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Abstract
In the context of controlling costs in the airline industry, this study aims to determine empirically until which available seat mile (ASM) an airline should continue its activities based on an analysis of the costs and revenues incurred relating to these ASM. The study is based on a hypothetical company and the data used indicated that the company has reached profitability between certain efficiency levels (ASM). The results also showed that the airline can still continue its activities at efficiency levels where it is making a loss but only in situations where its total income exceeds its total variable costs (creating positive added value). In the study, it is pointed out that companies in the airline industry, which are under the pressure of intense competition and uncontrollable factors, can still survive and maintain their competitive power through the cost control methods they can apply.

1. Introduction
To be successful and efficient, airline companies must control costs and monitor the behavior of these costs in their operations. Therefore, the emergence of Low Cost Carriers (LCC) in recent times has become a major threat to traditional network airlines due to their intense cost control strategies and cheap ticket prices. These Low Cost Carriers can enjoy significant cost advantages because of their lower input costs efficient product design (Franke, 2004), which enable them to compete, based on price. Costs obviously become an important part of airlines strategy especially in times of global crises (Hatty and Hollmeier, 2003; Diconou, 2013; Zuidberg, 2014).

The ultimate reason for companies’ existence is to provide value to their shareholders and, for this reason, there is an ever-growing competitive environment surrounding the airline companies to maximize their shareholder wealth and increase their profitability. To increase profitability, companies must focus either on increasing their revenues or on decreasing their costs. Hence, a cost control strategy is inescapable unless they have significant market power. This is one of the reasons LCCs outperform legacy carriers in many markets; it is their low-cost nature. Airlines with a high level of productivity will be able to enjoy cost advantages obtained from efficiently utilizing their aircrafts, focusing on the time taken for aircraft preparation, and optimizing the number of employees per Available Seat Mile (ASM) (Smith and Wilson, 1995; Alamdari and Fagan, 2005; Daraban, 2012).

Declining revenues and high costs caused many airlines to go bankrupt in the 2000s. Operating in a highly competitive environment have often made raising prices difficult, thus making cost control the only real solution to profitability. Many airlines around the world have managed to make a progress in reducing non-fuel unit costs after 2001 (Oum and Yu, 1998). On the other hand, in order to manage their fuel costs they have started implementing various hedging strategies (Lim and Hong, 2014). While airlines can control some of the costs associated with the level of service they provide, they cannot always directly control many others, such as fuel price, labor costs, airfares, landing fees and air navigation fees.

Having understood the importance of cost control in the airline sector, just like in any other industry, in this study, first, the concepts related to cost in the airline sector will be evaluated. Then, the costs incurred in the sector will be classified and the techniques and strategies applied to control these costs will be analyzed and discussed based on a case study.

2. Cost Concepts and Cost Classification in the Airline Industry
There are certain start-up costs that are required to start the business. Startup costs are the expenses that investors make from the start up until the business becomes operational. For example, to become operational, all businesses must obtain the necessary licenses and other types of permits required to
operate a business legally in a particular country and/or city. In addition, manufacturing companies should have facilities, necessary machinery, tools and equipment, and hence will require large amounts of funds prior to fully operationalize. This point to the fact that different industries will have different set-up costs to consider in their start-up phases.

In highly regulated industries such as the airline industry, required permits such as Air Operator Certification (AOC) can take significant time and need high level of funds. Besides these requirements, there is also the procurement of the aircraft, obtaining the rights for landing as well as finding suitable office area, establishing a solid IT infrastructure and providing the necessary employee trainings. In all this long process, the airline company will be exposed to huge costs and will have spent millions of dollars until their first flight. Therefore, substantial initial capital is required to finance an airline's start-up costs. These capital requirements will also be a barrier to entry into the airline industry.

Sunk cost, which also exists in the airline industry, is a type of cost that is generally neglected and not taken into account for future business decisions. These are costs that companies have already made but yet have not recovered it (Stiglitz et al., 1987). In the airline industry, it emerges as the company managers’ inability to make efficient use of their aircrafts, especially where large investments are required to utilize them. For example, despite being a newer aircraft, Boeing 737 NG type aircrafts were replaced with Boeing 737 MAX due to their lack of good fuel usage and economically higher fuel costs. In this situation, investments previously made in 737 NG type aircraft will not have had any effect on the decision to purchase Boeing 737 MAXs.

