Looking Ahead: Techniques, Validation, Testing?

Wharton Financial Institutions Center

Modeling Retail Credit Risk After the Sub-Prime Crisis

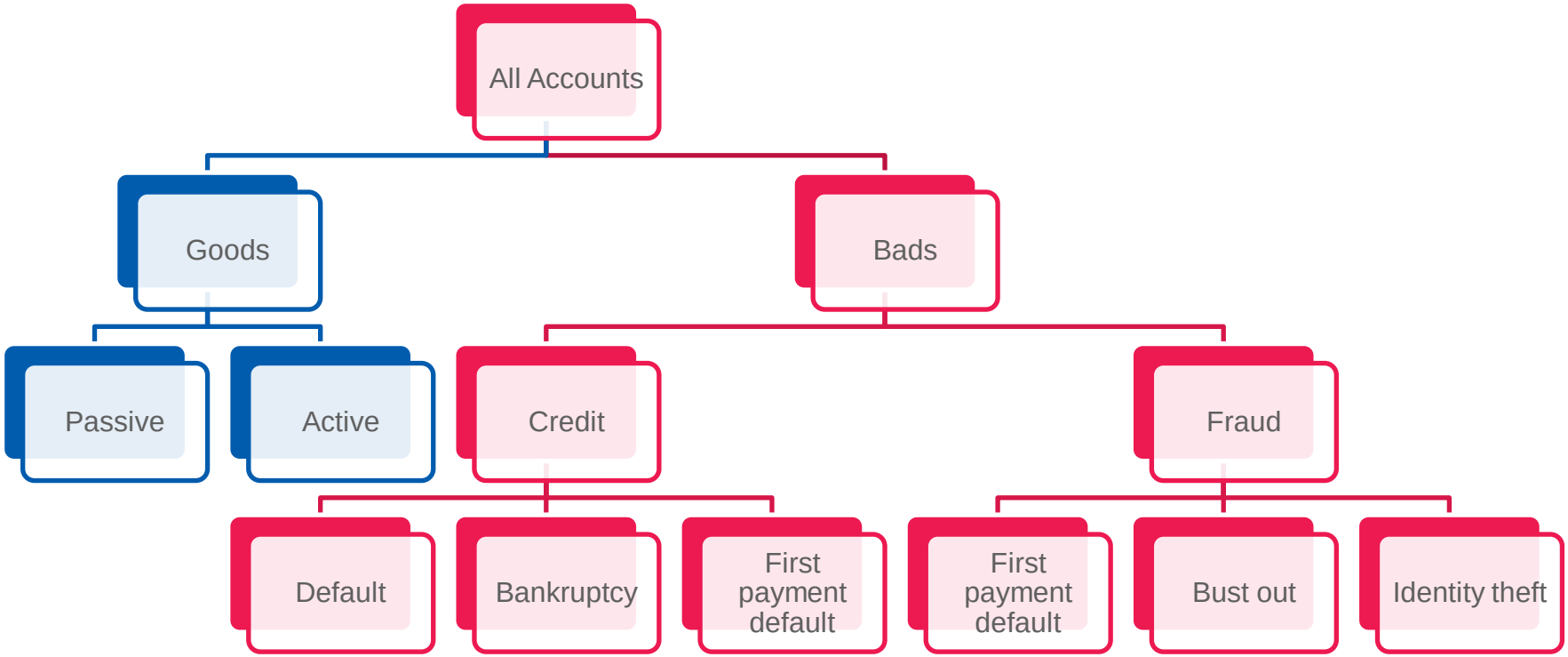
Credit scoring past and present

- Well established, robust scoring methodologies
  - Logistic/linear regression
  - Neural net
  - Bad versus good (0/1)
- Predictive data
  - Bureau data –thousands upon thousands of credit attributes!
  - Application/deal
  - Transaction, accounts receivable
  - Alternative data, new elements to bureau
- Segmentation
  - Heuristic
  - Regression tree
- Forecasting
  - Past = future

