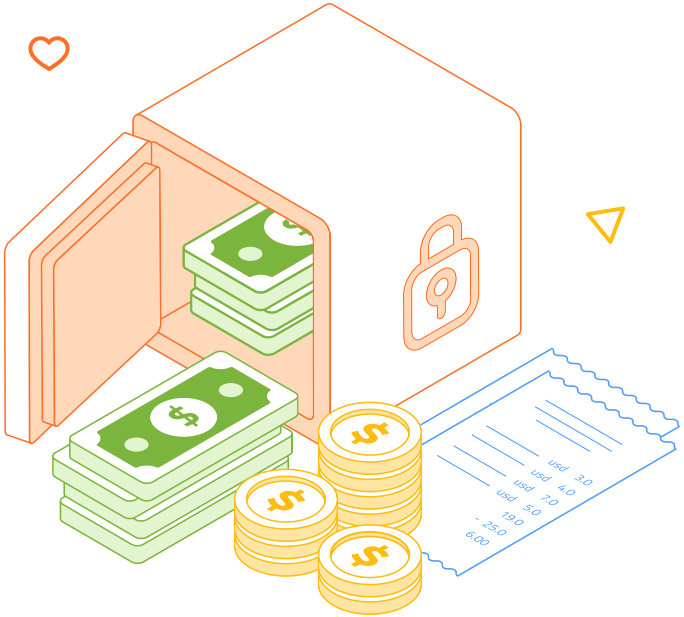

Client Selection for Regency Bank

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Business Overview

01

Regency acquired assets of Continental bank to increase its operational presence in Canada

In January 2010, Regency acquired a portfolio of 2,000 clients from Continental Bank for a total of $64 million. Prior to 2010, Regency offered similar services in Canada, but it's services were not well known. However, through this acquisition, which was the largest portfolio of corporate cards ever sold in Canada, Regency aims to expand its presence in Canada. Other than increasing awareness, Regency hopes to recoup the investment in three years.

Corporate cards are typically divided into two types: classic travel cards and professional cards

Classic Travel Cards

CTCs are usually used by employees to expense any travel-related purchases

Professional Cards

PCs are mostly used by procurement and admin divisions of firms for smaller, more frequent purchases

At the time of the acquisition, the professional card portfolio was worth almost $10 million while the travel card portfolio was around $70 million, totalling to $80 million in annual sales

There are three main operational considerations that Regency needs to be aware of

Revenue Generation

A bulk of the revenue was derived from charging customers 1% of total annual spend + $5,000 flat rate

Migration Costs

In order to migrate customers from professional cards to larger travel cards, Regency would incur around $500,000 fixed costs and $2,000 variable costs

Three-Level Complexity Clients

Clients can be divided in terms of reporting needs, card requests and amounts of service required. There are typically three levels

Regency and Continental has different risk appetites that could potentially change the nature of the operation

Risk Difference

Regency has a stronger security rating and would normally accept only those accounts with a max risk of 5; ratings below 4 were preferred. One of the biggest reasons for this difference was that Continental was a business with parent companies in the US, whilst Regency is a Canadian bank

Main Risk

The main risk in this business is that a corporate client would default on their account. Likelihood is measured by annual likelihood and cost of default was measured by the number of months of charges that eventually would be written off.

