.000.000

Figure 2: 2019 Year DuPont Analysis Findings

The airlines had ROE values ranging from 8% to 29%. KLM had the highest ROE (29%), while FA had the lowest ROE (8%). VA had a positive ROE (29%) despite a loss for the period. Their product was positive since ROA and EM (equity multiplier) were negative. The VA had the lowest ROE. ROE is the product of ROA and EM. The airlines had EM values ranging from -17.01 to 13.45. Their EM values were high because their debt was higher than their equity. The airlines had ROA values ranging from -2% to 5%. The airline with the highest ROA earned five units of profit from 100 units of assets. The airlines had similar ROA values. ROA is ROS multiplied by AT (asset turnover). The airlines had ROS values ranging from -2% to 7%. IAG (7%) and THY (6%) had higher ROS values than the others. VA had a negative ROS value because it made a loss. IAG realized a net profit of seven units from 100 units of sales. In general, the airlines did not have high sales profitability. The airlines had AT values ranging from 0.51 to 0.94. KLM (0.94) and VA (0.90) had the highest AT values, meaning they used their assets more effectively than others. According to DuPont's findings, KLM, with the highest ROE value, shows the best financial performance. The second best-performing company is VA, and the third company is IAG. FA has the worst performance with the lowest ROE. THY had the lowest AT, meaning it did not use its assets effectively. Since fixed assets are high, the AT value is low.

Table 2 shows the findings of the 2019 analysis based on the MABAC method.

Table 2: 2019 Year MABAC Analysis Findings

Airlines	Si	Ranking
KLM	1,315	1
FA	1,252	2
AFKLM	1,020	3
VA	1,020	3
THY	0,944	4
IAG	0,445	5
LG	0,445	5

The airline with a high "Si" value shows The best performance. According to 2019 findings, KLM (1.315) ranks first with the best performance. FA (1.252) is in the second rank, AFKLM and VA (1.020) are in the third. THY (0.944) is in fourth rank. IAG and LG (0.445) rank last with the worst performance. When the findings of the two methods are compared, it is seen that KLM has the best performance. While FA performs worst in the DuPont approach, it is the second-best performer in the MABAC method.

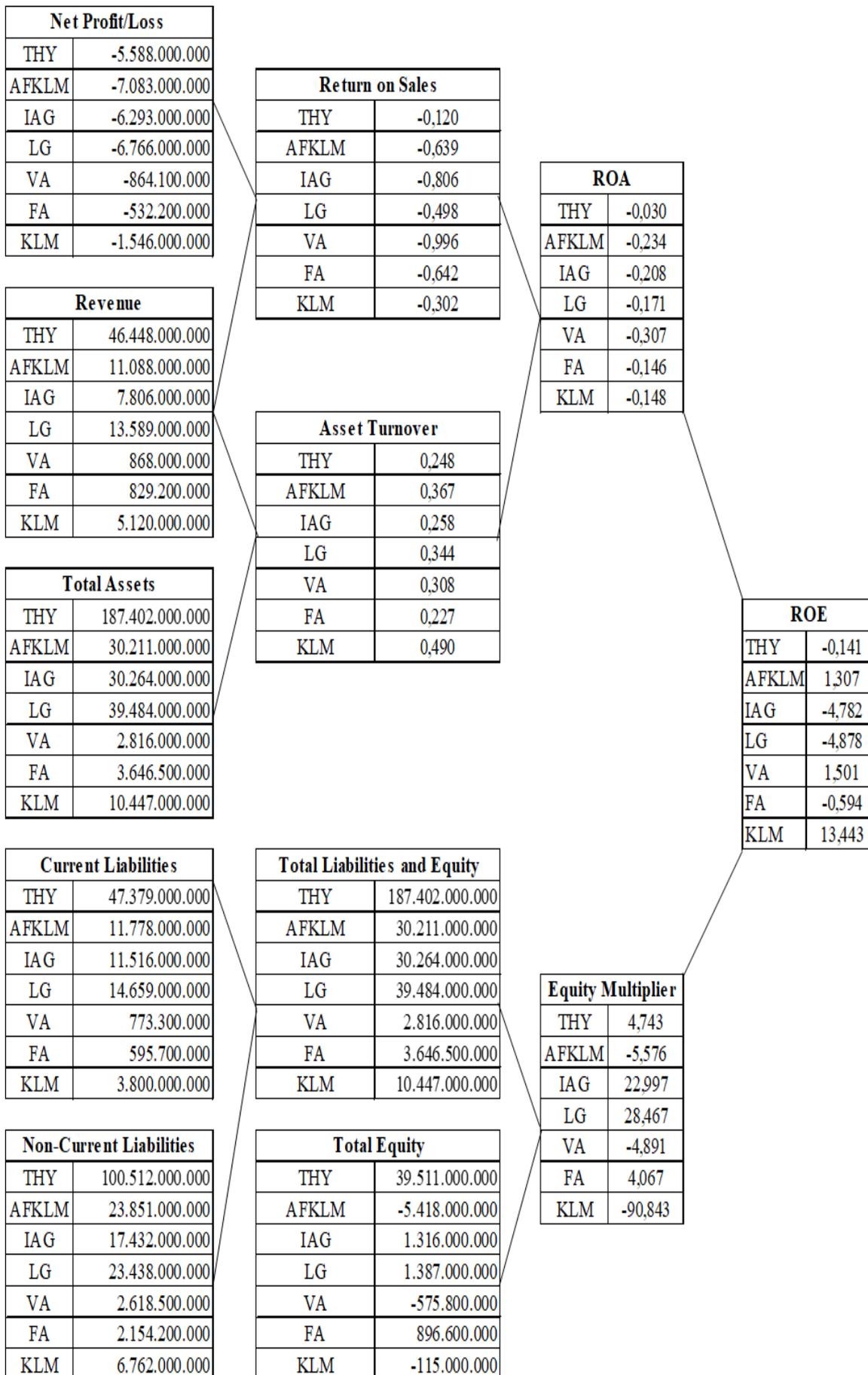Figure 3 shows the 2020 analysis findings based on the DuPont approach.

