The data were collected from the Taiwan Economic Journal for the years 1999 to 2009. Company bankruptcy was defined based on the business regulations of the Taiwan Stock Exchange.

**Attribute Information**

**Version 2:** Updated column names and description to make the data easier to understand (Y = Output feature, X = Input features)

Y - Bankrupt?: Class label  
X1 - ROA(C) before interest and depreciation before interest: Return On Total Assets(C)  
X2 - ROA(A) before interest and % after tax: Return On Total Assets(A)  
X3 - ROA(B) before interest and depreciation after tax: Return On Total Assets(B)  
X4 - Operating Gross Margin: Gross Profit/Net Sales  
X5 - Realized Sales Gross Margin: Realized Gross Profit/Net Sales  
X6 - Operating Profit Rate: Operating Income/Net Sales  
X7 - Pre-tax net Interest Rate: Pre-Tax Income/Net Sales  
X8 - After-tax net Interest Rate: Net Income/Net Sales  
X9 - Non-industry income and expenditure/revenue: Net Non-operating Income Ratio  
X10 - Continuous interest rate (after tax): Net Income-Exclude Disposal Gain or Loss/Net Sales  
X11 - Operating Expense Rate: Operating Expenses/Net Sales  
X12 - Research and development expense rate: (Research and Development Expenses)/Net Sales  
X13 - Cash flow rate: Cash Flow from Operating/Current Liabilities  
X14 - Interest-bearing debt interest rate: Interest-bearing Debt/Equity  
X15 - Tax rate (A): Effective Tax Rate  
X16 - Net Value Per Share (B): Book Value Per Share(B)  
X17 - Net Value Per Share (A): Book Value Per Share(A)  
X18 - Net Value Per Share (C): Book Value Per Share(C)  
X19 - Persistent EPS in the Last Four Seasons: EPS-Net Income  
X20 - Cash Flow Per Share  
X21 - Revenue Per Share (Yuan ¥): Sales Per Share  
X22 - Operating Profit Per Share (Yuan ¥): Operating Income Per Share  
X23 - Per Share Net profit before tax (Yuan ¥): Pretax Income Per Share  
X24 - Realized Sales Gross Profit Growth Rate  
X25 - Operating Profit Growth Rate: Operating Income Growth  
X26 - After-tax Net Profit Growth Rate: Net Income Growth  
X27 - Regular Net Profit Growth Rate: Continuing Operating Income after Tax Growth  
X28 - Continuous Net Profit Growth Rate: Net Income-Excluding Disposal Gain or Loss Growth  
X29 - Total Asset Growth Rate: Total Asset Growth  
X30 - Net Value Growth Rate: Total Equity Growth  
X31 - Total Asset Return Growth Rate Ratio: Return on Total Asset Growth  
X32 - Cash Reinvestment %: Cash Reinvestment Ratio  
X33 - Current Ratio  
X34 - Quick Ratio: Acid Test  
X35 - Interest Expense Ratio: Interest Expenses/Total Revenue  
X36 - Total debt/Total net worth: Total Liability/Equity Ratio  
X37 - Debt ratio %: Liability/Total Assets  
X38 - Net worth/Assets: Equity/Total Assets  
X39 - Long-term fund suitability ratio (A): (Long-term Liability+Equity)/Fixed Assets  
X40 - Borrowing dependency: Cost of Interest-bearing Debt  
X41 - Contingent liabilities/Net worth: Contingent Liability/Equity  
X42 - Operating profit/Paid-in capital: Operating Income/Capital  
X43 - Net profit before tax/Paid-in capital: Pretax Income/Capital  
X44 - Inventory and accounts receivable/Net value: (Inventory+Accounts Receivables)/Equity  
X45 - Total Asset Turnover  
X46 - Accounts Receivable Turnover  
X47 - Average Collection Days: Days Receivable Outstanding  
X48 - Inventory Turnover Rate (times)  
X49 - Fixed Assets Turnover Frequency  
X50 - Net Worth Turnover Rate (times): Equity Turnover  
X51 - Revenue per person: Sales Per Employee  
X52 - Operating profit per person: Operation Income Per Employee  
X53 - Allocation rate per person: Fixed Assets Per Employee  
X54 - Working Capital to Total Assets  
X55 - Quick Assets/Total Assets  
X56 - Current Assets/Total Assets  
X57 - Cash/Total Assets  
X58 - Quick Assets/Current Liability  
X59 - Cash/Current Liability  
X60 - Current Liability to Assets  
X61 - Operating Funds to Liability  
X62 - Inventory/Working Capital  
X63 - Inventory/Current Liability  
X64 - Current Liabilities/Liability  
X65 - Working Capital/Equity  
X66 - Current Liabilities/Equity  
X67 - Long-term Liability to Current Assets  
X68 - Retained Earnings to Total Assets  
X69 - Total income/Total expense  
X70 - Total expense/Assets  
X71 - Current Asset Turnover Rate: Current Assets to Sales  
X72 - Quick Asset Turnover Rate: Quick Assets to Sales  
X73 - Working capitcal Turnover Rate: Working Capital to Sales  
X74 - Cash Turnover Rate: Cash to Sales  
X75 - Cash Flow to Sales  
X76 - Fixed Assets to Assets  
X77 - Current Liability to Liability  
X78 - Current Liability to Equity  
X79 - Equity to Long-term Liability  
X80 - Cash Flow to Total Assets  
X81 - Cash Flow to Liability  
X82 - CFO to Assets  
X83 - Cash Flow to Equity  
X84 - Current Liability to Current Assets  
X85 - Liability-Assets Flag: 1 if Total Liability exceeds Total Assets, 0 otherwise  
X86 - Net Income to Total Assets  
X87 - Total assets to GNP price  
X88 - No-credit Interval  
X89 - Gross Profit to Sales  
X90 - Net Income to Stockholder's Equity  
X91 - Liability to Equity  
X92 - Degree of Financial Leverage (DFL)  
X93 - Interest Coverage Ratio (Interest expense to EBIT)  
X94 - Net Income Flag: 1 if Net Income is Negative for the last two years, 0 otherwise  
X95 - Equity to Liability

**Source**

Deron Liang and Chih-Fong Tsai, deronliang '@' gmail.com; cftsai '@' mgt.ncu.edu.tw, National Central University, Taiwan  
The data was obtained from UCI Machine Learning Repository: <https://archive.ics.uci.edu/ml/datasets/Taiwanese+Bankruptcy+Prediction>