Mini Project: Airline Fare Adjustment & Profit-Loss Analysis

Background

This project analyzes the impact of flight ticket price adjustments (fare adjustments) on company profits and losses. The main focus of the analysis is to understand how fare increases, refunds, and transaction volumes affect the financial performance of airlines and to identify areas with the highest risk of loss.

Objectivity

This analysis aims to:

1. Identify airlines and routes with the highest transaction volume.
2. Analyze the impact of fare increases on company profits and losses.
3. Compare transaction performance and financial impact between domestic and international flights.
4. Identify loss patterns based on frequency and magnitude of financial impact.

Dataset Overview

The dataset used is flight transaction simulation data that includes changes in ticket prices after booking. The data includes information on airlines, routes, flight types, initial and actual prices, fare categories, refund status, and Cost of Refund as the main indicator of financial impact.

Data Preparation

The data preparation stages include:
Data cleaning and numerical format consistency.
Classification of transactions based on flight type, fare category, and transaction status.
Selection of Cost of Refund as the main profit/loss metric because it represents the company's actual cash flow.
Data aggregation using queries to generate analysis summaries and visualizations.

Tools Used

Google Sheets (QUERY, aggregation, visualization)
Spreadsheet-based analysis & charting

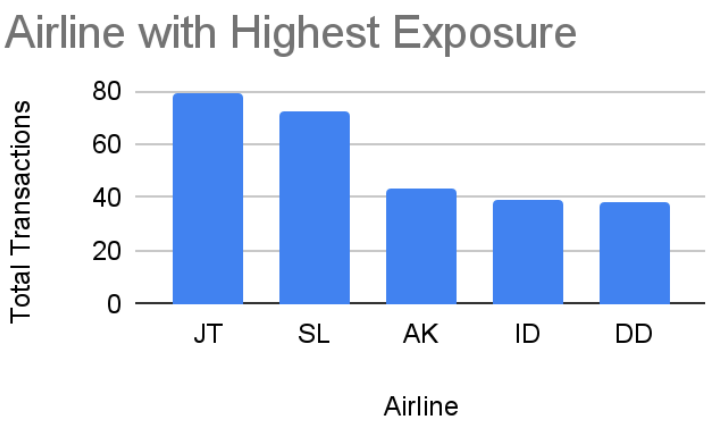
Analysis

A. Market Share & Performance

1. Airline with Highest Exposure

Airline	Total Transactions
JT	79
SL	72
AK	43
ID	39
DD	38

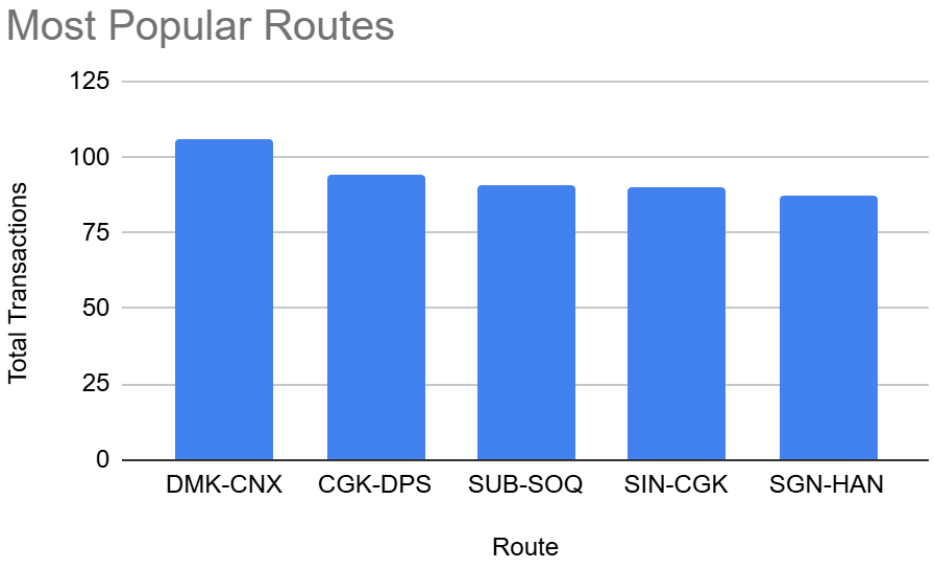
Data was collected from baggage purchases over a one-year period based on total transactions on the airline.



Based on the chart and table above, it can be concluded that the volume of baggage purchases for JT and SL dominated the highest sales. This shows a significant contribution to revenue. These dominant purchases also have the potential to increase the scope of losses in the event of fare increases or refunds, making price control and refund management even more important.