Net Profit/Loss	
THY	-5.588.000.000
AFKLM	-7.083.000.000
IAG	-6.293.000.000
LG	-6.766.000.000
VA	-864.100.000
FA	-532.200.000
KLM	-1.546.000.000

Return on Sales	
THY	-0,120
AFKLM	-0,639
IAG	-0,806
LG	-0,498
VA	-0,996
FA	-0,642
KLM	-0,302

ROA	
THY	-0,030
AFKLM	-0,234
IAG	-0,208
LG	-0,171
VA	-0,307
FA	-0,146
KLM	-0,148

Revenue	
THY	46.448.000.000
AFKLM	11.088.000.000
IAG	7.806.000.000
LG	13.589.000.000
VA	868.000.000
FA	829.200.000
KLM	5.120.000.000

Asset Turnover	
THY	0,248
AFKLM	0,367
IAG	0,258
LG	0,344
VA	0,308
FA	0,227
KLM	0,490

Total Assets	
THY	187.402.000.000
AFKLM	30.211.000.000
IAG	30.264.000.000
LG	39.484.000.000
VA	2.816.000.000
FA	3.646.500.000
KLM	10.447.000.000

ROE	
THY	-0,141
AFKLM	1,307
IAG	-4,782
LG	-4,878
VA	1,501
FA	-0,594
KLM	13,443

Current Liabilities	
THY	47.379.000.000
AFKLM	11.778.000.000
IAG	11.516.000.000
LG	14.659.000.000
VA	773.300.000
FA	595.700.000
KLM	3.800.000.000

Total Liabilities and Equity	
THY	187.402.000.000
AFKLM	30.211.000.000
IAG	30.264.000.000
LG	39.484.000.000
VA	2.816.000.000
FA	3.646.500.000
KLM	10.447.000.000

Equity Multiplier	
THY	4,743
AFKLM	-5,576
IAG	22,997
LG	28,467
VA	-4,891
FA	4,067
KLM	-90,843

Non-Current Liabilities	
THY	100.512.000.000
AFKLM	23.851.000.000
IAG	17.432.000.000
LG	23.438.000.000
VA	2.618.500.000
FA	2.154.200.000
KLM	6.762.000.000

Total Equity	
THY	39.511.000.000
AFKLM	-5.418.000.000
IAG	1.316.000.000
LG	1.387.000.000
VA	-575.800.000
FA	896.600.000
KLM	-115.000.000

Figure 3: 2020 Year DuPont Analysis Findings

According to DuPont's findings in 2020, KLM, with the highest ROE value, shows the best financial performance. The second best-performing company is VA, and the third company is AFKLM. LG has the worst performance with the lowest ROE. The airlines had ROE values ranging from -4.88% to 13.44%. KLM had the highest ROE (13.44%), while LG had the lowest (4.88%). However, all airlines made losses during the pandemic. Since ROA and EM were negative, their product was positive. Therefore, the airlines had positive ROE values. ROE is the product of ROA and EM. The airlines had EM values ranging from 90.84 to 28.47. The airlines that suffered heavy losses during the pandemic met their financing needs by borrowing. Their equity share in total liabilities and equity declined, resulting in higher EM values. The airlines had ROA values ranging from -3% to -31% because they made losses during the pandemic. The ROA values indicated that THY outperformed the other airlines during the pandemic. ROA is the product of ROS and AT. The airlines had ROS values ranging from -12% to -100%. VA had the highest ROS (100%). It had losses for the period almost as much as its revenues. All airlines but KLM and THY had evil ROS values during the pandemic. THY had a ROS value of -12%, indicating it had the lowest loss rate on sales. It posted a net loss of 12 units for every 100 sales units. In general, the airlines had very high sales losses. The airlines had AT values ranging from 0.23 to 0.49. KLM (0.49) and AFKLM (0.37) had the highest AT values, showing that they used their assets more effectively than others. On the other hand, FA had the lowest AT value, suggesting that it used its assets less effectively than others. Since companies followed a downsizing policy during the pandemic, they were expected to use their assets more efficiently. Fixed asset investments decreased during the pandemic, and airline companies could not use their assets effectively. In addition, the sector was adversely affected by closures and restrictions during the pandemic.

Table 3 shows the findings of the 2020 analysis based on the MABAC method.

Table 3: 2020 Year MABAC Analysis Findings

Airlines	Si	Ranking
KLM	1,187	1
THY	1,142	2
AFKLM	0,965	3
VA	0,965	3
FA	0,844	4
IAG	0,514	5
LG	0,514	5

According to MABAC findings of 2020, KLM (1.187) ranks first with the best performance. THY (1.142) is in the second rank, and AFKLM and VA (0.965) are in the third. FA (0.844) is in fourth rank. IAG and LG (0.514) rank last with the worst performance. When the findings of the two methods are compared, it is seen that KLM has the best performance and LG has the worst performance. It is thought that the analysis results are similar, although there are differences in the rankings.

