

Paper 106-2013

“How to Improve Your Risk-Adjusted Return on Capital: Pricing Optimization in Lending”

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Abstract

Lending is the core business of most banks. One may think that a bank should opt for a lending pricing strategy of seeking the highest price that the credit officer can obtain from his borrower. This paper claims that following a "maximal price" strategy will eventually lead to an inferior credit portfolio and poor performance compared to competitors.

In this paper, I describe how to price a loan to meet at least the return required by the stock holders and to improve risk adjusted return on capital RAROC. Following that strategy may be a challenge as in some assets classes, for example, in corporate credits. It can be difficult to agree a price which includes the minimal credit risk premium which compensates the risks. A suggested solution which takes account of all activities of the borrower with the bank is presented.

Introduction

My presentation focuses on pricing the corporate and high-end commercial portfolio which is typically considerably more complex than the credit retail portfolio. These portfolios are less homogenous, with rich variety of business needs, credits and collateral, and usually exposed to significant concentration risks (single and group borrower, sectoral, geographic etc.) and therefore require development of a specific methodology and IT tools.

Although corporate lending practices and behavior may differ in different markets there are many common pricing challenges. I assume that the business environment is very competitive, the big borrowers are very sophisticated and price sensitive (they do shop among the banks), the corporate bonds markets provide relative cheap and often unsecured finance to these borrowers. I do get the feeling that the lessons from the 2008 crisis (which shouldn't be analyzed only by economists, but also by psychologists, but that's a different article) are already forgotten. Compensation for risk seems inappropriate. Does it sound familiar to you?

How can we create value to shareholders appropriate to the bank's risk appetite in such a competitive market? How can a bank effectively manage the risk return of such a credit portfolio?

Lending Pricing Methodology

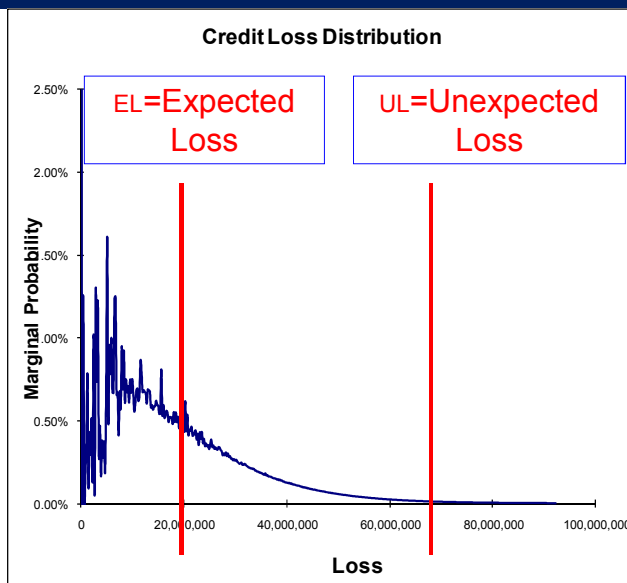
Suppose a friend of yours suggests to meet over dinner in a fancy restaurant. While you are satisfied with an appetizer and a soda, your friend orders in addition an entrée and a bottle of red wine. After an enjoyable evening the bill arrives and he suggests splitting it (50%, 50%). How would you feel? Most people would feel cheated since it doesn't seem fair. Economically speaking it's a wrong way to price your meal: splitting the bill means that you are subsidizing your friend. It may be the last "catch up" you two will have for years.

It's the same principle with credits. It's wrong to subsidize one borrower on the account of another borrower. Within your portfolio which borrowers don't pay the true cost of their meal? Can you sort your borrowers according to value creation and identify which corporate loans destroy value? In order to make that analysis you first need to know how to price a loan given the risk parameters of your borrowers.

In pricing credits, we need to take into account not just the expected loss (average loss), but also the unexpected loss for which we hold capital. That capital has a cost which is computed as a weighted average of tier1 cost (required rate of return of our stock holders), tier 2 cost etc.

In practice, the credit loss distribution of a typical credit portfolio is right handed skewed as seen in graph 1) and that's why unexpected loss may differ dramatically from expected loss.