It is not correct to look at airline costs in terms of just sunk costs. Companies in the airline sector provide many different services including passenger and freight transport services as well as complementary services such as maintenance and repair, catering and ground services. Managing the cost structure in the airline industry not only increases the profitability of the company, but also allows airlines to better provide these mentioned services to their customers. All of these services are associated with two main costs: fixed costs and variable costs. Costs arising from an aircraft purchase, airport gate usage agreements, airport terminal leases, buildings, equipment and other lease agreements are examples of fixed costs within the airline industry whereas fuel and labor expenses are examples of variable costs. An airline’s total cost per unit is measured by the total cost per available seat mile/kilometer (CASM or CASK), which takes into account both fixed and variable costs. CASM is also expressed in terms of operating costs, which assists in the evaluation of the true average cost related to flying an aircraft. However, it ignores the non-operating expenses in its calculation (Tsoukalas et al., 2008; Köse, 2020).

The costs of airline resources can also be divided into two: operating and non-operating costs. Operating costs of airlines include both variable and fixed costs such as; aircraft, fuel, and maintenance expenses together with expenses relating to employees, and landing fees. These costs are all incurred by making air transport services available for both passengers and freight handlers. In other words, all relate to the core business of the company. Non-operating costs, on the other hand, are different. They do not relate directly to the core business of the airline but are necessary to run it, such as interest expenses (Uslu and Cavcar, 2002). The classification of operating costs is given in Table 1 below.

### Table 1. Airline Operations Costs

<table>
<thead>
<tr>
<th>Direct Operating Costs</th>
<th>Indirect Operating Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight crew</td>
<td>Marketing expenses</td>
</tr>
<tr>
<td>Aircraft fuel and oil</td>
<td>Ground and equipment</td>
</tr>
<tr>
<td>Airports fees (landing fees, cost per ton of landing aircraft)</td>
<td>Depreciation, insurance, and maintenance</td>
</tr>
<tr>
<td>Navigation fees</td>
<td>Management and sales</td>
</tr>
<tr>
<td>Direct maintenance (labor and materials)</td>
<td>Booking and sales</td>
</tr>
<tr>
<td>Depreciation/lease/insurance (flight equipment)</td>
<td>Advertisement, promotions</td>
</tr>
<tr>
<td>Ground and equipment</td>
<td>General services</td>
</tr>
</tbody>
</table>

| General Services       | (passenger, aircraft, traffic services) |

<table>
<thead>
<tr>
<th>Non-Operating Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest obligations</td>
</tr>
<tr>
<td>Losses due to affiliated companies</td>
</tr>
<tr>
<td>Losses associated with the decommissioning of aircraft</td>
</tr>
</tbody>
</table>

(Source: Vasigh et al., 2015).

Direct operating costs, shown in Table 1, represent the type of costs within the airline sector that can be directly linked to a given production level. Examples to such costs often include block hour, airplane mile, or available seat mile (ASM). For an airline, there are two major costs that can be referred to as a direct operating cost, these are, fuel and labor costs. Indirect operating costs, such as workforce training costs, sales expenses, and management costs, are all costs that are essential for the operation of an airline, but they are not linked to the operation of an airline directly, they exist for support purposes (Alpaslan, 2010). Because they do not directly operations, these are the first cost elements a manager usually focuses on to reduce the overall operating costs.

Costs can also be non-operations related. These include expenses arising from activities not related to the delivery of air transport services. Typically, it relates to the company's financial structure and is the result of the airline's financial strategy. Interest expense is the most common non-operating cost in the airline industry, reflecting the large debt loads that airlines usually carry. Interest expenses incurred to finance operations such as aircraft purchases are considered non-operating costs as they are not directly related to an airline's operations. Other non-operating costs for airlines include any loss from the sale of aircraft, losses from investment positions, and other non-aviation expenses.