Figure 4 shows the findings of the 2021 analysis based on the DuPont approach.
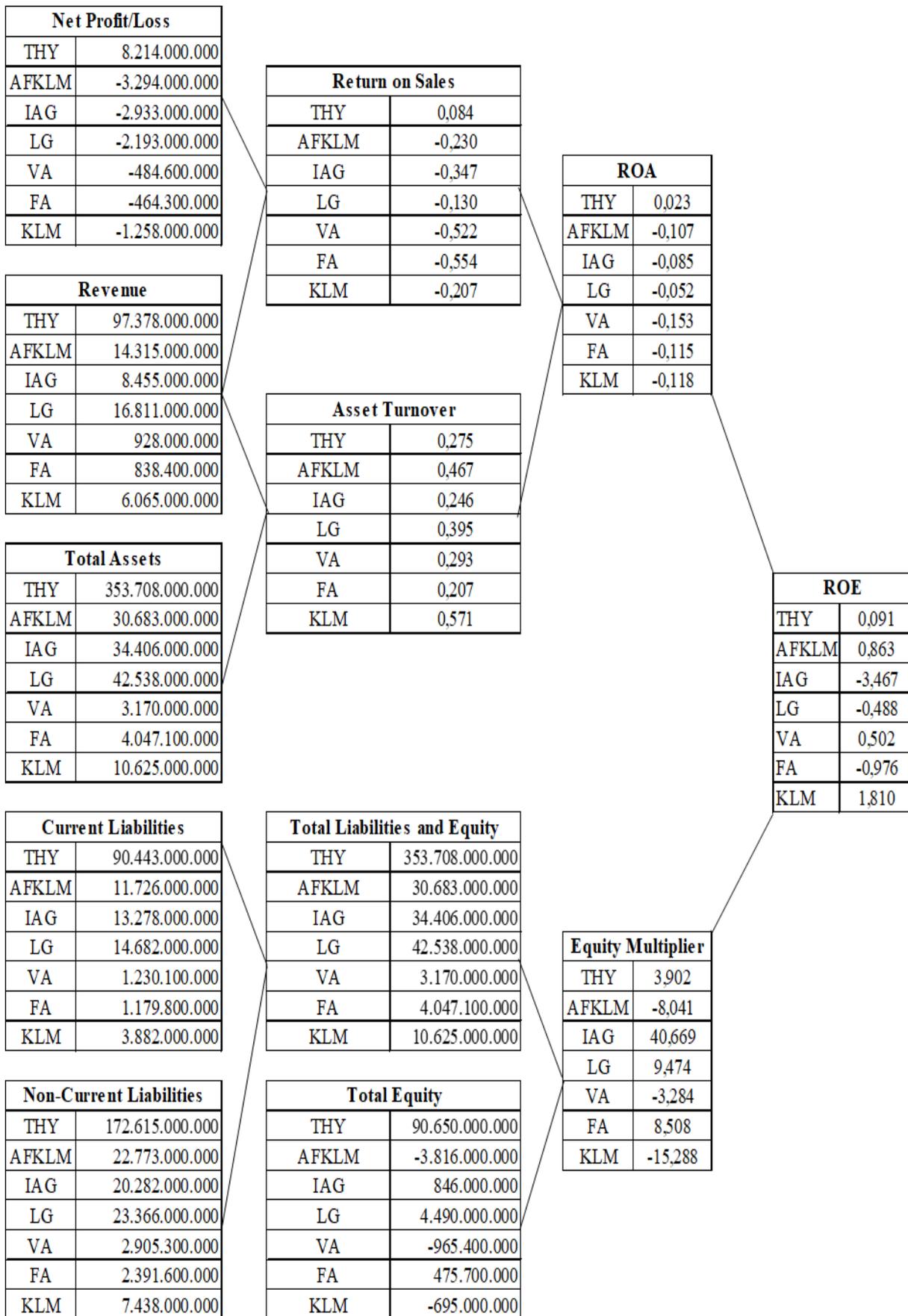
Net Profit/Loss	
THY	8.214.000.000
AFKLM	-3.294.000.000
IAG	-2.933.000.000
LG	-2.193.000.000
VA	-484.600.000
FA	-464.300.000
KLM	-1.258.000.000

Return on Sales	
THY	0,084
AFKLM	-0,230
IAG	-0,347
LG	-0,130
VA	-0,522
FA	-0,554
KLM	-0,207

ROA	
THY	0,023
AFKLM	-0,107
IAG	-0,085
LG	-0,052
VA	-0,153
FA	-0,115
KLM	-0,118

Revenue	
THY	97.378.000.000
AFKLM	14.315.000.000
IAG	8.455.000.000
LG	16.811.000.000
VA	928.000.000
FA	838.400.000
KLM	6.065.000.000

Asset Turnover	
THY	0,275
AFKLM	0,467
IAG	0,246
LG	0,395
VA	0,293
FA	0,207
KLM	0,571

Total Assets	
THY	353.708.000.000
AFKLM	30.683.000.000
IAG	34.406.000.000
LG	42.538.000.000
VA	3.170.000.000
FA	4.047.100.000
KLM	10.625.000.000

ROE	
THY	0,091
AFKLM	0,863
IAG	-3,467
LG	-0,488
VA	0,502
FA	-0,976
KLM	1,810

Current Liabilities	
THY	90.443.000.000
AFKLM	11.726.000.000
IAG	13.278.000.000
LG	14.682.000.000
VA	1.230.100.000
FA	1.179.800.000
KLM	3.882.000.000

