BANKRUPTCY IN TAIWAN

INTRODUCTION

This study focuses on analyzing a dataset from the UCI Machine Learning Repository that predicts the likelihood of bankruptcy for Taiwanese companies. The goal is to explore various financial indicators to identify patterns and trends associated with bankrupt and non-bankrupt companies.

This study aims to provide a comprehensive understanding of the financial characteristics that distinguish bankrupt companies from their non-bankrupt counterparts, aiding in the development of predictive models for bankruptcy.

KEY QUESTIONS TO ANSWER:

1. Which financial metrics are most correlated with Bankruptcy?
2. Are there specific trends in financial metrics leading up to bankruptcy?
3. What are the differences in financial rations between bankrupt and non-bankrupt companies?
4. Can we identify a set of financial indicators that reliably predict bankruptcy?
5. How does the financial health of companies change in the years leading up to bankruptcy?

SUMMARY OF TOOLS/METHODS USED

1.Data Retrieval: Utilized the ucimlrepo Python package to fetch the Taiwanese Bankruptcy Prediction dataset from the UCI Machine Learning Repository.

2.Data Preparation: Cleaned column names to ensure consistency and clarity for analysis. Separated features and target variable into pandas DataFrames (X and y, respectively).

3.Exploratory Data Analysis (EDA):

- Calculated summary statistics.
- Visualized trends and distributions using seaborn and matplotlib.
- Identified key financial indicators (e.g., ROA, Liability to Equity ratio) for further analysis.

4.Data Analysis:

- Compared financial metrics between bankrupt and non-bankrupt companies.
- Calculated averages and extremes for key indicators to understand trends and variations.

5.Visualization:

- Generated line plots to visualize smoothed trends in ROA for bankrupt and non-bankrupt companies.
- Created bar plots to compare the count of bankrupt vs. non-bankrupt companies.
- Developed scatter plots to explore relationships between financial metrics.

Tools Used: Python, pandas, seaborn, matplotlib.

FINDINGS

1.Count of Bankrupt vs. Non-Bankrupt Companies:

1. Significantly more non-bankrupt companies observed compared to bankrupt ones.
2. Expected, as bankruptcy is less common in a given population of companies.

2.Trends in Return on Assets (ROA):

1. Non-bankrupt companies exhibit higher and more stable ROA compared to bankrupt ones.
2. Healthy ROA is indicative of financial stability.
3. Bankrupt companies show decreasing trend in ROA, a potential warning sign of financial distress.

FINDINGS

3. Highest and Lowest ROA Values:
Bankrupt companies' highest ROA significantly lower than non-bankrupt ones.
•Lowest ROA values for bankrupt companies typically negative or very low, indicating financial struggles.

4. Relationship between ROA and Operating Profit Rate:
•Clear distinction between bankrupt and non-bankrupt companies observed.
•Non-bankrupt companies have higher ROA and Operating Profit Rate, indicating better financial health.
•Operational efficiency plays significant role in financial stability.

INSIGHTS

•**Importance of ROA:** Crucial for financial health; higher ROA associated with lower bankruptcy likelihood.

•**Early Detection of Financial Distress:** Monitoring decreasing ROA trends can provide early warning signs.

•**Operational Efficiency:** Companies with better operational efficiency tend to have better financial health and lower bankruptcy risk.

CONCLUSION

- **Summary:**
- Explored financial data to predict bankruptcy.
- Analyzed key financial metrics for trends.
- **Implications:**
- **Financial Health Awareness:** Monitor metrics for company stability.
- **Early Warning Signs:** Detect financial issues early.
- **Operational Efficiency:** Key to financial stability.
- **Key Takeaways:**
- **ROA Crucial:** ROA vital for predicting bankruptcy.
- **Timely Action:** Early detection prevents bankruptcy.
- **Operational Excellence:** Focus on operational efficiency.

FINAL THOUGHT

- **Understanding financial metrics enables proactive decision-making and risk mitigation.**

QUESTIONS?