

## Fraud or Loss in Credit Cards Sample Case Study

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### Background, Problem Statement and Objective

While offering Credit Card to Customers (at the time of Acquisition), Customers were Identified as Prime Customers (with good credit standing) and Sub-Prime Customers (with poor Credit History and Bureau Score), these Sub-Prime Customers are mostly rejected by other lenders and this is a sizeable market and opportunity for our Client to offer Credit Cards (of course with lower Credit Limit and harsher punishment for default). And it is expected that Defaults, Losses and Frauds would be higher from Sub-Prime Customers.

The existing Business Strategy was to treat Prime and Sub-Prime Customers Separately (Thus there were different Collections or Recovery Agencies for Prime and Sub-Prime Customers). While few of the Recovery Agencies were Lender's own in-house (Internal), most of the Recovery Agencies were Outsourced to Off-Shore Location (such as Operating out of Philippines) for better Cost Benefit Margin.

Also, the existing Delinquency Models which were being used by the Lender to identify and Treat High Risk Accounts were obsolete in the sense that the Models were built using Origination Attributes of the Customer (That is, when the Customer Applied for Credit Card. Example: Customer's Income when Credit Card was issued to the Customer)

The combined effect these existing strategies lead to a gradual increase in Roll Forwards (Accounts moving to Higher Delinquency Stages) which eventually lead to Losses including Skip and Fraud Losses (where the Customer is untraceable or have run-away). Furthermore, there was almost No improvement in Recoveries from both Prime and Sub-Prime Recovery Agencies, as if they have reached a saturation point.

Our task then was to Maximize Portfolio Results, that is to strike a balance between Net Losses and Operational Costs. We decided to focus on Mid-Stage Delinquency Window, between 2 to 3 Payments Past Due (PPD) Accounts, as Early Stage between 1 to 2 PPD Accounts, could be a slip into Delinquency and of course there is a large volume of accounts in 1 to 2 PPD, most of which would Self-Cure or Recover. As Mid-Stage Delinquency Window lies immediately before Late Stage (3+ PPD), any Strategy Change for better in Mid-Stage would directly reduce Roll Forwards and Losses (including Skip and Fraud Losses)

### Some Challenges

With the Proposed Theory that a High Risk Customer is High Risk irrespective of whether the Customer is Prime or Sub-Prime, which we theoretically Tested and Validated using Baseline Analysis (checking a test on historical data and comparing results – what would have been the outcome, if a certain variables were changed in the Past), we expected that Proposed Strategy, if implemented would have higher Operational Cost and would significantly reduce losses (including Skip and Fraud Losses)

To buy the Proposed Solution would mean that Business is willing to spend extra in Testing New Strategy in Real Time.

It would also mean the Loss of Prime and Sub-Prime expertise across Recovery Agencies as Proposed Model would distribute accounts based on Risk rather than Prime/Sub-Prime Categorization

At this juncture, it was agreed that Model Success would be measured by Comparing Total Cost (Operational Cost + Losses) between Test and Control.

## Solution Offered

We designed a High Accuracy Risk Based Model using most recent Customer Attributes as of Observation Window (Example: Customer's Income now when we're building the Model)

Based on Model Outcome, Grouped Customers into Risk Bands: High, Medium and Low Risk

For High Accounts, throughout 2 – 3 PPD, that is between 31 to 60 Days Past Due (DPD), we proposed Internal Manual Recovery (most expensive)

For Medium Risk we proposed a Transition from Off-Shore Recovery Agency to On-Shore Internal Manual at 46 DPD

And Routed the entire Low Risk (which is majority of the Population) to Off-Shore (thus Saving Operational Cost)

Treatment Summary	
High Risk Population	High Intensity Treatment (Most Expensive) On-Shore Manual 31 - 60 DPD
Med Risk	Off-Shore Manual 31 – 45 DPD and On-Shore Manual 46 – 60 DPD
Low Risk	Off-Shore Dialer 31 – 45 DPD and Off-Shore Manual 46 – 60 (Least Expensive)

## Performance Window and Good Bad Definition

Base Population - 30 to 60 DPD Accounts in Observation with 6 Months Performance  
Bad - Credit Losses or Fraud in Performance

## Significant Variables

Final Model Developed using a combination of below mentioned variables

Internal Behaviour Score (as of Observation Month)  
Utilization  
Times 30+ and 60+ in Last 12 Months  
DPD

Chart showing Internal Behaviour Score effectively segregating High and Low Risk

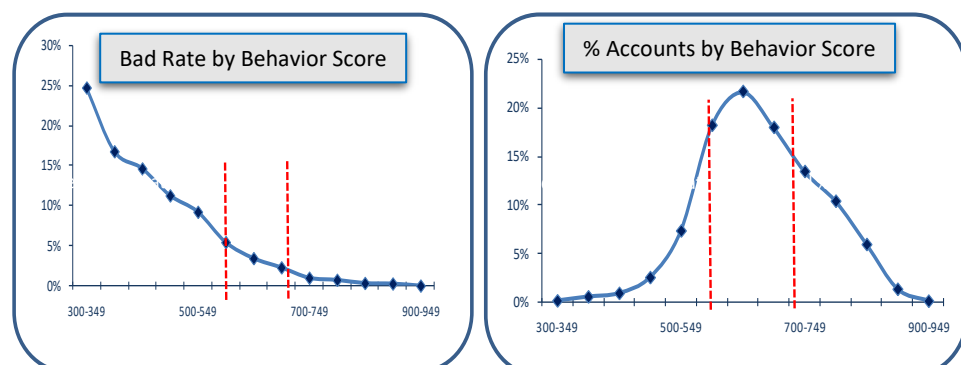
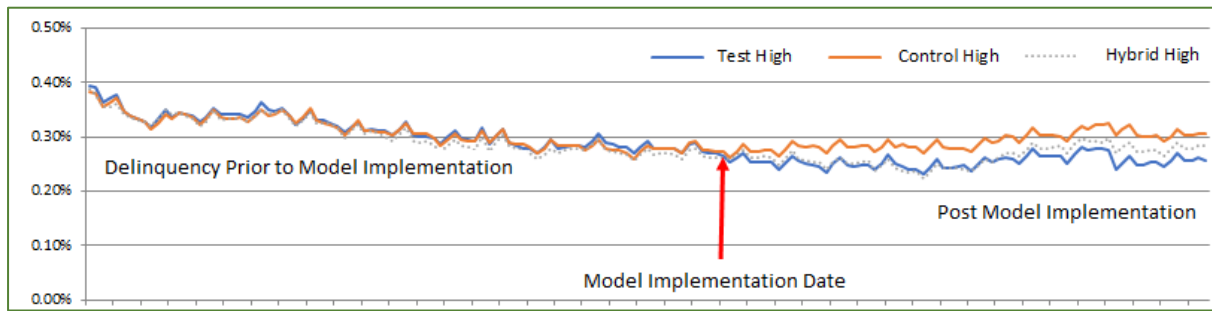


Chart showing Test Performing significantly better on reducing Delinquencies



## Business Benefits

Test Population had significantly Lower Gross Losses (Fraud + Skip + Bankrupt) than Control

Model Declared Champion with \$7 mm+ Cost Savings in 6 months of Implementation from 40% Test Population

Provided equal opportunity and competition across Recovery Agencies

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