Total Liabilities and Equity	
THY	353.708.000.000
AFKLM	30.683.000.000
IAG	34.406.000.000
LG	42.538.000.000
VA	3.170.000.000
FA	4.047.100.000
KLM	10.625.000.000

Equity Multiplier	
THY	3,902
AFKLM	-8,041
IAG	40,669
LG	9,474
VA	-3,284
FA	8,508
KLM	-15,288

Non-Current Liabilities	
THY	172.615.000.000
AFKLM	22.773.000.000
IAG	20.282.000.000
LG	23.366.000.000
VA	2.905.300.000
FA	2.391.600.000
KLM	7.438.000.000

Total Equity	
THY	90.650.000.000
AFKLM	-3.816.000.000
IAG	846.000.000
LG	4.490.000.000
VA	-965.400.000
FA	475.700.000
KLM	-695.000.000

Figure 4: 2021 Year DuPont Analysis Findings

According to DuPont's findings in 2021, KLM, with the highest ROE value, shows the best financial performance. The second best-performing company is AFKLM, and the third company is VA. IAG has the worst performance with the lowest ROE. The airlines had ROE values ranging from -3.47% to 1.81%. KLM

had the highest ROE (1.81%), while IAG had the lowest (-3.47%). Since AFKLM, VA, and KLM had negative ROA and EM values, their ROE values were positive, which was misleading. Only THY had a favorable ROE. Only THY had equity profitability, showing it had the best financial performance in 2021. ROE is the product of ROA and EM. The airlines had EM values ranging from -15.29 (IAG) to 40.67 (KLM). The EM results showed that IAG had the highest equity multiplier. The airlines had ROA values ranging from -15% (VA) to 2% THY in 2021, and all airlines except THY made a loss during that period. Therefore, they had negative ROA values. THY performed well in 2021. ROA is the product of ROS and AT. The airlines had ROS values ranging from -55% to 8%. Only THY had a positive ROS with an 8% return on sales. THY realized a net profit of eight units for every 100 units sold. The airlines' losses were so high that many of their revenues covered them. The airlines should take measures to increase their ROS values. The airlines had AT values ranging from 0.20 (FA) to 0.57 (KLM). KLM (0.57) and AFKLM (0.46) have high AT values, indicating that they used their assets more efficiently than others. Although the airlines reduced their fixed assets in 2021 compared to the previous year, they did not use them effectively.

Table 4 shows the findings of the 2021 analysis based on the MABAC method.

Table 4: 2021 Year MABAC Analysis Findings

Airlines	Si	Ranking
THY	1,155	1
KLM	1,063	2
AFKLM	1,001	3
VA	1,001	3
FA	0,878	4
IAG	0,515	5
LG	0,515	5

According to findings of 2021, THY (1.155) ranks first with the best performance. KLM (1.063) is in second rank, AFKLM and VA (1.001) are in third. FA (0.878) is in fourth rank. IAG and LG (0.515) rank last with the worst performance. When the findings of the two methods are compared, it is seen that the rankings of the best and worst-performing firms differ. Figure 5 shows the findings of the 2022 analysis based on the DuPont approach.
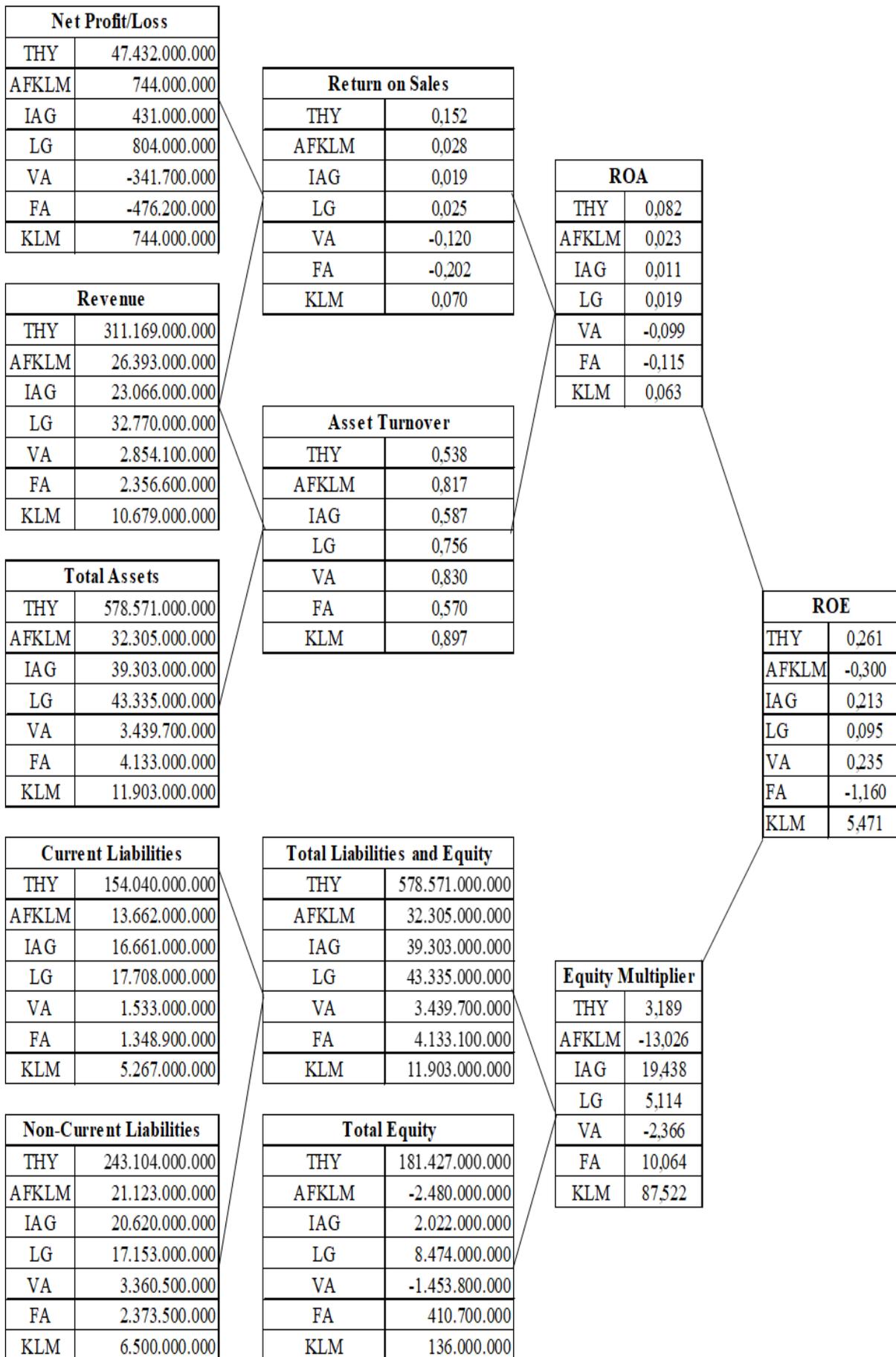
Net Profit/Loss	
THY	47.432.000.000
AFKLM	744.000.000
IAG	431.000.000
LG	804.000.000
VA	-341.700.000
FA	-476.200.000
KLM	744.000.000

