

VEHICLE FINANCING FRAUD

CONTEXT

Repossessing the vehicles of delinquent customers is often achieved by physically seizing the vehicles. This avoids skip losses (where the customer and vehicle are both untraceable) and fraud losses (which vary greatly in type). Repossessing a vehicle at the opportune time helps the lender to get a reasonable amount for it, by auctioning the vehicle before its value erodes further from depreciation.

CASE BACKGROUND

Our client didn't have a risk-based repossession strategy. There was a flat repossession policy to repossess vehicles of customers who are beyond 90 days past due (DPD), and an internal target to repossess the vehicle before the customer reached 120 DPD. There were significant operational constraints to achieving this, such as the number of cars to be repossessed in 30 days outnumbering the resourcing capacity by as much as 2:1 on certain occasions. In such occurrences, by the time garage capacity became available to attempt repossession of the excess vehicles, notable skip and fraud losses had already occurred.

To curb this, the client initially revised the existing policy down from 90 DPD to 75 DPD. Although this helped reduce skip and fraud losses, it vastly increased the number of repossessions, with vehicles flooding the garage. The loss mitigation cycle is quite long, and the vehicles depreciated rapidly sitting at the garage waiting to be sold at auction. In most cases this resulted in the realised value of the vehicle being far less than the outstanding account balance. At the other end of the spectrum, without a risk-based strategy, vehicles of customers with high likelihood of making payment were also repossessed.

Our objectives were to reduce the skip and fraud losses and to optimize the repossession timing.

APPROACH

The focus was to maximise portfolio results by striking a balance between net losses and operational costs. We decided to focus on the mid stage delinquency window, defined as customer accounts which were 2-3 payments past due (PPD). The ML model identified that accounts slipping into early stage delinquency (1-2 PPD) was often self-corrected before reaching the 3 PPD barrier. This suggested that early lapses on part of the customer were generally rectified without any notable intervention from the bank.

A large volume of accounts was found in the 1-2 PPD bracket. The mid-stage delinquency window lay immediately before the late stage delinquency window (3+ PPD), so any strategy change for improved mid-stage activity would directly reduce Roll Forwards and losses (including skip and fraud losses).

This is an approach that we had used before, for other applications.

CHALLENGES FACED

1. Repossession Timing Strategy had never been tested by the client previously
2. The proposed strategy was to identify high, medium and low risk customers with a very high level of accuracy, as each of these groups would receive very different treatment. These measures would include highly focused identification and aggressive repossession programs of vehicles held by high risk customers. This would leave a very small error margin of false positives. Low accuracy would cause repossession losses to increase without any decrease in skip and fraud losses, thus defeating the very purpose of the revised strategy.

3. The repossession optimization strategy would have direct and immediate impact on skip and fraud losses with no need for any manual intervention to make any adjustments to the processing.

SOLUTION

We designed a high accuracy risk-based model which would segregate between customers with high propensity to make payment and allow recovery vs. customers with high likelihood of skip and/or fraud.

The purpose of establishing these risk bands was to optimise repossession timing such that there are just enough accurate repossessions at the right point in time as a function of available operational capacity. This would reduce skip and fraud losses and also price the repossessed vehicles to realise higher value in the auction market.

Repossession timing was been proposed as follows:

1. Accelerate Repossession Decision (or Repossess the vehicles sooner) for customers:
 1. With a very high likelihood of skip and fraud (repossession starts at 65 DPD)
 2. Who are unlikely to make any further payments
2. To delay repossession (till 120 DPD) for customers who are likely to make payments (and to continue recovery operations from such customers)

Performance Window and Good Bad Definition was as follows:

1. Good - All Loss accounts from a list of Confirmed Non-Fraud accounts within 3 months
2. Bad - All identified Fraud and Skip Loss account for same time period

- Final Model Developed using a combination of below mentioned variables
- Risk band of customer
- Times 90+ in Last 12 Months
- Internal Behaviour Score (Observation Month)
- Equity at Risk
- Days Since Last Contact

Furthermore, to make the Implementation process simpler there were:

1. Automated cure letter timed based on risk band
2. Days to REPO displayed through wizard pop-ups on collection screens
3. Customer accounts automatically routed to REPO agents at designated DPD

RESULT

Model Declared Champion with \$3 mm+ Loss Reduction in 6 months of Strategy Implementation