TITLE

Aircraft analysis for new aviation investment

Sub title:

Data driven recommendations for purchasing low –risk aircraft.

Presented: by Kamuri Dennis.

OVERVIEW

Our company is exploring entry in the aviation industry.

- Aircraft ownership involves safety , financial and operational risk.
- This analysis uses historical aviation accident data to identify lower risk aircraft options.
- Goal: Support informed ,data-driven purchasing decision.

BUSSINES UNDERSTANDING

- THE BUSINESS PROBLEM
- The company plans to purchase and operate aircraft.
- Leadership lacks aviation risk experience.
- Poor aircraft choices could lead to:
- Higher insurance cost
- Increased maintenance expenses.
- Safety and reputational risk.

DATA UNDERSTANDING

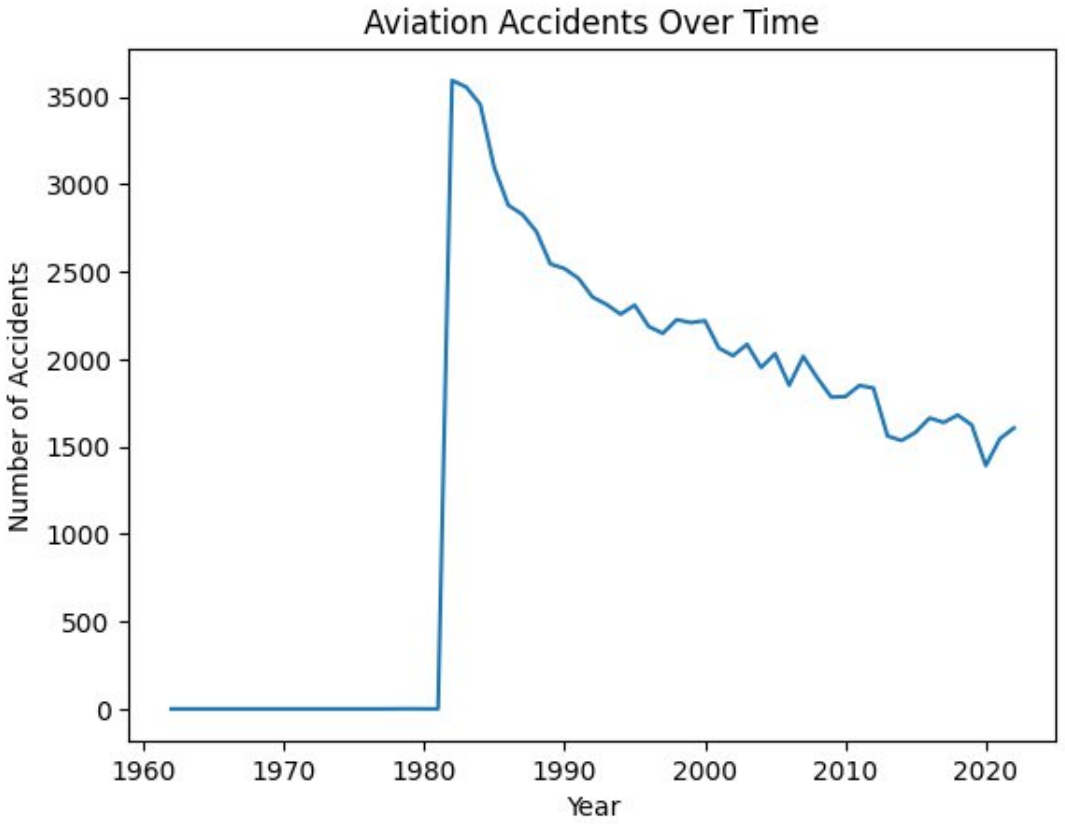
- Data source
- National Transportation Safety Board
- Aviation accident data from 1962-2023
- Includes:
- Aircraft make and model
- Accident severity
- Fatalities
- Damage level
- Purpose of flight
- Focus on analysis:
- Aeroplanes only.
- Modern data(1990-2023)

HOW WE DEFINED RISK

- Risk definition
- Aircraft was evaluated using three key factors.
- Accident frequency-how often accidents happen.
- Fatality Rate-likelihood of fatal outcomes.
- Damage severity-extent of aircraft damage.
- This approach balances safety , cost and operational reliability.