Return on Sales	
THY	0,152
AFKLM	0,028
IAG	0,019
LG	0,025
VA	-0,120
FA	-0,202
KLM	0,070

ROA	
THY	0,082
AFKLM	0,023
IAG	0,011
LG	0,019
VA	-0,099
FA	-0,115
KLM	0,063

Revenue	
THY	311.169.000.000
AFKLM	26.393.000.000
IAG	23.066.000.000
LG	32.770.000.000
VA	2.854.100.000
FA	2.356.600.000
KLM	10.679.000.000

Asset Turnover	
THY	0,538
AFKLM	0,817
IAG	0,587
LG	0,756
VA	0,830
FA	0,570
KLM	0,897

ROE	
THY	0,261
AFKLM	-0,300
IAG	0,213
LG	0,095
VA	0,235
FA	-1,160
KLM	5,471

Total Assets	
THY	578.571.000.000
AFKLM	32.305.000.000
IAG	39.303.000.000
LG	43.335.000.000
VA	3.439.700.000
FA	4.133.000.000
KLM	11.903.000.000

Current Liabilities	
THY	154.040.000.000
AFKLM	13.662.000.000
IAG	16.661.000.000
LG	17.708.000.000
VA	1.533.000.000
FA	1.348.900.000
KLM	5.267.000.000

Total Liabilities and Equity	
THY	578.571.000.000
AFKLM	32.305.000.000
IAG	39.303.000.000
LG	43.335.000.000
VA	3.439.700.000
FA	4.133.100.000
KLM	11.903.000.000

Equity Multiplier	
THY	3,189
AFKLM	-13,026
IAG	19,438
LG	5,114
VA	-2,366
FA	10,064
KLM	87,522

Non-Current Liabilities	
THY	243.104.000.000
AFKLM	21.123.000.000
IAG	20.620.000.000
LG	17.153.000.000
VA	3.360.500.000
FA	2.373.500.000
KLM	6.500.000.000

Total Equity	
THY	181.427.000.000
AFKLM	-2.480.000.000
IAG	2.022.000.000
LG	8.474.000.000
VA	-1.453.800.000
FA	410.700.000
KLM	136.000.000

Figure 5: 2022 Year DuPont Analysis Findings

According to DuPont's findings in 2022, KLM, with the highest ROE value, shows the best financial performance. The second best-performing company is THY, and the third company is VA. FA has the worst performance with the lowest ROE. The airlines had ROE values ranging from -116% (FA) to 547.1% (KLM), which was unexpected. KLM had the best ROE because it had a low amount of equity. KLM's performance was misleading. FA and VA made losses both in 2021 and 2022. VA had a positive ROE because it had negative ROA and EM values, which was misleading. ROE is the product of ROA and EM. The airlines had EM values ranging from 13,02 (AFKLM) to 87,52 (KLM). The equity multiplier showed volatility. The airlines had ROA values ranging from -11% (FA) to 8% (THY). THY had the highest ROA in 2021 and 2022; it is seen that it used its assets effectively and performed well. ROA is the product of ROS and AT. The airlines had ROS values ranging from -20% (FA) to 15% (THY). THY realized a net profit of 15 units for 100 units of sales. The airlines performed better in 2022 than in 2021. The airlines had AT values of 0.53 (THY) to 0.89 (KLM). The airlines had higher AT values in 2022 than in 2021, indicating that they used their assets more effectively in 2022 than in 2021. All firms but THY had high AT values, indicating they used their assets more efficiently. Table 5 shows the 2022 analysis findings based on the MABAC method.