Exploratory Data Analysis

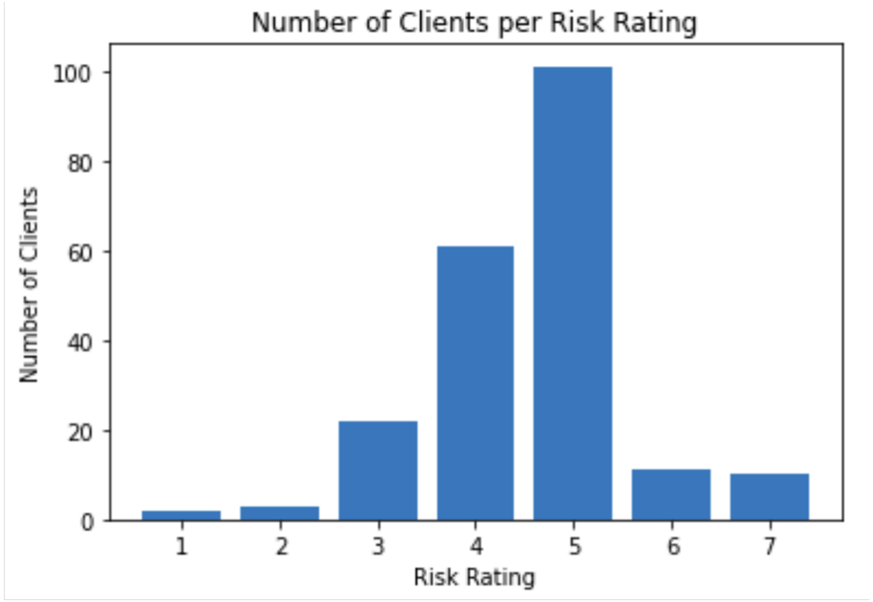
02

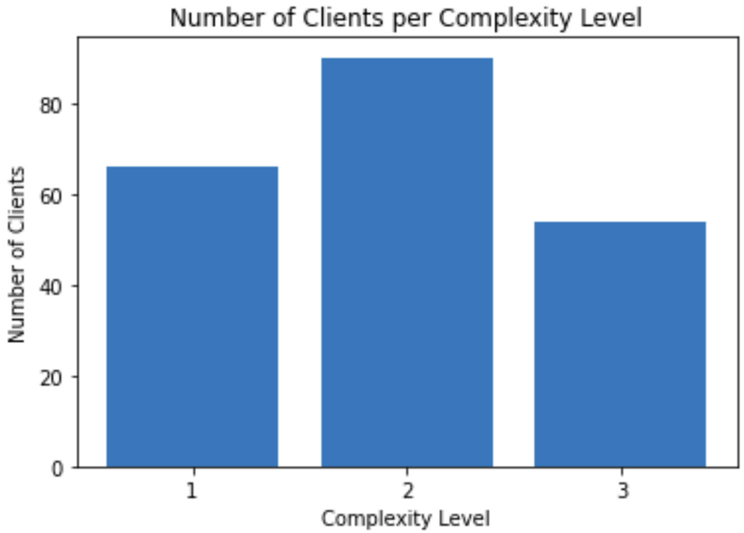
Descriptive statistics of the dataset

	Client Number	Risk Rating	Complexity Level	Annual Spend Volume	# of Cards
count	210.00	210.00	210.00	210.00	210.00
mean	105.50	4.57	1.94	3904144.68	44.57
std	60.77	1.02	0.76	8734088.65	85.61
min	1.00	1.00	1.00	89.62	1.00
25%	53.25	4.00	1.00	355704.78	5.00
50%	105.50	5.00	2.00	1071212.06	16.00
75%	157.75	5.00	3.00	3140216.00	42.50
max	210.00	7.00	3.00	64734342.53	782.00

- Annual spend volume and the # of cards are both right skewed. The average for both categories are ~3 times the value of the median.