2. Most Popular Routes

Route	Flight Type	Total Transactions
DMK-CNX	Domestic	106
CGK-DPS	Domestic	94
SUB-SOQ	Domestic	91
SIN-CGK	International	90
SGN-HAN	Domestic	87
TPE-MEL	International	82



Based on available data, the DMK-CNX route has the highest baggage purchase rate. This indicates that many people travel on the DMK-CNX route. This route needs to be monitored for evaluation in determining fare adjustment policies on high-demand routes.

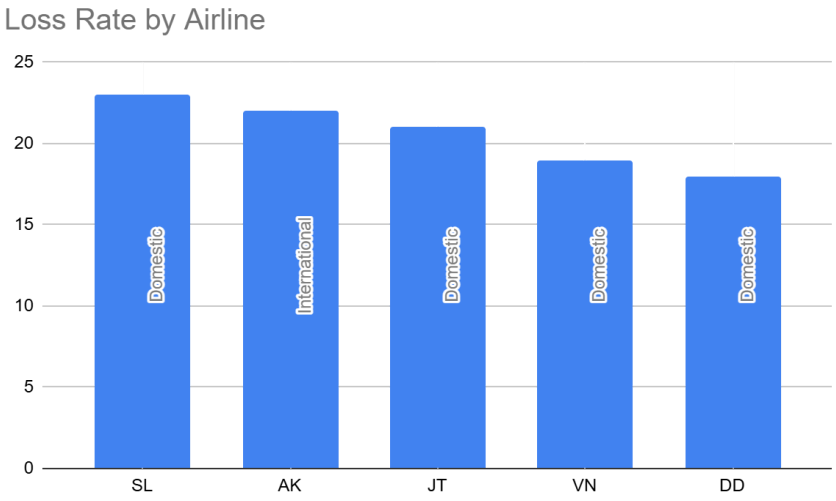
High transaction volume does not necessarily translate into proportional profits, which indicates pricing inefficiencies or a higher risk of refunds, as high transaction volume is not a standalone indicator of good financial performance.

To improve profitability, companies should prioritize monitoring airlines and routes with high loss rates, rather than just focusing on reducing the number of loss-making transactions.

B. Loss Rate

1. Loss Rate by Airline

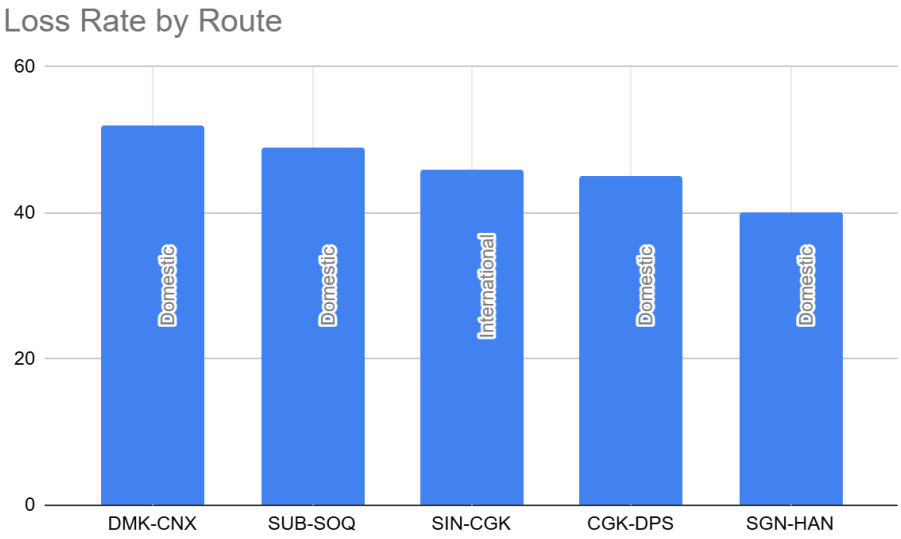
Airline	Classification	Total Loss Transactions
SL	Domestic	23
AK	International	22
JT	Domestic	21
VN	Domestic	19
DD	Domestic	18



Based on this data, it can be concluded that SL contributed the most losses for domestic routes, with a total of 23 transactions. These losses were caused by rising prices that had not yet reached the maximum buffer, resulting in baggage continuing to be issued. This indicates that even though it is the airline with the highest volume, it does not necessarily contribute the most profit.