Table 5: 2022 Year MABAC Analysis Findings

Airlines	Si	Ranking
KLM	1,432	1
THY	0,973	2
AFKLM	0,949	3
VA	0,949	3
FA	0,884	4
IAG	0,497	5
LG	0,497	5

According to findings of 2022, KLM (1.432) ranks first with the best performance. THY (0.973) is in second rank, AFKLM and VA (0.949) are in third. FA (0.884) is in fourth rank. IAG and LG (0.497) rank last with the worst performance. When the findings of the two methods are compared, it is seen that the two best-performing companies are the same, but the worst-performing companies are different.

Table 6 shows the findings of the all-year analysis based on the MABAC method.

Table 6: MABAC Analysis Rankings

Airlines	2019	2020	2021	2022
KLM	1	1	2	1
THY	4	2	1	2
AFKLM	3	3	3	3
VA	3	3	3	3
FA	2	4	4	4
IAG	5	5	5	5
LG	5	5	5	5

When the findings of the four-year analysis conducted according to the MABAC method are evaluated, KLM is in the first, THY is in the second, AFKLM and VA are in the third, FA are in the fourth, and IAG and LG are in the fifth. It is seen that the financial performances of firms do not change much over the years. Although THY only showed the best performance in 2021, it is also thought to perform well in other years.

5. Conclusion and Recommendations

According to Skytrax, the financial performance of the top 7 airline companies in Europe during the pandemic may be revealed by Dupont analysis. To answer this question, this study employed the DuPont approach and is based on and focused on the financial performance of the top seven airlines in Europe. Additionally, the

findings obtained with the MABAC method were compared. The study involved analysis based on annual financial statement data for 2019-2022. According to DuPont's findings in 2019, KLM, with the highest ROE value, shows the best financial performance. FA has the worst performance with the lowest ROE. In 2019, the airlines had high EM values because they had higher debt than equity. In general, they had low sales profitability. They had low AT values because they had high fixed assets. According to the findings of the MABAC method in 2019, KLM had the best performance, and IAG and LG had the worst performance. When the findings of the two methods are compared, it is seen that KLM has the best performance. While FA performs worst in the DuPont approach, it is the second-best performer in the MABAC method. The lowest-performing firms vary depending on the methods.

According to DuPont's findings in 2020, KLM, with the highest ROE value, shows the best financial performance. LG has the worst performance with the lowest ROE. All airlines made losses in 2020 during the pandemic. The airlines that incurred heavy losses during the pandemic met their financing needs by borrowing. The equity share in their total liabilities and equity fell, resulting in high EM values. They had negative ROA values because they made losses. Although fixed assets decreased in this period compared to the previous year, the airlines did not use their assets effectively. The sector was adversely affected by closures and restrictions during the pandemic. THY had a better ROA than others during the pandemic. According to the 2020 MABAC method findings, KLM had the best performance, and IAG and LG had the worst. When the findings of the two methods are compared, it is seen that KLM has the best performance and LG has the worst performance. It is thought that the analysis results are similar, although there are differences in the rankings.

According to DuPont's findings in 2021, KLM, with the highest ROE value, shows the best financial performance. IAG has the worst performance with the lowest ROE. The airlines had ROE values ranging from -3.47% to 1.81% in 2021. Only THY had a favorable ROE. The airlines suffered such high losses that most of their sales covered them. Although firms reduced their fixed assets in 2021 compared to 2020, they did not use them effectively. According to the MABAC method findings of 2021, THY had the best performance, and IAG and LG had the worst. When the findings of the two methods are compared, it is seen that the rankings of the best and worst-performing firms differ. According to DuPont's findings in 2022, KLM, with the highest ROE value, shows the best financial performance. FA has the worst performance with the lowest ROE. The airlines had ROE values ranging from -116% (FA) to 547,1% (KLM) in 2022, which was unexpected. KLM had the best return on equity. KLM had the highest ROE because it had a low amount of equity. KLM's performance was misleading. THY had the highest ROA in 2021 and 2022, indicating that it used its assets effectively and performed well. The airlines performed better in 2022 than in 2021. According to the MABAC method findings of 2022, KLM had the best performance, and IAG and LG had the worst.

When MABAC findings were evaluated all the term, KLM showed the best performance 3 times, and THY showed the best performance 1 time. IAG and LG are the worst performing airlines over the 4 periods. When the findings of the two methods are compared, it is seen that the two best-performing companies are the same, but the worst-performing companies are different. THY was Europe's best airline in 2023, which was also due to its financial performance. It had higher profitability than other airlines in 2021 and 2022. In general, it performed better financially than other airlines. Airlines should increase revenues and reduce expenses and costs to achieve sustainable financial performance. In future studies, it is recommended that the financial performance of airlines be compared using methods different from the MABAC method.

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Analysis of A DuPont Approach and MABAC Method of The Financial Performance of Airlines in Europe

Avrupa'daki Havayolu Şirketlerinin Finansal Performanslarının DuPont Yaklaşımı ve MABAC Yöntemi ile İncelenmesi

