

Collections Strategy Tracking and Efficiency

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Collections efficiency

Efficiency in Collections is about matching the appropriate action with the debtor. Taking expensive action too early is inefficient, since many of the customers would have paid without action or with a less expensive action. For example, a credit card company experiences 80% of customers who reach 15 days past due pay by 25 days past due. Taking a blanket action on all these customers such as a telephone call or letter would be inefficient. Overall, volumes are highest in the early stages of arrears and so lower cost actions should be taken. As the customer progresses through the arrears, the likelihood of write-off increases and higher cost action is justified. This assumes that our only method of discriminating by likelihood of write-off is arrears.

Collections scoring provides the lender with the ability to segment the arrears by risk; enabling earlier identification of high-risk accounts against which appropriate higher cost action can be applied. But how do we find the optimum efficiency? To do this we need to measure both drivers of collections cost: write-off and recovery activity. The optimal cost is where the marginal saving in write-off equals the incremental cost of taking an action. This can only be found by testing one set of actions against another for a specific segment of debtors.

The cost of a strategy is total cost of collections plus the cost of the write-offs. However, write-offs can take many months to evaluate. We therefore need a measure that provides a rapid feedback into the evaluation. One such measure is the Collections Efficiency Ratio (CER).

$$\text{CER} = \text{Probability of write-off} + \text{Proportional cost}$$

The proportional cost can be expressed as the cost of collection per account expressed as a ratio of the outstanding balance. In other words the cost of actions for the average balance of a segment of accounts or the cost to collect a pound. If the probability of write-off is the proportion of the balance, we have two ratios that are directly comparable.

If we take the time to write-off as 12 months, the costs must be found for the same accounts over the 'time to write-off'. Typically we use roll rates, however, as long as it is relative, any approximation will do. A word of caution, care must be taken of knock-on effects at later stages if assessment is made prior to actual write-off.

Let us look at an example: Accounts enter Collections and are segmented into strategies. For one strategy, the average balance is £900, the cost of the actions is on average £60. The probability of write-off is 20%. The Proportional cost is 60/900, i.e. 6.7%. The CER is therefore 26.7%. This figure on its own is meaningless. We therefore need to compare it to an alternative strategy to identify the more efficient.

A challenger strategy is tested whereby accounts reaching 69 days are telephoned by a Supervisor. The cost of the actions is now on average £70 and the write-off improves to 18%. The challenger CER is 25.8%. Since the challenger CER is lower, this strategy is more efficient. The optimal efficiency is therefore found by continuously testing to find the point at which no more marginal improvement can be found.

Tracking

Let us say we have four main strategies that are determined by score bands and are applied to accounts selected at 15 days past due. For each strategy we want to test the introduction of a 'consequences' letter at various stages (depending on strategy). It is easy to ignore costs, but if the number of accounts requiring action falls, the cost saving can be significant. Imagine a letter

costs £1 and for the low risk group 20% 'self cure' if the letter is delayed by seven days. If there are initially 10,000 accounts we would save $10,000 \times 20\% \times £1 = £2,000$ a month.

Table 1 shows the champion strategy results and Table 2 shows the challenger results. For score band 140 to 169 the challenger is more efficient by 0.5%.

Scoreband	No. Accts	Ave Bal	Ave Cost	£k w/ o	P(w/ o)	P(cost)	CER
< 100	3987	1389	80	338.1	6.1%	5.8%	11.9%
100 - 139	2110	1415	78	161.4	5.4%	5.5%	10.9%
140 - 169	1879	1204	66	110.1	4.9%	5.5%	10.3%
170 +	1255	988	56	31.5	2.5%	5.7%	8.2%

Table 1 Champion strategy results

Scoreband	No. Accts	Ave Bal	Ave Cost	£k w/ o	P(w/ o)	P(cost)	CER
< 100	381	1391	90	31.6	6.0%	6.5%	12.4%
100 - 139	219	1435	84	16.4	5.2%	5.9%	11.1%
140 - 169	188	1222	71	9.1	4.0%	5.8%	9.8%
170 +	124	982	60	3.5	2.9%	6.1%	9.0%

Table 2 Challenger strategy results

Behavioural scoring is unlike application scoring in that we have been comparing strategies within score bands. Having determined the more efficient strategy, the score band itself should be tested. Are the cut-offs themselves in the most efficient point? The way to test this is to perform the same analysis, but look at the results either side of the cut-off. The challenger strategy should be tested for debtors in scores higher and lower than the established strategy score band.