OVERALL SAFETY TRENDS

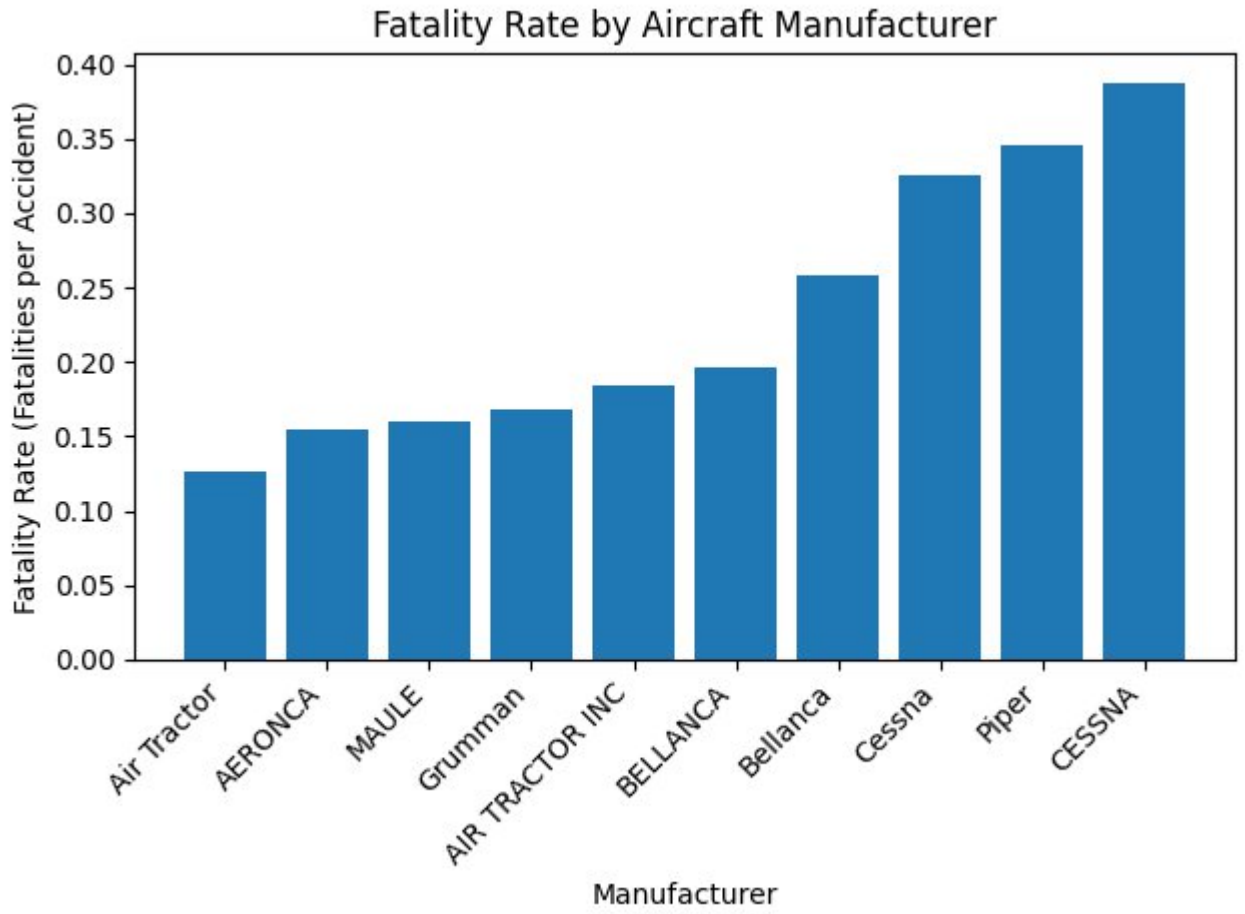
- Aviation safety over time.
- Overall aviation accidents have declined over time.
- Modern aircraft benefit from
- Improved technology
- Better regulations
- Enhanced pilot training.
- Line chart showing declining accidents over time.



- Insight:
- Newer aircraft and manufacturers tend to carry low risk

LOWEST- RISK AIRCRAFT MANUFACTURERS

- Manufacturers risk comparison
- Some manufacturers consistently show
- Low accident frequency.
- Low fatality rates.
- Others show severity despite fewer accidents.
- Bar chart of fatality rate by manufacturer



- insight:
- Manufactures choice sifginficantly affects operational risk.

DAMAGE SEVERITY ANALYSIS

- Aircraft Damage Outcomes
- Aircraft damage levels impact:
- Repair costs
- Downtime
- Insurance premiums
- Certain aircraft experience a higher proportion of substantial or destroyed damage

BUSINESS RECOMMENDATION 1

- **Recommendation 1: Prioritize Low-Fatality Manufacturers**
- Select aircraft from manufacturers with:
  - Low fatal accident rates
  - Consistent safety performance
- Reduces:
  - Liability exposure
  - Insurance costs
- **Business Impact:**
  Improved safety reputation and long-term cost savings

BUSINESS RECOMMENDATION 2

- **Recommendation 2: Avoid High-Damage Aircraft Models**
- Aircraft with high damage severity lead to:
  - Expensive repairs
  - Operational downtime
- Even moderate accident frequency can be costly
- **Business Impact:**
  Lower maintenance costs and higher fleet availability

BUSINESS RECOMMENDATION 3

- **Recommendation 3: Focus on Modern, Commercially Used Aircraft**
- Aircraft used in commercial operations show:
  - Stronger safety trends
  - Better maintenance standards
- Avoid older or niche aircraft types during initial expansion
- **Business Impact:**
  Predictable operations and reduced regulatory risk

NEXT STEPS

- **Next Steps**
- Conduct model-level analysis before final purchase
- Evaluate maintenance and insurance costs
- Use dashboard for ongoing risk monitoring
- Reassess aircraft risk annually using updated data

THANK YOU

- **Thank You**
- Questions?
- **Contact:**
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