### 2. Cost Control Strategies in Airline Companies

Airline companies can reduce their costs with the control strategies and measures they take on the basis of each of the operational cost elements they are exposed to. The elements with the highest rate among these cost elements are fuel, personnel and labor costs. It is very difficult to reduce these
two important factors as it is beyond the direct control of airline companies. For this reason, financial managers of enterprises mostly focus on cost elements other than these two (Vasigh et al., 2010). For this purpose, cost control strategies of airline companies can be examined under the following headings (Chang and Shao, 2011; Vasigh et al., 2015):

- Optimizing route flight plans and using alternative airports,
- Encouraging employees to propose cost control strategies;
- Implementing fuel price hedging strategies,
- Reducing personnel expenses, including laying off some of the employees,
- Improving aircraft engine performance for aircraft fuel savings,
- Optimizing aircraft fleet management;
- Reducing fuel costs by improving flight speeds,
- Reducing the dead weight of an aircraft,
- Removing intermediary commissions in ticket sales,
- Eliminate aircraft departure delays,
- Removing free water and sandwiches on board,
- Replacing old planes,
- To schedule reasonable flight times for the flight crew,
- Reducing the size of the toilets on the plane to make room for four more seats in the economy class.

Some of the above-mentioned operating costs are fixed, some are variable, and some are both fixed and variable. Existence of these costs affects the cost reduction strategies of airlines. Airlines will need to overcome many barriers and situational factors if they are to implement such cost reduction strategies. An important barrier is the legal issue relating to the strategies to be implemented. Any attempts made on changing the existing operations must be made in accordance with safety regulations, labor law, and environmental issues, as well as noise restrictions and other legal requirements. Second, any attempt to reduce labor costs may require extensive and difficult negotiations with labor unions. Another potential barrier to cost control is the structure of the airline market. Some of the efforts made on restructuring, such as surcharges, baggage charges and service cuts, may be feasible only if the majority of other airlines comply. The meaning is that, before making a decision about its customer-sensitive standards, an airline needs to analyze its competitors and their expected reactions.

4. Literature Review

There are very few studies in literature that focus on the costs related to airline companies and their cost control strategies. Most studies on airline cost performance are seen to focus on the unit costs and how they differ from one company to another. It is also seen that especially the cost per Available Seat Mile (CASM) is used as a variable under these unit costs. CASM can be expressed as an airline’s operating expense over its already generated available seat miles (ASMs). In contrast, available seat miles are calculated as the number of available seats flown by the airline times the distance flown by the aircraft. A study by Tsoukalas et al. (2008) examined the unit costs between Network Legacy Carriers (NLC) and LCC airlines with the focus of CASM, and as a result, they revealed that unit costs, excluding fuel and transportation related expenses and especially labor unit costs, approached towards each other among both groups.

In addition, it is seen in the literature that the focal points of airline companies regarding the cost performance have changed in time. Especially with the deregulation in airline markets, researchers started to examine the effects of market efficiency and costs. Just after the US domestic airline market deregulation, Meyer et al. (1981) conducted studies on airline efficiency and unit costs, while Jordan (1982) focused on Canadian airlines and did a comprehensive study on its cost and productivity performance. Baltagi et al. (1995) examined cost changes such as technical change, economies of scale, density and input prices of US airlines between these periods, using datasets covering both pre- and post-deregulation. Regarding the subject, Caves et al. (1987) compared the cost structures of airline companies in order to examine the effects of deregulation. Morrel and Taneja (1979) focused on efficiency, and researchers such as Doganis (1985) and Pryke (1987) mentioned the unit cost differences between airline companies in America and Europe.

An inevitable result of deregulation has been the mergers and acquisitions (M&A) of airline companies in order to survive in this competitive environment. Through M&A’s the aim for these companies was to gain a better place within the market while trying to achieve economies of scope and scale at the same time (Nolan et al., 2014). This has made it possible for them to grow much faster when compared to their rivals. In general, M&As became a survival method for companies within the competitive aviation market (Merkert and Morrell, 2012). A study to determine the reasons for mergers and to examine their effects on the systematic risks of the companies that bid in the airline market was conducted by Evripidou (2012) where it was expressed that the reasons for mergers fell under three different headings: cost-effectiveness, economies of scale and market power. Merkert and Morrell (2012) also stated in their study that mergers and acquisitions reduce costs and this can be counted as one of their advantages. Goh and Yong (2006) focused on the strategic collaborations between airline companies in their study, and as a result for the study, they revealed that code-sharing collaborations affect the cost structure of the company. According to the results, strategic cooperation for these companies causes their costs to decrease. In addition, another finding obtained in the study was that having large partners and being in a positive cooperation with them had a greater effect on the costs of airlines. The effects of airline strategic alliances on airline companies have been examined by other researchers, and these effects were generally stated as on welfare and competition, traffic demand, airfare, partner selection, outputs and profitability.

