# Designing a CB-Based Surrogate Custom Model Development Database

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**Washington Mutual** 

Credit Risk Management

- Need a powerful set of risk models for a new Card product introduction
- No current model development data is available
- Want to outperform CB score
- Need a "first generation" model

## **Potential Solution**

- Design a surrogate development database using credit bureau data
- Develop a tool that can be used for both standard originations and cross-selling
- Define samples based upon both Wamu customer base as well as geographic footprint

## **Available Data**

- CB-based performance on a qualifying Card trade
- Bad = 90+ Days Past Due
- Good = No Delinquency and 1 Opened
  Satisfactory trade

- 3 populations: existing customers with no new products, customers with a new product, and non-customers within geographic footprint (random extract)
- 500,000 records total, extracted 50,000 for each population
- Sample all three groups, exclude unscorable records, segment by population

#### **Data Processing**



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## **Segmentation Options Considered**

- Credit experience
- Search for new credit
- Utilization
- Delinquency
- Geography

## **Final Segmentation**

- Combination of splitters
- High versus Low Utilization
- Clean versus Dirty (recent 30+ versus no recent 30+)

## **Most Predictive Variables (Dirty)**

- High Credit on Bankcard trades
- Utilization of Bankcard Trades
- Recent Mild Delinquency
- Hunger for New Credit

## **Most Predictive Variables (Clean)**

- Experience With Bankcard Credit
- Hunger for New Credit
- Bankcard Limits

## **Model Performance**

- KS values in 40's
- 10-20% improvement over CB scores alone
- What about the improvement using a matrix of scores?

## **Model Performance Matrix Approach**

- The correlation of the two scores is around 0.7
- Matrix the data
  - Start with 10x10
  - Make sure there is higher performance in higher scores
  - Assign cells into Seven Tiers/Grades



## **Model Performance charts**

 Simple matrix approach adds another boost in predictive power

• 15-30% improvement over CB scores alone

 Versus 10-20% improvement using stand alone custom score

Approach **Custom** Score **Predictive** Power of **CB** Score Alone

Matrix

- Empirically based
- Based upon Bank customers (not just pool of data)
- Uses performance of bankcard as reported to bureau
- Outperforms CB score alone
- Rapid development and implementation



• Discussion and Questions