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Genişletilmiş Özet

Firmalar kâr elde etmek, varlığını sürdürmek, ortakların refah seviyesini maksimize etmek, firmanın değerini maksimum kılmak, sosyal sorumluluklarını yerine getirmek ve çeşitli ideolojik amaçlar için kurulabilmektedir. İktisat teorisinde kârın maksimizasyonu bir amaç olarak belirlenmiştir. Finans teorisinde ise kâr maksimizasyonu tam ve net bir kavram olmayıp karlılığın maksimizasyonunun daha doğru bir yaklaşım olduğu belirtilmektedir (Gönenli, 1978, s. 11). Çünkü kâr maksimizasyonu yatırımlardan beklenen nakit akımları ve riskliliği dikkate almadığı için bir amaç olarak düşünülmemektedir (Ercan ve Ban, 2012, s. 13). Bu nedenle firma yönetimi kâr maksimizasyonunu değil ortaklarının refah seviyesini maksimum kılmayı amaçlamaktadır. Ortakların refah seviyelerinin maksimizasyonu ile ifade edilen ortakların firmadaki paylarının belirli bir dönemde maksimum seviyeye çıkarılmasıdır (Okka, 2018, s. 27). Bu amaçla firmalar ortakların çıkarlarını koruyarak onların beklentilerini karşılayacak politikalar yürütmeleri gerekmektedir. Bununla birlikte hedeflenen kâr ve kârlılığa ulaşarak varlıkların optimum yönetilmesi için etkin bir risk yönetimi gerekmektedir (Koşan ve Karadeniz, 2013, s. 45). Dolayısıyla firma yöneticilerinin risk ve getiri dengesini dikkate alarak karar almaları gerekmektedir. Özellikle ortakların beklentilerini karşılayabilecek politikaların yürütülmesine yönelik kararlar almaları önerilmektedir. Ancak küresel ekonomide meydana gelen deprem, sel, salgın gibi beklenmeyen olaylar ekonomiyi olumsuz yönde etkilemektedir. Çin'de başlayıp dünyaya yayılan COVİD-19 Pandemisi tüm ekonomileri olumsuz yönde etkilediği belirtilmektedir (Rababah vd., 2020, s. 1). Sağlık, tarım, üretim, enerji, eğitim ve sosyo-ekonomik sistem olmak üzere küresel sektör ve sistemleri negatif yönde etkilemiştir (Abid vd., 2022, s. 1). Pandeminin firma performansı üzerindeki olumsuz etkileri ise ülkelerin sağlık sistemleri ve gelişmişlik düzeylerine göre farklılık göstermektedir (Hu ve Zhang, 2021, s. 365).

DuPont yaklaşımında firmaların aktif devir hızı ile net kâr marjı arasındaki ilişki incelenerek firmanın karlılığını nasıl etkilediği ortaya konmaktadır (Akgüç, 1998, s. 83-85). Yöntem işletmelerin yatırım karlılığını artırabilmeleri için alınabilecek önlemler hakkında bilgi vermektedir. Satışlar, varlıklar ve karlılık arasındaki ilişki incelenerek işletmenin finansal performansı değerlendirilmektedir (Çabuk ve Lazol, 2016, s. 228). Böylece işletmelerin finansal performanslarının incelenmesiyle amaçlara ve hedeflere ulaşma düzeyi belirlenmektedir. Literatür incelendiğinde havayolu firmalarının finansal performanslarının incelendiği çok sayıda çalışmanın olduğu görülmektedir. Pandemi'nin havayolu firmalarının finansal performansına etkisinin incelendiği çalışmalar ise az sayıdadır. Önceki çalışmalardan farklı olarak pandemi döneminde firmaların finansal performanslarının DuPont yaklaşımı ve MABAC yöntemleri ile incelenmesinin literatüre katkı sağlaması amaçlanmaktadır.

DuPont yaklaşımı, 1919 yılında DuPont Şirketi tarafından geliştirilmiştir. Firmanın etkinliğini değerlendirmek amacıyla kullanılmıştır. DuPont yaklaşımıyla firmanın yatırım getirisini değerlendirmek için bir kontrol sistemi geliştirilmiştir. Firmanın net kârı ve aktif devir hızının çarpılması ile aktif getiri oranı hesaplanmaktadır (Horne ve Wachowicz, 2009, s. 150). Net kâr marjı ve aktif devir hızının etkinliği değerlendirmek için tek başına kullanılması yeterli değildir. Net kâr marjı firmaların varlıklarının etkin kullanılmasını; aktif devir hızı ise satışlardaki karlılığı göz ardı etmektedir. Bu nedenle iki oranın birlikte kullanılmasıyla eksikliğin giderilmesi amaçlanmaktadır. Çünkü aktif kârlılık oranı aynı olup ancak net kâr marjı ve aktif devir hızı oranları farklı olan firmalar olabilir. Örneğin iki firma olduğunu varsayalım. A firmasının net kâr marjı 0,1 ve

