Improved loss forecasting for a leading retail bank

What We Did: Measure effect of macroeconomic conditions on credit losses

The Impact We Made: Improved loss reserves forecast accuracy by more than 10%

Summary - Increasing loss reserves forecast accuracy

As part of the Fed mandate, the client had to stress test their various portfolios to demonstrate resiliency to untoward macroeconomic situations. The new solution framework enabled the client to increase loss reserves forecast accuracy by more than 10% resulting in reducing reserves by more than 5%. Mu Sigma helped the client establish this framework for stress testing the portfolios by introducing macroeconomic variables as part of the loss forecasting process.

About The Client - A leading bank

The client is one of the largest regional banks in the US. with more than 15 lending portfolios.

The Challenge - Macroeconomic conditions

The client had to stress test the complete suite of lending portfolios in a three-month time frame to meet the requirements of the Fed. The client required a framework that would allow them to forecast losses driven in varied business portfolios such as consumer, commercial, wealth and small business, while incorporating the impact of macroeconomic conditions. The current process of reserving for losses did not account for changes in macroeconomic conditions and hence would not work under different stress conditions.

The Approach - Forecasting loss reserves

To account for these challenges, a framework was developed in the following manner:

- Based on discussions with various teams, a process that replicated the client's current loss forecasting process was developed to ensure acceptability from the loss reserves team who were the primary stakeholder
- To incorporate macroeconomic effects into the loss forecasting process, a modeling component that captured the impact of various macroeconomic conditions was introduced

- this was based on methodology similar to capturing customer default while allowing for multiple states of customer behavior
- Another modeling component to manage recoveries as well as portfolio growth was introduced into this framework to improve the overall process

This approach evolved over a period of two months. The client's internal analytics team along with Mu Sigma were able to explore a lot more options, including survival data analysis and vector auto regressive models. The final approach was based on model accuracy and ability to be understood for regulatory purposes.

- Based on this framework, loss reserves were calculated for various portfolios.
- Key macroeconomic variables were identified for each portfolio. This enabled the bank to understand how macroeconomic conditions would affect their overall loss reserves
- Stress scenarios were created as per Fed guidelines. Loss reserves were calculated based on this guideline

Mu Sigma was able to apply the framework for multiple portfolios quickly by creating a tool that allowed the customer to create models and measure losses based on different macroeconomic scenarios.

The Outcome - Decreasing cost of reserves

- The client was able to successfully pass the Fed mandated stress tests. This allowed the client to acquire other banks as part of their expansion strategy
- The client was able improve the overall loss reserving process by driving down the cost of reserving by more than 5%