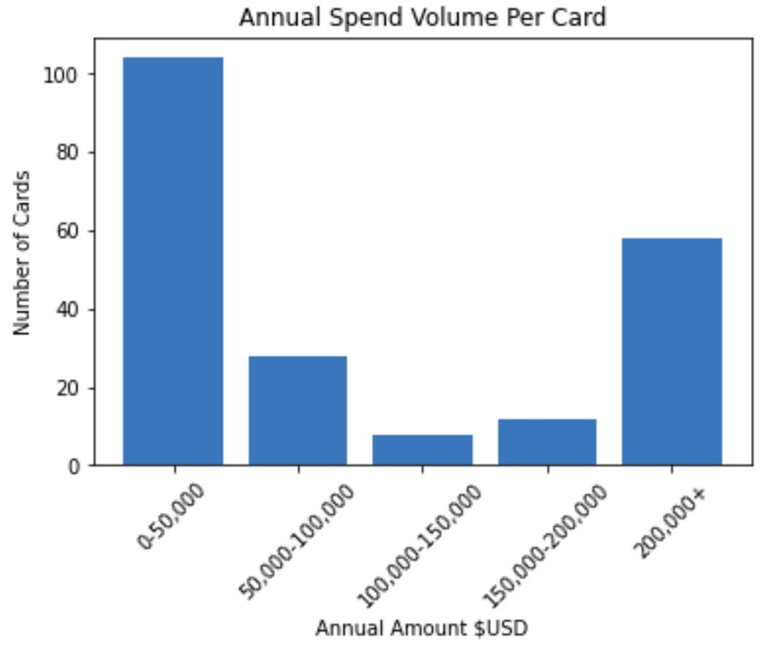
Number of clients by risk rating and complexity level





- The most common risk ratings for clients is 4 & 5, which is in contrast to Regency's conservative risk profile.
- Majority of clients have a complexity level of 2.

Annual spend volume by card and risk rating



- Majority of annual spend volume per card was less than $50,000 with the second highest above $200,000

Simulation 1

03

Simulation Assumptions and Steps

Assumptions:

1. Default is calculated at the end of each year. For instance, if the default results in 3 months of write-off, 25% of annual spending will be considered as loss, while 75% of same-year spending will yield 1% percent profit.
2. Default is simulated before the simulation of attrition. Thus, if a client is simulated to default and churn at the same time, it will be considered as customer default. For instance, 10% of default rate and 10% of attrition rate would result in 81% of continuing customers, 9% of attrition rate, and 10% of default rate, where 1% of churned and defaulted customer is categorized as default.
3. Number of cards clients currently obtained are not considered as card issued in the first year of migration.

Customer Attractiveness based on Expected Three Year Profit

	Client Number	Name	Risk Rating	Complexity Level	Annual Spend Volume	# of Cards	Expected Profit	Risk
63	64.0	DELMANA CORPORATION	3.0	3.0	64734342.53	67.0	2202219.33	0.02
113	114.0	INTERNATIONAL SOCIETY OF LOPTA	1.0	2.0	57815959.49	84.0	1986588.45	0.01
133	134.0	MANX TECH	4.0	2.0	59682930.02	782.0	1966001.62	0.01
32	33.0	BRIDGE TO TERRESTRIA ENTERTAINMENT	5.0	3.0	39231276.41	1.0	1369413.14	0.02
118	119.0	JOHNSON AND PRODUCTS	4.0	2.0	27507704.23	11.0	977758.28	0.01
...	...	...	...	...	...	...	...	...
2	3.0	AEONS ENTERTAINMENT	4.0	3.0	19529.69	13.0	-2380.28	1.00
207	208.0	WORLD PARTICLE ACCELETRON	5.0	3.0	133304.85	84.0	-9731.24	1.00
74	75.0	EMANI OPERATIONS	5.0	2.0	178594.70	13.0	-49184.02	0.10
137	138.0	MELLIA HOLDING INC	1.0	2.0	673023.62	489.0	-51917.58	1.00
139	140.0	MORGAN CISTERN INC	4.0	3.0	893980.60	162.0	-265270.64	0.14

High Expected Profit Customer

Low Expected Profit Customer

- The most intuitive way of understanding customer attractiveness is to use expected three-year profit per customer considering both ROI and risk involved
- Clients with high annual spend volume generally is prefered, while customer with high risk rating, or low risk rating combined with high card number should be avoided