Just as the emergence of collaborations, acquisitions and mergers, deregulation in airline markets has also led to the establishment of low-cost carriers (Kumar, 2012). This has attracted researchers’ interest and number of studies on LLCs is seen to be increasing. It is stated in literature that these low cost rivals create a significant competitive pressure (Tretheway, 2004) especially on traditional network carriers and invalidate the cost recovery strategies created by these large airline companies. Tretheway (2004) who has revealed the disruptions in the business models of large airline
companies and emphasized that these airlines no longer have an income to cover their traditional base costs conducted a supporting study. Franke (2004), on the other hand, stated that factors such as the decrease in the number of cabin crew, crew efficiency, higher utilization of aircraft, low ground handling fees due to the lack of main airport usage, and high average aircraft sizes were effective in low-cost carriers’ more affordable flights. In addition, O’Connell (2007) stated that when compared to network carriers, low-cost carriers can reduce costs by 50% and simultaneously provide close to 80% of the service offered by network carriers. As a result of all these studies, the importance of cost structures and strategies in the airline sector becomes clearer. Hofer et al. (2008) has dealt with these similar issues in terms of price premiums. The price premium is defined as the price increases that occur when market dominance and density is achieved at the airport and on the routes. The results of studies show that low-cost carriers do not actually receive price premiums, and at the same time, other network carriers do not receive high premiums during their existence in the market.

5. A Hypothetical Case Study
5.1. Purpose and scope of the study
In the context of controlling costs in the airline industry, this study aims to determine empirically until which available seat mile (ASM) an airline should continue its activities based on an analysis of the costs and revenues incurred relating to these ASM of a hypothetical airline company.

This study is based on an airline that has adopted the low-cost carrier (LCC) business model, which has and still is playing an important part in the dramatic expansion of the aviation industry. Although providing affordable, cheap tickets is the main characteristic of this model, LCC’s have many business and operational practices that helps to reduce their costs. Some of the cost saving practices assumed in the model, which affects their available seat miles (ASM), passenger revenue per usable seat mile (RPM), and total costs, involves using secondary airports, utilizing limited number of aircraft types, not offering any additional promotions, and trying to keep cost of labor as low as possible.

5.2. Method
In the study, the analysis will be made using the cost-volume-profit figures based on the data obtained from the aviation sector.

5.3. Analysis and Findings
The cost of producing available seat mile (ASM) for an airline depends on the types of adjustments it can make to the quantities of the various resources it uses (labor, fuel, etc.). These amounts tend to change often, especially in the short run. However, it requires more time for other sources to adapt to this change. For example, buying new aircraft or building new hangars can only be changed in a significant time frame. Sometimes focusing on the short term may not be enough for an airline to change its capacity, as the overall capacity is fixed and the period may be too short to change it. However, an airline can change its available seat miles in the short term, to an extent, through better use of its labor and an efficient time management and hence, affect its capacity. Since the airline is adding resources to a capacity that is fixed, together with its ASMs, its production may increase at an incremental rate for a time up to a point where the ASMs rate of increase will start to slow down until final capacity is reached. The principle behind this is referred to as the Law of Diminishing Returns, which is shown quantitatively in Table 2.

According to the values in Table 2, it can be seen that there is an increasing trend in the rate of ASMs until it reaches the value 2.6 million from which the rate of increase slows down. The third column of the table points to the total variable costs that are related to each level of available seat miles flown and shows that they are not constant. From 1.7 million ASMs to 2.6 ASMs there is a decreasing trend in the increase in total variable costs. However, afterwards this trend changes and the increase in variable costs will take place at an increasing rate, due to the Law of Diminishing Returns. The last column shows the total costs (sum of both fixed and variable costs) at each level of the ASMs. Figure 1 graphically shows the relationship between Total Cost, Total Fixed Cost, Total Variable Cost, Marginal Cost and ASM.