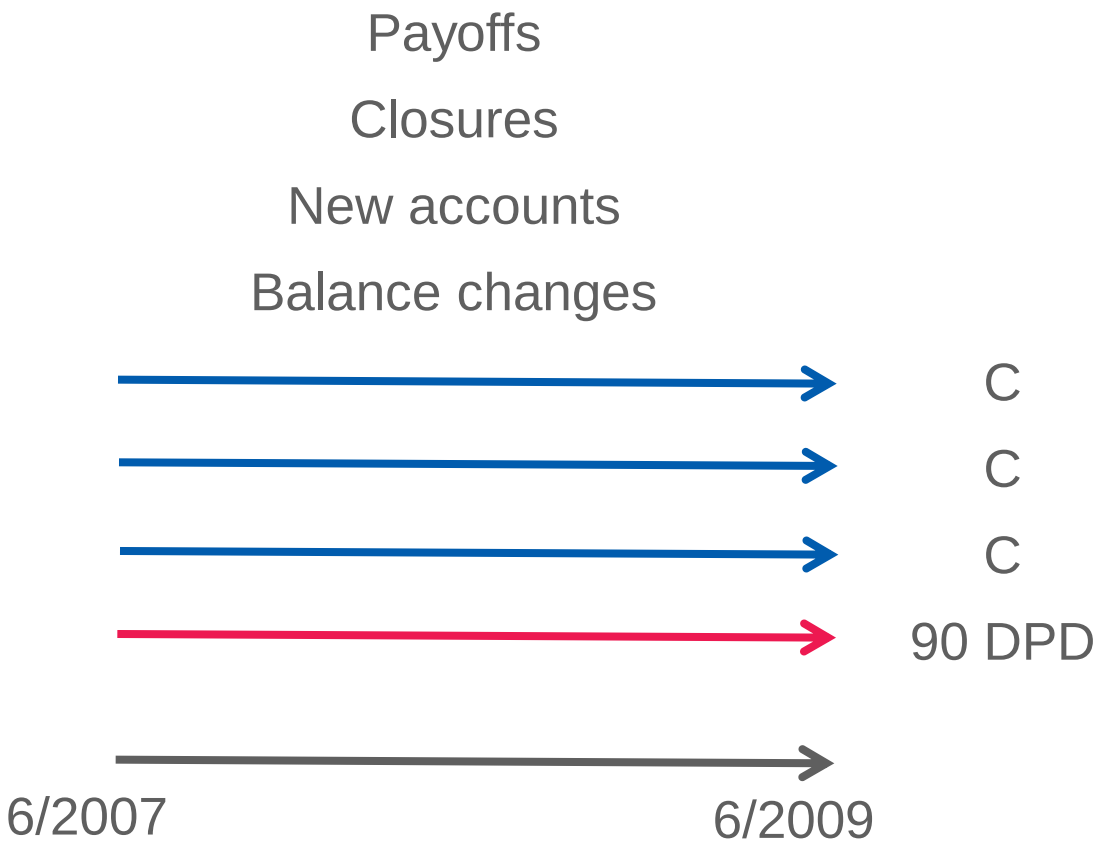
Credit meltdown

- Mortgage problems not attributable to credit scoring
  - Loans made to consumers despite high risk scores
  - Other industries have demonstrated consistent performance
- Neglected important dimensions
  - Capacity, Collateral (LTV)
  - Assumed home prices would continue to rise.
- View of home as necessity rather than investment
  - Even consumers with good credit will act in their own best interests and walk away from a bad investment
- Improvements evolutionary – not reactionary

