1. **Cases we looked into**

Bank	Types of manipulation/fraud
Banco Ambrosiano (Italy, 1982)	Falsification of accounts, offshore transactions, fraudulent loans, money laundering
BCCI (Bank of Credit and Commerce International) (International, 1991)	Falsified records, embezzlement, money laundering, shell companies, bribery.
Barings Bank (UK, 1995)	Unauthorized trading (Nick Leeson), falsification of trading records, hiding losses.
Enron-related Bank Failures (USA, Early 2000s)	Off-balance-sheet financing, mark-to-market accounting manipulation, complex financial structures, fraudulent reporting.
Lehman Brothers (USA, 2008)	Misleading accounting practices, repo 105 transactions, hiding debt through accounting techniques
Bernard Madoff Ponzi Scheme (USA, 2008)	Ponzi scheme, falsified investment records, fictitious profits.
Colonial Bank (USA, 2009)	Mortgage fraud, falsifying records, hiding bad loans.
Punjab National Bank Scam (India, 2018)	Fake Letters of Undertaking (LoUs), fraudulent issuance of guarantees, manipulation of SWIFT messaging system.
Kaupthing Bank (Iceland, 2008)	Market manipulation, fraudulent loans, falsification of financial statements.
Deutsche Bank AG (Germany, 2019, 2021)	Bribery, falsified expenses.

2. **Common features across these cases:**

- Most involve shell companies
- Most involved inflation of revenue/income
- All caused by poor corporate governance (inadequate controls)
- All involved poor regulatory oversight
- MTM Accounting method more likely to commit fraud
- Motive: company performing poorly
- Red Flag: Company performs relatively well despite adverse market conditions

3. **List of variables & how you would construct them so that you could model the manipulation/fraud observed?**

- Historical cost or MTM accounting method? (via logistic regression)
- High number of SPVs but little to no disclosure? (text/context analysis)
- Interest Coverage Ratio (declining indicates difficulty in repaying debts)
- Quality of Earnings Ratio (measures how reliable a company's reported net income is by comparing it to its cash from operations)
- P/E ratio (abnormally high or low P/E ratios relative to industry average may indicate market scepticism or overvaluation/undervaluation, potentially affecting concerns about quality of reported earnings.)
- Compensation system (focused on short-term compensation only?) - earnings management
- Percentage of independent directors on the board
- Allowance for Loan Losses -> measures assessment of credit risk and the adequacy of collateral backing the loans.
    - Take as a proportion of total loans to find out quality of loans granted
    - Increases may indicate bad loans granted and hence pressure to commit fraud
    - Can also look at changes in this proportion -> sudden increases/drops?
- Amount of loans written off -> historically less than usual?
- History of accounting misstatements -> number of qualified audit opinions?
- Whether the bank has been subject to regulatory fines or enforcement actions
- Changes in leverage ratios, particularly in conjunction with unusual transaction patterns, could help identify potential instances of fraud. Fraudulent entities may engage in activities to artificially reduce their reported leverage ratios or financial risk metrics
- Which auditor?
- How big is the auditor?
- Market Sentiment and External Factors: Monitor broader market sentiment and external factors that may influence the likelihood of fraudulent activity. Economic downturns or regulatory changes, for example, could create conditions conducive to fraud. (text sentiment analysis)

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