![Figure 1. Total Cost, Total Fixed Cost, Total Variable Cost, Marginal Cost and ASM (Hypothetical Data)](image)

Table 2. Total Fixed Costs, Total Variable Costs, and Total Costs for an Airline for the Period (000)

<table>
<thead>
<tr>
<th>Available Seat Miles (ASM)</th>
<th>Total Fixed Costs ($)</th>
<th>Total Variable Costs ($)</th>
<th>Total Costs ($)</th>
<th>Marginal Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>160</td>
<td>260</td>
<td>-</td>
</tr>
<tr>
<td>1.7</td>
<td>100</td>
<td>170</td>
<td>270</td>
<td>10</td>
</tr>
<tr>
<td>2.6</td>
<td>100</td>
<td>240</td>
<td>340</td>
<td>70</td>
</tr>
<tr>
<td>3.4</td>
<td>100</td>
<td>300</td>
<td>400</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>370</td>
<td>470</td>
<td>70</td>
</tr>
<tr>
<td>4.5</td>
<td>100</td>
<td>450</td>
<td>550</td>
<td>80</td>
</tr>
<tr>
<td>4.9</td>
<td>100</td>
<td>540</td>
<td>640</td>
<td>90</td>
</tr>
<tr>
<td>5.2</td>
<td>100</td>
<td>650</td>
<td>750</td>
<td>110</td>
</tr>
<tr>
<td>5.4</td>
<td>100</td>
<td>780</td>
<td>880</td>
<td>130</td>
</tr>
<tr>
<td>5.5</td>
<td>100</td>
<td>930</td>
<td>1030</td>
<td>150</td>
</tr>
</tbody>
</table>

According to the concept of passenger revenue per usable seat mile (RPM), it is assumed that fee-paying passengers will
fill not all ASMs produced by the airline. This means that revenue cannot always be generated per available seat mile created. This parameter is expressed as a percentage and the higher it is, the more efficient the airline will be. The Load factor is obtained by dividing the passenger revenue per usable seat mile by the Available Seat Mile. The assumption is that the load factors shown in Table 3 are related to the ASMs and RPMs shown previously. A reduction in the available seat miles will lead to an increase in load factors as the airline can choose to reduce flights and routes with the lowest load factors and profits.

<table>
<thead>
<tr>
<th>Available Seat Miles (ASM)</th>
<th>Revenue per Usable Seat Mile (RPM)</th>
<th>Load Factor (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.800</td>
<td>80</td>
</tr>
<tr>
<td>1.7</td>
<td>1.275</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>1.820</td>
<td>70</td>
</tr>
<tr>
<td>2.6</td>
<td>2.210</td>
<td>65</td>
</tr>
<tr>
<td>3</td>
<td>2.400</td>
<td>60</td>
</tr>
<tr>
<td>3.4</td>
<td>2.475</td>
<td>55</td>
</tr>
<tr>
<td>4</td>
<td>2.500</td>
<td>51</td>
</tr>
<tr>
<td>4.5</td>
<td>2.515</td>
<td>48</td>
</tr>
<tr>
<td>4.9</td>
<td>2.520</td>
<td>47</td>
</tr>
<tr>
<td>5</td>
<td>2.522</td>
<td>46</td>
</tr>
</tbody>
</table>

In practice, load factors above 75% and below 55% are not realistic, although a balance between flights with low and high load needs to be established. The level of ASMs at which the airline can minimize losses or maximize profits can be established if values of prices, RPMs, total revenues, total costs and load factors are provided beforehand.

Table-4 shows the hypothetical cost-volume-profit data of an airline that implements the Low Cost Carrier (LCC) business model. In the table, ASM shows the number of seat miles supplied in a given period, and RPM shows the revenue per mile filled by passengers from the seats supplied during that period. The load factor (LF), obtained by dividing RPM by ASM, represents the airline’s occupancy rate, or the rate at which it uses the capacity created.

If, in this scenario, the initially supplied seat miles are taken as 1 million, and the demand showed that 800,000 of these were to be filled by paid passengers, with the price per mile (yield) of $0.265 the total revenue becomes $212,000 ($0.265 x 800,000). Given that the total cost (total variable costs plus total fixed costs) incurred at this level is $260,000, the company will make a loss because the total cost is higher than the total revenue in 1 million ASM. When the company raises the level of ASM it created from 1 million to 1.7 million (supply increases), demand will be expected to increase as well, yet generally at a lower rate.