Customer Attractiveness based on Risk of Loss

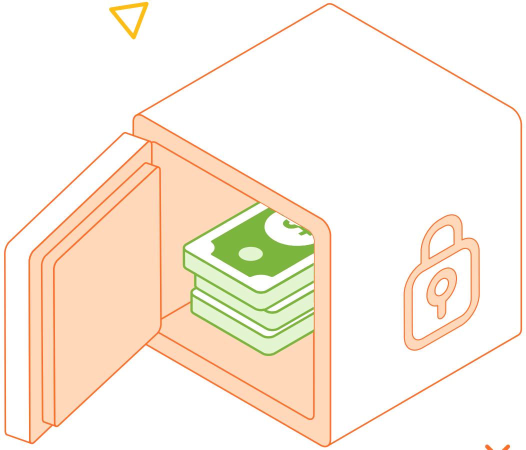
	Client Number	Name	Risk Rating	Complexity Level	Annual Spend Volume	# of Cards	Expected Profit	Risk
2	3.0	AEONS ENTERTAINMENT	4.0	3.0	19529.69	13.0	-2380.28	1.0
207	208.0	WORLD PARTICLE ACCELETRON	5.0	3.0	133304.85	84.0	-9731.24	1.0
52	53.0	COMPAGNIE DES AFFAIRES	5.0	3.0	748.57	2.0	-1299.32	1.0
137	138.0	MELLIA HOLDING INC	1.0	2.0	673023.62	489.0	-51917.58	1.0
147	148.0	NUBON	5.0	3.0	2337.11	3.0	-1399.30	1.0
...	...	...	...	...	...	...	...	...
90	91.0	GLOBAL HEALTH CORP	5.0	1.0	896324.64	9.0	38755.89	0.0
151	152.0	PANTRALIA	5.0	1.0	2529703.47	61.0	86812.86	0.0
92	93.0	GOLDBERG AND SONS LLP	5.0	1.0	1031130.76	1.0	28265.13	0.0
14	15.0	ANTA MCAL CO	4.0	1.0	339091.56	12.0	18812.68	0.0
0	1.0	ABRAHAM LINCOLN LLP	4.0	1.0	523243.08	9.0	25289.33	0.0

High Expected Profit Customer

Low Expected Profit Customer

- An alternative way of measuring customer attractiveness is through how many time client yield losses in simulation. Ideally, conservative strategy should avoid high risk,
- Clients with high risk rating and high complexity level is least desirable due to maintenance cost of Level 3 clients, while Level 1 clients, even with high risk rating, tend not to yield loss due to low maintenance cost.

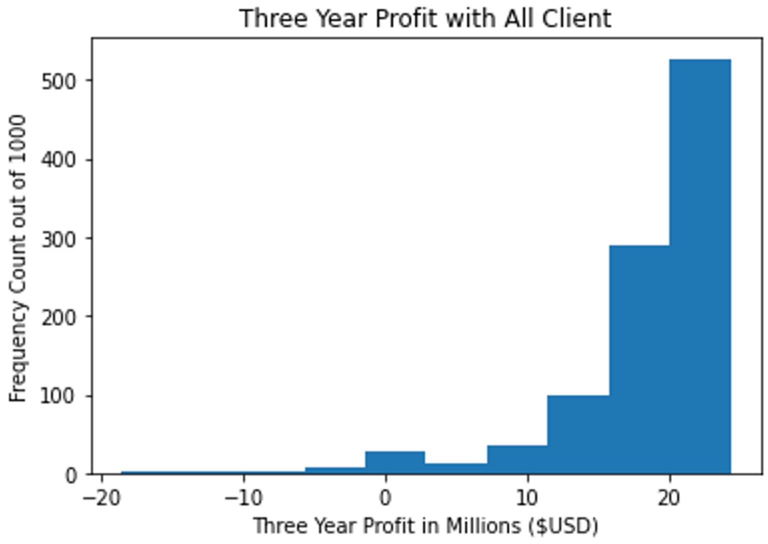
Simulation 2



04

Expected Three Year Profit with All Clients

σ	Min	1st Quartile	Median	3rd Quartile	Max
$5.4 million	-$18.6 million	$17.2 million	$20.3 million	$21.8 million	$24.4 million