aktif devir hızı 2; B firmasının net kâr marjı 0,2 ve aktif devir hızı 1 olduğunda her iki firmanın da aktif karlılık oranı 0,2 olmaktadır. Dolayısıyla satışların veya net kâr marjının artması veya her ikisindeki artış firmaların kazanç gücünü artırmaktadır. Firmaların performansını değerlendirmek için kullanılan bir diğer ölçüt ise özsermaye getiri oranıdır. Özsermaye getiri oranı net kâr marjının özsermayeye bölünmesiyle hesaplanmaktadır (Horne ve Wachowicz, 2009, s. 150-151). Özsermaye getiri oranı ile aslında satışların karlılığı ve varlıkların verimli kullanılması birlikte değerlendirmektedir. Firmanın giderlerini azaltması, etkin bir gider yönetimi ve güçlü yatırım fırsatlarını değerlendirmek özsermaye getiri oranını artırmaktadır. Satışların karlılığı, varlıkların devir hızı ve özsermayenin çarpılmasıyla özsermaye getiri oranı hesaplanmaktadır. Böylece satışların kârlılığı, varlıkların etkin kullanılma durumu ve borçlanmanın kârlılığa etkisi birlikte ölçülmektedir. Özsermaye getiri oranı aynı olan firmaların varlıkları birbirleriyle karşılaştırılarak varlıkların daha etkin kullanılıp kullanılmadığı incelenebilmektedir (Horne ve Wachowicz, 2009, s. 151). Dolayısıyla DuPont yaklaşımı firmaların özsermaye karlılıklarının incelenmesi esasına dayanmaktadır. Özsermaye kârlılıkları incelenirken özsermaye kârlılığına etki eden oranlardan yararlanılmaktadır. Özsermaye kârlılığını etkileyen faktörler satışların kârlılığı, aktif devir hızı ve özsermaye çarpanıdır. Üç ölçüt birlikte kullanılarak firma bazında performans incelenmektedir. DuPont Yaklaşımının sektör bazlı incelenmesinin hatalı kararlar alınmasına neden olabileceği düşünülmektedir. Çünkü aynı özsermaye kârlılığına sahip olan firmaların faaliyet sonuçları farklılık göstermektedir. Firmalardan biri varlıklarını daha etkin kullanırken diğerinin satış kârlılığı daha yüksek olabilmektedir. Dolayısıyla sektörün aldığı kararlar firmalarla aynı olmamaktadır. Firmaların finansal performanslarını yükseltecek kararları münferit olarak alması önerilmektedir. Böylece DuPont yaklaşımı ile firmaların pandemi önceki ve sonraki dönemleri münferit olarak karşılaştırılarak finansal performansları değerlendirilmektedir.

Skytrax yılın en iyi havayolunu yolculardan topladığı anket verilerine göre belirlemektedir. Yolcuların değerlendirmeleri sonucunda 2023 yılında en iyi havayolu seçilen firmaların finansal performanslarında da aynı başarıyı gösterip göstermedikleri bu çalışmada araştırılmaktadır. Havayolu firmalarının finansal performansının DuPont ve MABAC yöntemleriyle incelenmesi çalışmanın amacını oluşturmaktadır. Literatürde havayolu firmalarının finansal performanslarının DuPont yaklaşımı ile değerlendirildiği çalışma pek olmadığı gibi DuPont ve MABAC yöntemlerinin birlikte kullanıldığı herhangi bir çalışmaya da rastlanılmamaktadır. Böylece önceki çalışmalardan farklı olarak iki yöntemin birbirine entegre edilmesiyle literatüre önemli katkı sağlaması beklenmektedir. Çalışmanın yöntemleri Skytrax'e göre Avrupa kıtasındaki en iyi 10 havayolu şirketi üzerinde uygulanarak analizler yapılmaktadır (Skytrax, 2023).

2020 yılında pandemi döneminde tüm firmalar zarar etmiştir. Pandemi de yüksek tutarlarda zarar eden firmalar finansman ihtiyacını daha çok borçlanarak karşılamıştır. Böylece toplam kaynaklar içindeki özkaynakların payı düşerek, özsermaye çarpanı yükselmiştir. Firmalar zarar ettiklerinden aktif getiri oranları da negatiftir. Bu dönemde duran varlıklar önceki yıla göre düşmüş olmasına rağmen firmaların varlıklarını etkin kullanmadıkları düşünülmektedir. Pandemi döneminde yaşanan kapanmalar ve getirilen kısıtlamalardan dolayı sektörün olumsuz etkilendiği düşünülmektedir. Pandemi döneminde THY'nin diğerlerinden daha iyi bir aktif getiri oranına sahip olduğu belirlenmektedir. Özsermaye getiri oranı 2021 yılında -%3,47 ile %1,81 arasında değişim göstermektedir. THY haricinde özsermaye getiri oranı pozitif olan firma yoktur. Çünkü bu dönemde firmaların zararları çok yüksektir. Satışların önemli bir kısmı zararları karşılamak için kullanılmaktadır.

2021 yılı performansı incelendiğinde ise firmaların duran varlıkları önceki yıla göre azalmış olmasına rağmen varlıklarını etkin kullanmadıkları düşünülmektedir. 2022 yılında ise özsermaye getiri oranının -%116 (FA) ile %547,1 (KLM) arasında değiştiği görülmektedir. KLM en iyi özsermaye karlılığına sahip firmadır. KLM firmasının özkaynakların tutarının düşük olması, özsermaye getiri oranının yüksek hesaplanmasına neden olmuştur. Özsermaye getiri oranının bu kadar yüksek olması beklenen bir durum değildir. Bu nedenle KLM'nin performansının yanıltıcı olduğu düşünülmektedir. THY 2021 yılında olduğu üzere 2022 yılında da en yüksek aktif getiri oranına sahip firmadır. THY'nin varlıklarını etkin kullandığı başarılı bir performans gösterdiği düşünülmektedir. 2022 yılında genel olarak firmaların önceki yıla kıyasla daha başarılı performans sergiledikleri görülmektedir.

THY'nin 2023 yılında Avrupa'nın en iyi havayolu seçilmesinde finansal performansının da etkisi olduğu düşünülmektedir. 2021 ve 2022 yıllarında firmanın kârlılığının daha yüksek olduğu; genel itibariyle finansal performansının diğer firmalardan daha yüksek olduğu görülmektedir. Finansal performansın sürdürülebilirliğini sağlamak için firmaların gelirlerini artırıcı faaliyerler ve giderleri ile maliyetlerini azaltacak tedbirler almaları önerilmektedir.