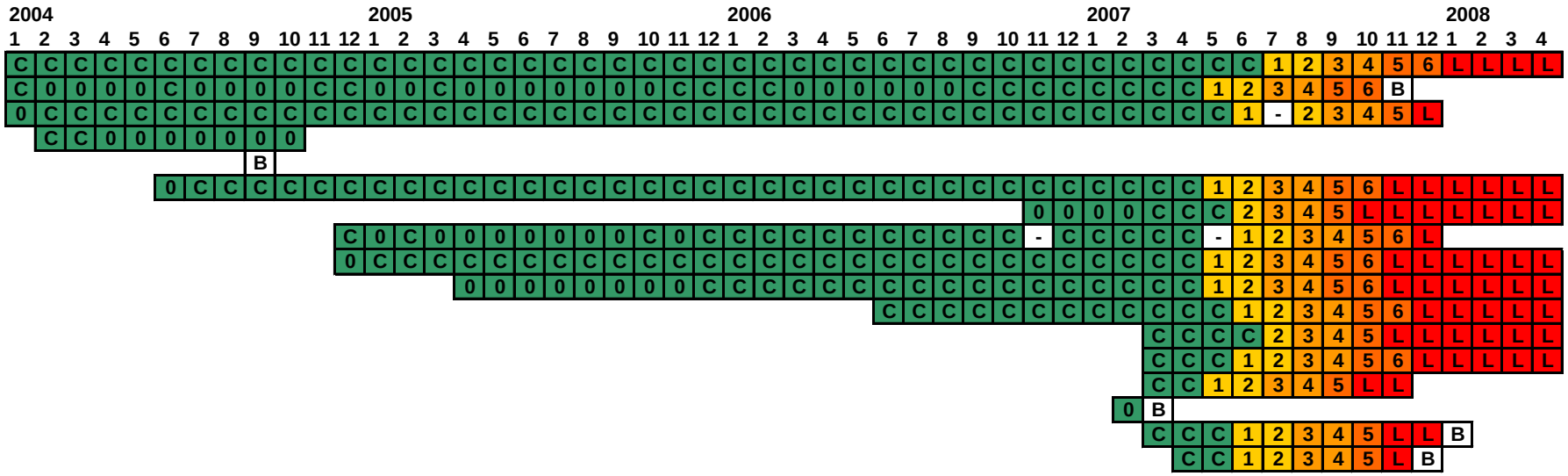
Performance: black and white



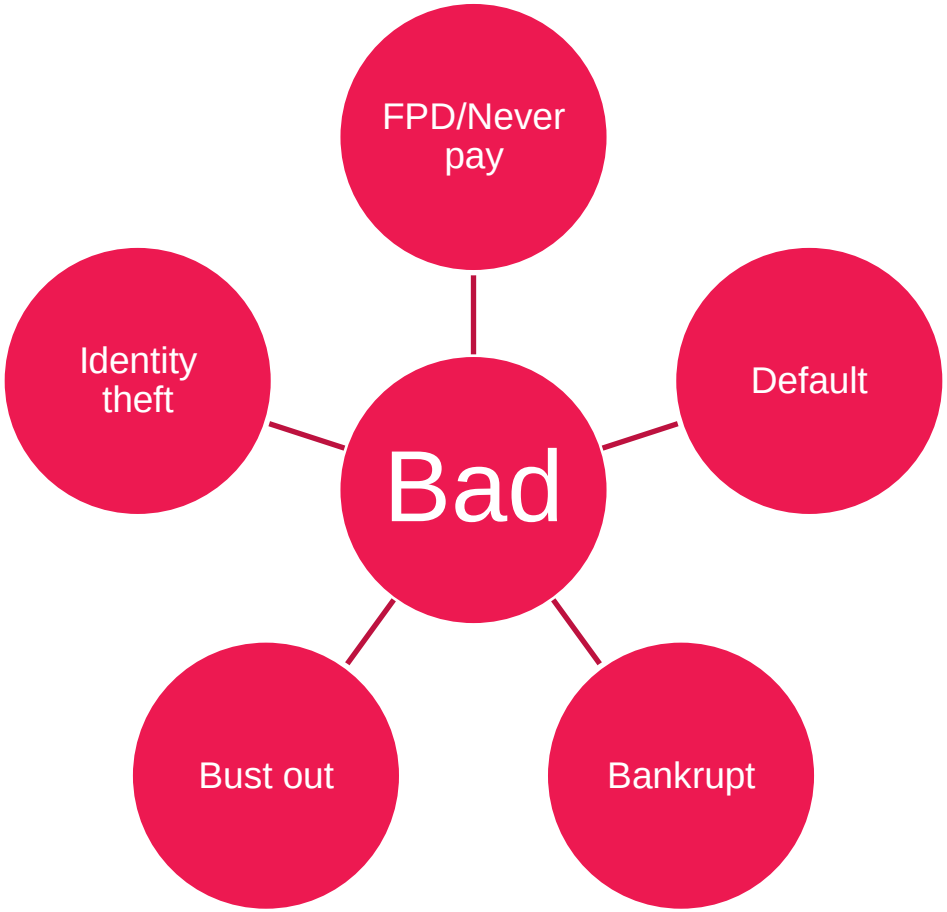
Performance: leverage outcome data



Example case
Trade timeline, Bust-out in April 2007



Segmentation



Independent variables

- Current
  - Simple summarizations
  - Sum, max, min, mean, most recent
  - Increased accuracy, consistency across bureaus
  - Biggest benefits observed with segmentation
- Future
  - Patterns
  - Interactive using multiple data sources
    - Credit data and transaction data
  - Implementation???

Other opportunities

- Improved processes
  - Variable selection
  - Automation
  - Productivity
  - Consistency
- Forecasting
  - Increase robustness
  - Simulation
  - Economic scenarios

Future scores, decisions

- Current
  - Application specific scores
  - Risk score
  - Bankruptcy score
  - Never Pay score
  - Bust Out score, …
- Future
  - Constrained optimization
  - ‘Super score’ with advanced segmentation
  - New types independent variables