2. Top 5 Most Popular Routes

Route	Classification	Total Loss Transactions
DMK-CNX	Domestic	52
SUB-SOQ	Domestic	49
SIN-CGK	International	46
CGK-DPS	Domestic	45
SGN-HAN	Domestic	40



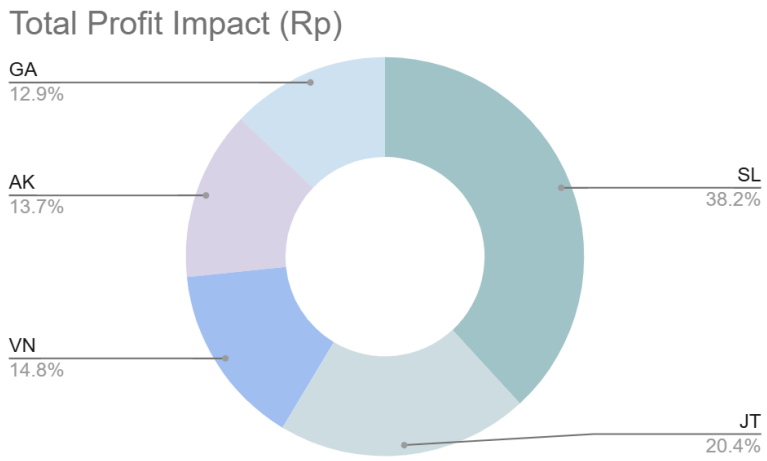
Similar to SL airlines, the routes with the highest volume cannot generate more profit. DMK-CNX for domestic flights actually contributes the most losses, so there must be an evaluation of the fare adjustment policy on high-demand routes.

Fare increases not only contribute to high losses per transaction, but also increase the risk of refunds if they are still issued, especially on high-volume routes.

3. Fare increase impact on profit

Airline	Total Fare Increase Transactions	Total Profit Impact (Rp)	Avg Profit per Transaction (Rp)
SL	38	Rp55,268,300.00	Rp1,454,428.95
JT	39	Rp29,611,000.00	Rp759,256.41
VN	19	Rp21,384,500.00	Rp1,125,500.00
AK	26	Rp19,910,150.00	Rp765,775.00
GA	15	Rp18,678,050.00	Rp1,245,203.33

The losses are highly concentrated among a small number of airlines, with the top five airlines accounting for the majority of the total financial losses.



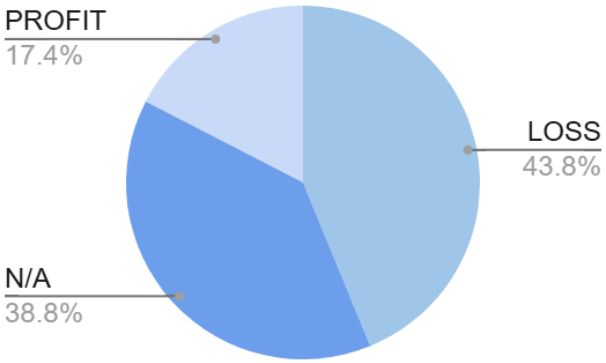
Only one point behind JT in fare increase, SL contributed the largest total profit. This shows that SL's fare increase strategy is more effective in generating margins per transaction.
This shows that pricing strategies must balance revenue growth with refund risk control.

C. Profit & Loss Analysis

1. Total Revenue vs. Total Loss

LOSS/PROFIT	SUM of ACTUAL FARE	%
LOSS	Rp1,222,609,200.00	43.78%
N/A	Rp1,083,300,000.00	38.79%
PROFIT	Rp486,878,800.00	17.43%
Grand Total	**Rp2,792,788,000.00**	**100.00%**

Based on the table, it can be concluded that total loss has a higher percentage compared to the N/A percentage and profit calculated from the total actual fare.



From the chart, it can be seen that baggage sales in 2025 will still face high losses with a percentage value of 43.78%. This should be a concern and a suitable solution should be found immediately so that the percentage of losses can be reduced.

