

Joining the credit quality dots

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When delinquency is higher than anticipated, we can expect higher write-offs to follow. The cause and solution is, unfortunately, less obvious. If portfolio quality is deteriorating, the first reaction of many lenders is to tighten up on the lending criteria. However, this may be a wholly inappropriate response. It is easy to blame a scorecard or cut-off, but the approval decisions will only impact the new business and an inappropriate change can have disastrous results. Increasing a cut-off can turn a declining business into no business at all.

The best-in-class lenders connect the decisions at the front-end to the subsequent performance. They appreciate that write-offs are lagged and may take years before maturity is reached. They layer the historical new business so that a complete picture of the current and future credit quality is available. This dynamic model then provides the basis of portfolio monitoring and decision-making.

Objectives

A typical Credit Risk function is focused on credit quality. They use many tools including scorecards and set or recommend cut-offs based on bad rates. Bad rates are the primary concern because application scorecards are developed by determining a performance period and identifying the customers who are either good or bad after that period. Bad, rather than write-off, is used because write-offs take too long to occur. Due to the unstable nature of applicant populations, a typical application scorecard is expected to have a life of only three years. Performance periods often range between one and two years, far too short a period to identify a significant proportion of the ultimate write-offs (unless you have a particularly poor portfolio!).

Developers usually look at the propensity for accounts to roll to write-off and consider bads to be customers who would not have been accepted, had the lender known how the account would subsequently perform. Examples of simple bad definitions are ever three months in arrears and currently two months in arrears. However, there is no need for the definition to be straightforward and some developers will look for rules that identify accounts with a significant likelihood of rolling to write-off. The primary rule is that the definition should be trackable and understandable.

The business head, on the other hand, is driven by the Profit and Loss account. He is much more likely to be focused on annual losses than be concerned about ultimate loss rates. He will often rely heavily on Finance when making business decisions, taking a P&L view of a portfolio. A very different view of the Credit Risk department. Such a position can result in disaster, particularly where a new product is launched or where risk changes due to the mix of business.

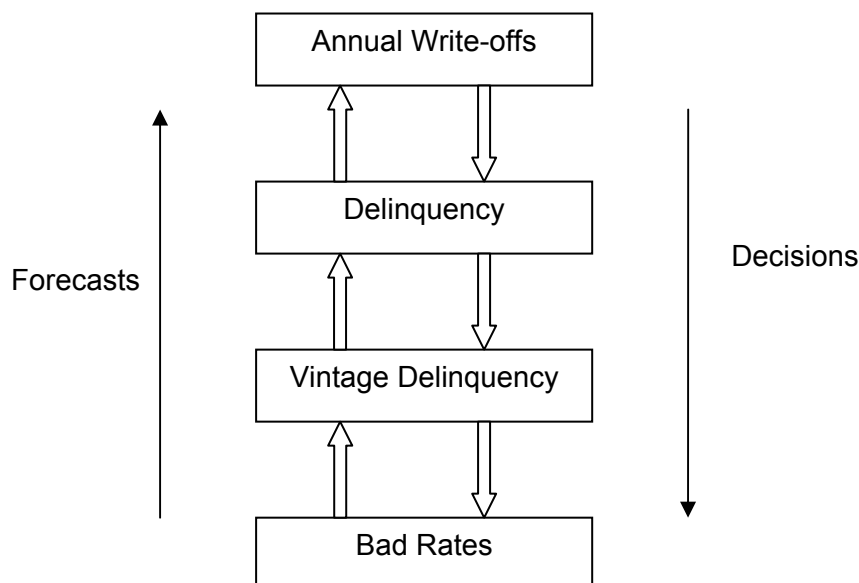
When a new product is launched, the credit quality is initially good. All accounts are new and even at the end of year two, proportionately few of the accounts are seriously delinquent. The faster the business grows, the better the credit quality position appears to be, since the new business hasn't had the time to go bad. Depending on the product, market and rate of growth, eventually the portfolio matures and the credit losses begin to stabilise. This can be quite a shock to the business head who has not appreciated where the write-off rate will rise to. From studies of Citibank portfolios in the 1980's, this stability point occurred on average around the end of year four.

When a business has operated for many years with a known level of risk, it can also be a shock when this changes. Another Citibank example was where delinquency was at 4% for many years, with a resultant credit loss rate of 2% on a hire purchase portfolio. The business head and Finance, believed that this relationship would continue to hold, however it didn't and when it changed it changed considerably. The problem was the mix of business. Over time, the mix shifted to more used vehicles. Initially the higher risk business made only a small contribution to the portfolio, but after two years, the impact could be seen and by that time it was the tip of the iceberg; far too late to do anything about.

Joined-up thinking

To provide the business head with the best picture of the portfolio, the solution is therefore to link the Credit Risk perspective of a portfolio and the P&L view. There are a number of ways of doing this and figure 1 illustrates an example. The scorecard tool predicts bad rates. We need to convert this into pounds to express the probability as a financial risk. In Basel II terms this is the same as applying the Exposure at Default (EAD) to the Probability of Default (PD). The Credit Risk function then monitor the number bad rate to check the scorecard is working and the pound bad rate (usually the balance of bad accounts divided by all outstanding balances). The later reflects, not just the scorecard, but the lending strategy. If more money is advanced to higher risk customers, this pound bad rate will deteriorate whilst the number bad rate may be unchanged.

Figure 1 An example of the joined-up loss model



Importantly the bad rates are tracked on a vintage basis. This enables the business to identify the risk associated with each tranche of business. As an aside, you will need to determine what an appropriate tranche is. Many businesses track each month of accounts, however statistical fluctuation means that this is often less reliable than tracking quarters. The tranche period depends on achieving adequate volumes per tranche. For example if the bad rate is 10% and a significant fluctuation is set at 1%, the volume per tranche should be at least 3,600. If your business

volumes are small the vintage period may therefore need to be 6 months or even a year.

From the pounds bad rate by vintage, the total delinquency can be calculated by combining the tranches and converting back to pounds. The losses or write-off rate is then calculated using a probability of rolling to write-off in a specified period. Two examples of approaches used here, are regression models and Markov Chains. The regression model is a simple equation of the relationship between the delinquency and losses over a period. The Markov Chain approach is based on transition matrices that are multiplied together over a number of months. The latter tends to be more applicable where volumes in collections allow for stable net roll rates.

Conclusion

Functions may have a different perspective of credit quality and losses. When Credit Risk and Finance work together, new business decisions become more objective. Growth can be achieved without the fear that the credit losses will be an uncontrollable rising tide.

By linking bad rates to vintage delinquency and thence total delinquency and write-offs the business has a powerful tool. The source of write-offs can be understood and forecasts made that should take the surprise out of future credit losses. This will not only be a tool to monitor and control new lending decisions, it will satisfy the regulator too!

Box: Ten top tips

1. Work with the business to agree the common objectives and definitions;
2. Be realistic about what you can achieve: over-complication is likely to produce spurious rather than more accurate results;
3. Determine at the outset whether the model will predict ultimate or annual losses: do not mix the two;
4. Identify sub-populations such as products or channels that require separate models. Be prepared that this may not reflect the different scorecards;
5. Regularly monitor and tune the model based on comparing the forecast and results;
6. Stress test the model;
7. Scenario plan, looking for business opportunities and areas that require attention;
8. Don't be sucked into considering NPV and cash flow, such models have a separate purpose;
9. Consider an economic cycle component – call this contingency of you like;
10. Be open about your findings. There is a continuous improvement element to this: rigorous, data-driven decisions invariably lead to a more stable portfolio and hence more robust model.