When the demand is taken as 1,275,000, the occupancy rate can drop from 80% to 75%, and the yield per mile can drop to $0.260. In this case, the total revenue will become $331,500 ($0.260 x 1,275,000), total costs will be $270,000 and the airline can then be seen to make a profit at this level ($331,500-$270,000=$61,500).

However, there is a point where after this level, as ASM increases, demand and revenue per mile and occupancy will decrease, yet the total revenue will still be higher than the total costs. Based on the data, the company will reach maximum profitability when ASM is 3.4 million with $0.250 as the yield per mile; making RPM 2,210,000 with 65% occupancy rate. After this level, as the ASM level increases, the demand, occupancy rate, price per mile (yield), and profitability will decrease. When ASM rises to 4.9 million, the load factor will drop to 51%, the yield per mile will drop to $0.235, and the total revenue will still be below the total cost, and the company will start to make a loss. If the company is unable to increase RPM or LF beyond this point, the company’s losses will increase as the price per mile (yield) also increases due to increased competition and reductions in response to further price reductions.

<table>
<thead>
<tr>
<th>ASM (Mil.)</th>
<th>Price ($)</th>
<th>RPM (Mil.)</th>
<th>Total Revenue (000 $)</th>
<th>Total Fixed Costs (000 $)</th>
<th>Total Variable Costs (000 $)</th>
<th>Total Costs (000 $)</th>
<th>Load Factor (%)</th>
<th>Profit or Loss (000 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.265</td>
<td>0.800</td>
<td>212</td>
<td>100</td>
<td>160</td>
<td>260</td>
<td>80</td>
<td>-4.8</td>
</tr>
<tr>
<td>1.7</td>
<td>0.260</td>
<td>1.275</td>
<td>331.5</td>
<td>100</td>
<td>170</td>
<td>270</td>
<td>75</td>
<td>+61.5</td>
</tr>
<tr>
<td>2.6</td>
<td>0.255</td>
<td>1.820</td>
<td>464.1</td>
<td>100</td>
<td>240</td>
<td>340</td>
<td>70</td>
<td>+124.1</td>
</tr>
<tr>
<td>3</td>
<td>0.250</td>
<td>2.210</td>
<td>552.5</td>
<td>100</td>
<td>300</td>
<td>400</td>
<td>65</td>
<td>+152.5</td>
</tr>
<tr>
<td>4</td>
<td>0.245</td>
<td>2.400</td>
<td>588</td>
<td>100</td>
<td>370</td>
<td>470</td>
<td>60</td>
<td>+118.0</td>
</tr>
<tr>
<td>4.5</td>
<td>0.240</td>
<td>2.475</td>
<td>594</td>
<td>100</td>
<td>450</td>
<td>550</td>
<td>55</td>
<td>+44.0</td>
</tr>
<tr>
<td>4.9</td>
<td>0.235</td>
<td>2.500</td>
<td>587.5</td>
<td>100</td>
<td>540</td>
<td>640</td>
<td>51</td>
<td>-52.5</td>
</tr>
<tr>
<td>5.2</td>
<td>0.230</td>
<td>2.515</td>
<td>578.5</td>
<td>100</td>
<td>650</td>
<td>750</td>
<td>48</td>
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<tr>
<td>5.4</td>
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<td>2.520</td>
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<td>780</td>
<td>880</td>
<td>47</td>
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</tr>
<tr>
<td>5.5</td>
<td>0.220</td>
<td>2.522</td>
<td>554.8</td>
<td>100</td>
<td>930</td>
<td>1030</td>
<td>46</td>
<td>-475.2</td>
</tr>
</tbody>
</table>
In this case, it is considered that it would be rational for the company to keep its activities at the level of 1.7-4.9 million ASM.

The calculations provided in Table 4 give an indication of how variables such as ASM, LF, Total Costs, Total Revenue, and price relate to one another. When LCC companies want to pursue different strategies they can be able to utilize these variables. For example, for deciding to pursue a profit maximizing strategy, 3.4 million ASMs should be produced. However, if the airline’s concern is more on retaining market share, then by increasing its scheduled flights and reducing its load factors to 55% system-wide, it could still make a profit of $44,000. At output levels beyond 4.5 million ASMs, traffic generated will not be enough to offset costs and, therefore, passengers will not further respond to price reductions.