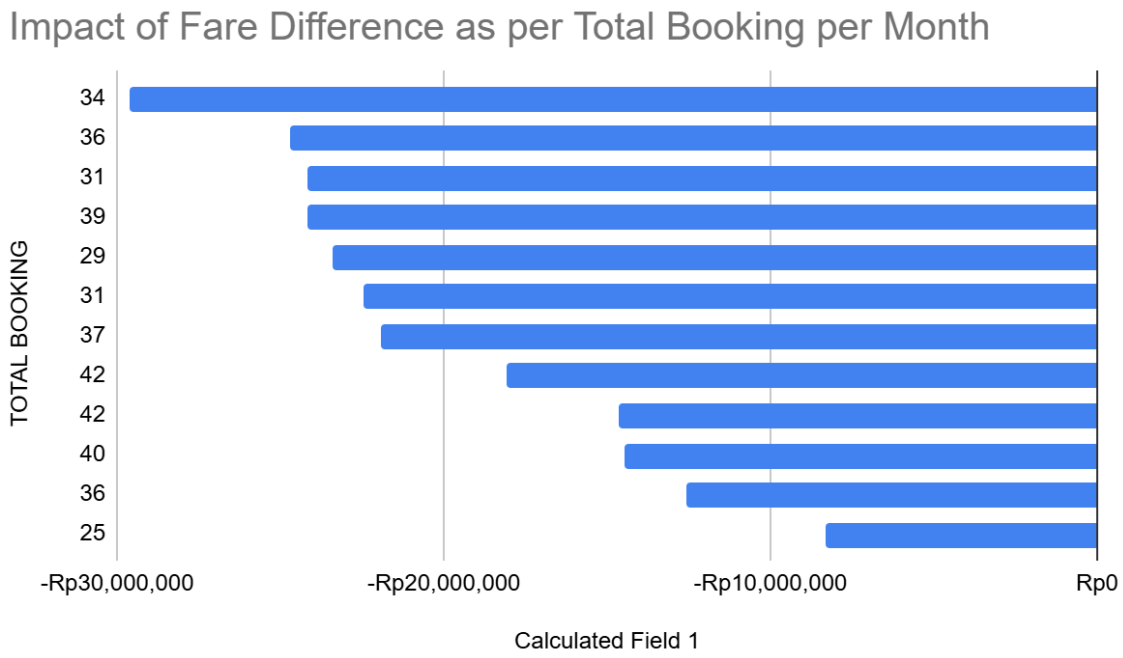
2. Impact of Fare Difference

LOSS/PROFIT	INITIAL FARE	ACTUAL FARE	CASH IMPACT	Calculated Field 1
LOSS	Rp958,373,000	Rp1,222,609,200	Rp264,236,200	Rp1,222,609,200
N/A	Rp433,320,000	Rp1,083,300,000	-Rp433,320,000	Rp0
PROFIT	Rp512,504,000	Rp486,878,800	-Rp25,625,200	Rp486,878,800
Grand Total	**Rp1,904,197,000**	**Rp2,792,788,000**	**-Rp194,709,000**	**Rp1,709,488,000**

N/A status is a status where the price increase is extremly high (fare increase over 100%). According to the table, the company lost Rp433,320,000. The loss was not due to paying the difference, but because the transaction was canceled due to the significant price increase.

This table is taken from the calculation of total bookings and baggage sales losses incurred over a period of one year.

MONTH TREND	TOTAL BOOKING	Calculated Field 1	SUM of INITIAL FARE	SUM of ACTUAL FARE
August	34	-Rp29,625,400	Rp140,343,000	Rp169,968,400
October	36	-Rp24,723,150	Rp129,992,000	Rp154,715,150
July	31	-Rp24,182,200	Rp97,772,000	Rp121,954,200
November	39	-Rp24,164,850	Rp167,791,000	Rp191,955,850
February	29	-Rp23,404,500	Rp88,995,000	Rp112,399,500
June	31	-Rp22,460,000	Rp150,864,000	Rp173,324,000
January	37	-Rp21,953,300	Rp134,194,000	Rp156,147,300
May	42	-Rp18,100,450	Rp169,416,000	Rp187,516,450
December	42	-Rp14,635,950	Rp104,762,000	Rp119,397,950
April	40	-Rp14,494,300	Rp126,533,000	Rp141,027,300
September	36	-Rp12,557,600	Rp96,291,000	Rp108,848,600
March	25	-Rp8,309,300	Rp63,924,000	Rp72,233,300
Grand Total	**422**	**-Rp238,611,000**	**Rp1,470,877,000**	**Rp1,709,488,000**



Based on this chart there is a discrepancy between total bookings and total actuals, with August showing a total loss of Rp29,625,400.00, while December, with a higher total, experienced a smaller loss of Rp14,635,950.00. This demonstrates that high booking volume is not necessarily the root cause of high losses.

Key Insight

Although the nominal increase in ticket prices appears small, the high frequency of incidents at certain airlines has caused significant losses (based on LOSS data). In addition, price spikes above 100% are the main cause of failed transactions (refunds), which result in lost revenue potential. This highlights the importance of focusing on the severity of losses rather than just volume.

Recommendations

This analysis shows that financial performance is influenced not only by transaction volume, but also by price adjustments and refund behavior. A fare increase strategy can boost revenue, but without proper control, it can increase the risk of losses.

Conclusion

This analysis shows that the financial impact of fare adjustments is determined not only by transaction volume, but also by refund patterns and the amount of loss per transaction. Fare increases can increase transaction value, but without proper control, they actually increase the risk of loss. By utilizing the Total Profit Impact (Cost of Refund) metric, this analysis helps identify airlines and routes with the highest exposure to

losses, thereby supporting data-driven decision-making for pricing optimization and financial risk control.