Table 3 illustrates testing the cut-offs. The existing cut-offs are at 140 and 160. The champion from 130 to 139 is strategy 2. The challenger is strategy 3. From 140 to 159 the challenger is strategy 3. Above 159 the champion is strategy 4 and the challenger is again 3. Comparing the Collections Efficiency Ratios (CER) the appropriate score band for the Strategy 3 is 135 to 159.

Scoreband	Champion		Challenger	
	Accts	CER	Accts	CER
130 - 134	114	10.9%	343	10.8%
135 - 139	188	10.3%	532	10.7%
140 - 144	345	9.9%	-	
145 - 149	654	9.5%	-	
150 - 154	521	9.1%	-	
155 - 159	489	9.1%	-	
160 - 164	105	8.9%	417	8.5%
165 - 169	98	8.8%	392	8.3%

Table 3 Challenging the score band

Case study and significance

A large US credit card company (we will call them Cardbank) tested a Collections Entry strategy, varying the timing of the first outbound telephone call. There were two challengers each comprising 10% of accounts entering Collections. Challenger 1 was to telephone later, while the challenger 2 strategy was to telephone earlier. 70,000 accounts were up to date and missed the payment date. Of these, 58% paid before five days past due. 70% of 60 day accounts rolled to write-off.

Strategy	Accounts Entering	Roll 5 to 60	Cost per acct
Champion	56,000	4.55%	\$5.24
Challenger 1	7,000	4.62%	\$4.59
Challenger 2	7,000	4.41%	\$5.62

Table 4 Strategy comparison

Table 4 shows the roll rates to 60 days past due. To calculate ultimate loss Cardbank assumed the performance after 60 days was independent of the first call. So rather than calculate the ultimate write-offs, Cardbank used the relative difference between the roll rates. The cost per account also provides a relative measure that we can use to calculate the CER. Table 5 shows the CER calculation to 60 days past due. The roll rate from table 21.4 is the relative Probability of write-off, P(w/o) and the Proportional cost, P(cost) is the average cost per account divided by the average balance per account (\$2,000).

Strategy 2 had the lower roll rate, but higher cost due to telephoning a greater number of customers. However, the CER, considering both the cost and roll rate, was lowest for this strategy and so Cardbank implemented the earlier call shortly thereafter.

Strategy	P(w/o)	P(cost)	CER
Champion	4.55%	0.26%	5.81%
Challenger 1	4.62%	0.23%	4.85%
Challenger 2	4.41%	0.28%	4.69%

Table 5 CER comparison by strategy

With a sample size = n and Roll rate = R, you can expect that 95 times out of 100, the subsequent roll rate will be in the range

$$R \pm 1.96 \times \sqrt{(R \times (100 - R) / n)}$$

In the case study, we had a sample size of 7,000 reduced to 5,950 (n) for each Challenger since 15% of accounts entering Collections pay before five days past due. The roll rate (R) is 4.55%. We should therefore expect that a subsequent roll rate will be in the range.

$$4.55\% \pm 1.96 \times \sqrt{(4.55\% \times 95.45\% / 5,950)}$$

equals 4.55% ± 0.53%, (at the 95% confidence level).

Therefore neither challenger was significantly different from the champion at this level of confidence. A significant challenger roll rate would have to have been better than 4% to have justified implementation.

Is it right to use the 95% confidence level? If you were 50% sure, half of the time you would expect to be wrong. This is unlikely to be acceptable, however the degree of confidence really depends on the appetite for risk that the business wishes to take. A more reasonable way of improving the certainty of the test is to increase the sample size. Either test a larger number of cases, or run it for a period of months.

We know roughly what roll rate to expect (R). If we do not want the error to be more than E%, then the sample size should be more than:

$$N = R \times (100 - R) \times (1.96 / E)^2$$

If Cardbank were looking for a 0.2% benefit in roll rates, then the error (E) should be less than 0.2%. The sample size should therefore be at least:

$$N = 4.55\% \times 95.45\% \times (1.96 / 0.2\%)^2 = 41,710$$

or seven months using the 10% test group.

Think before you leap

In conclusion, the design of your test is just as important as coming up with an idea for a new strategy. When you plan your test you must think about the following:

- What degree of improvement do you need to see?
- How confident does the business expect you to be with your predicted result?
- How will you measure ultimate losses?

Key to all of these is sample size. If there are insufficient numbers of accounts, reconsider your sample selection or plan that the sample will be over a range of months. In Collections, we want immediate results. Sometimes we need the discipline of patience to wait for our results to be meaningful.