In Figure 2, the relationship between total revenue and total cost and ASM is presented graphically. This airline’s profits are maximized at the production level where total costs fall below the total revenue at the maximum point. However, in case where RPMs that are provided in Figure 2 does not take place, both demand and revenues will fall in all of the price levels. If price are in a range that is not flexible (i.e., passengers are not responding to further price reductions), the airline’s only option will then be to reduce capacity (reduce ASMs). In doing so, it is hoped to reduce variable and total costs, improve load factors, and maintain profitability.

However, it would be rational for the airline company to continue its activities at these levels, as the total revenue generated at 1 Million and 4.9 Million ASM levels, despite the airline’s loss, contributes to some of the fixed costs after covering the variable costs.

Figure 2. Relationship Between Total Revenue, Total Cost, and ASM (Hypothetical Data)

6. Conclusion

Today, despite the uncontrollable systematic global factors such as financial crises, competition, national and international regulations, terrorist incidents, increase in oil prices, epidemics, climate and environment, cost control has become an important aspect for airline companies that aim to increase their company value by increasing profits and creating positive free cash flows. For this reason, airline companies are trying to minimize their costs and protect themselves from the risk of bankruptcy with strategies such as introducing "Low Cost Carriers “, and forming mergers and alliances among various airline companies.

Especially low-cost airline companies have managed to control their costs with some operative and strategic measures and methods. For example, in order to minimize their costs, Pegasus Airlines, a low-cost airline carrier has stopped serving sandwiches and water in the cabin, increased the number of seats by reducing the distance between seats, and received support from the cabin crew for preparing the plan for its next flight in order to avoid penalties for violating flight departure times. At the same time, in order to increase their income, Pegasus airlines have taken measures such as in-cabin food and beverage sales, and charging extra fees for selecting seats and checking in additional luggage.

Airline companies all over the world have been adversely affected by the Corona Virus (Covid-19) pandemic for the past two years. Whether they are LCC or Network Legacy Carriers, airline companies are trying to reduce their losses from this pandemic. For example, American Airlines, a legacy carrier company, achieved a cost reduction of $1.3 billion by applying various cost reduction strategies after its loss of $8.9 billion in 2020 (https://thepointsguy.com/news/american-airlines-cost-cutting-2020-loss/, accessed 29.10.2021).

Unlike other sectors, businesses in the airline industry have to be exposed to a very high amount of fixed costs in order to carry out their activities, and this requires the economic and rational use of their aircraft, as it is their main fixed asset. In the airline sector, again unlike other sectors, the efficiency volume in passenger transport is generally expressed in seat miles supplied, passenger income per seat mile, and income per ton in cargo transportation parameters. Based on the activity volumes specified in this study, between which activity volumes it would be rational for a hypothetical airline company to continue its main activities was investigated. In these determined activity volumes it will be rational for the company to continue its activities if the total revenue is generally higher than the costs. In situations where the costs are higher than the revenues, if the variable costs can be covered with the revenues on hand, that is, if the contribution margin is positive, then again the company can continue its activities.

In addition, costing and cost control can be done in a more rational and realistic way by differentiating general production expenses according to the services provided by applying activity-based costing instead of distributing the general production expenses equally to the seats flown by using the traditional costing system in airline companies that provide different classes of flight services.

Strategic alliances established between airline companies, which have become widespread today, will rationalize and reduce the costs of these airline companies due to the synergy
they create. For example, the three major strategic alliances currently in existence globally, Star Alliance, SkyTeam and OneWorld, account for 61% of worldwide sales and provide cost savings and consistent service to their customers (https://www.sia-partners.com/en/news-and-publications/from-our-experts/partnerships-between-airlines-strategy-win-asian-market, accessed 30.10.2021)

As policy implications, it is evaluated that an airline company can increase its profitability and free cash flow by controlling and reducing its costs, and as a result, it can maximize the market value of its stocks and company value. This will provide a greater return for its investors and hence, will make the company an attractive investment opportunity.

Within the scope of the new works to be done, it is considered that the issue of capital structure and cost in airline companies can be an advanced research topic following this study. In terms of cost control, airline companies should apply new methods and approaches under the pressure of emerging and increasing costs. They should use and develop their creativity. Along with these methods and approaches, it is recommended that they also increase customer satisfaction and service quality, and thus contribute to the airline industry in which they serve, nationally and internationally.

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References


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