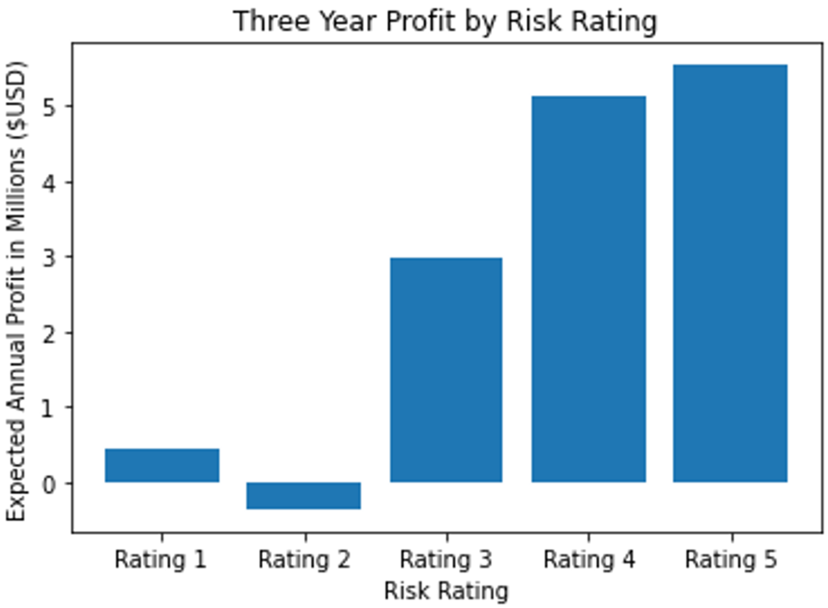


- Expected profit from migrating all potential clients after 1,000 simulations is **<u>$18.5 Million</u>**
- There is a 1.8% occurrence where company projected loss, due to the negative impact from high risk clients.
- The median of simulation result is 20.3 million, which means that the distribution is left skewed.
- Considering maintaining all clients is indiscriminate, there is room for improvement of migration strategy

Identifying risk level

05

Profit Decomposition by Risk Class



- From 1,000-iteration simulation based on each risk rating, excluding the fixed migration cost, rating-5 clients, despite being the most risky group, contribute to the most percentage of profit.
- Low risk rating clients in this dataset are extremely rare, e.g., rating-1 and rating-2 clients contain only 5 observations total, causing filtering based on risk class inefficient due to lack of data volume and veracity.

Simulation 3

06

Strategy in Profit Maximization

σ	Min	1st Quartile	Median	3rd Quartile	Max
$5.4 million	-$15.1 million	$17.4 million	$20.5 million	$22.2 million	$24.2 million

- The best migration strategy we found was excluding clients with **100% probability of yielding loss** in 1,000 iterations.
- This resulted in an average profit of **<u>$18.6 million</u>**.
- Lower threshold of client's risk of loss is not as ideal as expected, due to high randomness in simulation, with each default from high spend volume client will result significant profit loss.
- Including as many clients as possible is ideal in current business scenario as it does not negatively impact risk of losing profit.

Conclusion

The conservative strategy of Regency Bank is not optimal for profit maximization. In order to increase profits, Regency should look to include clients that have a risk rating of 5 and above. According to our analysis and taking into consideration of the unique Canadian market, the probability that Regency would have a negative annual reporting by pursuing a non-conservative strategy is not much different from Regency pursuing a conservative strategy. Additionally following the assumption of a 10% attrition rate is independent of risk rating and profitability. Thus, Regency should look to maximize its profits if the risk levels are the same. In order to do this, Regency Bank would need to reconsider its risk appetite and make changes to reduce risk.