Graph 1: Credit Loss Distribution



When we price a marginal loan we need to set the price (%) based on

- a) The cost of funds (which accounts for market risk).
- b) The expected loss computed by the product of the risk parameters of the obligor: $PD * LGD^1$

Remark: Developing PD,LGD,EAD models is done by SAS® CSfB application.

SAS is also used to calculate the borrower rating based on the credit officer responses and the PD model (for our project architecture see chart 1).

- c) Cost of capital * the Unexpected Loss.

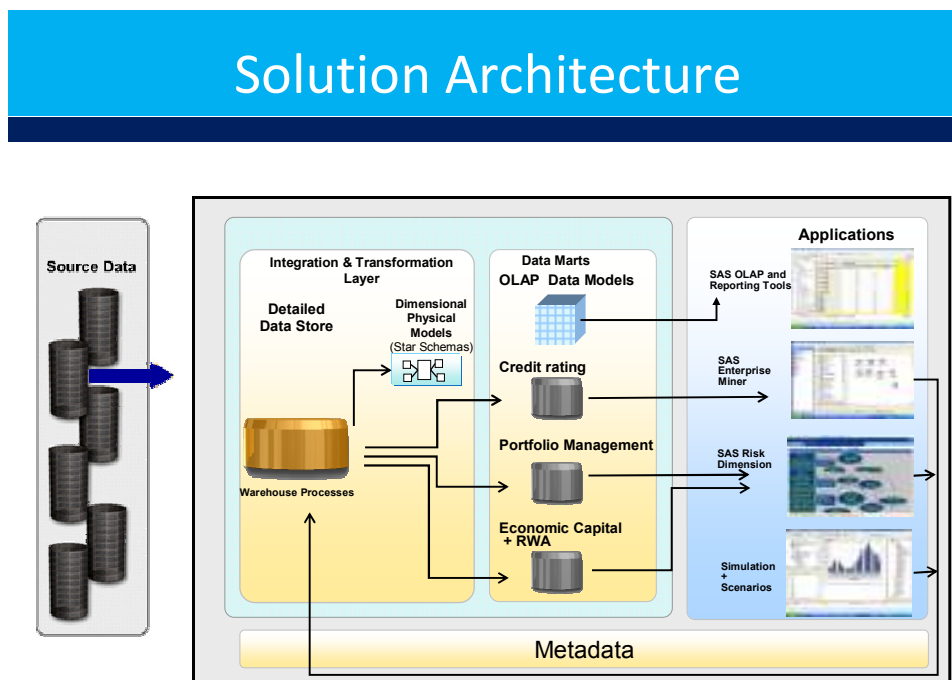
The unexpected loss is computed with the Credit Portfolio CRMS module of SAS (for our project architecture see chart 1), based on the risk parameters of the obligor and Monte Carlo simulation that takes into account concentration risk (by large obligor, by group of obligors, by economic sectors, by geography) as well.

- d) Operational risk premium and capital cushions should be assigned as well.

Therefore, the minimal required premium should be the summation of all four elements above.

LGD=Loss Given Deafult; PD=Probability of Default ¹

Chart 1:



Pricing as a competitive advantage

Let us see why this ability to compute the minimal premium can create competitive advantage.

We'll compare two banks: Bank A doesn't know how to come up with a risk sensitive pricing, but knows how to rank his obligors by risk (and to differentiate between the good obligors and the bad ones). Since that bank needs to control pricing spreads among credit officers his pricing strategy is not to grant loans below 1% spread for the less risk ones and to try to obtain the highest spread possible.

Bank B prices loans according to the methodology of calculating minimal premium described above and also would like to price as high as possible. When a low risk borrower with a high level of collateral asks for a loan, Bank A, recognizing that he is a low risk customer, will offer him a spread of 1% (which is the minimum spread possible according to Bank A's credit policy). It's even possible that after a lot of pressure for a discount the final spread will be a little bit below 1%, while the minimal premium let's say is 0.5%. That good customer will get the loan in bank B who can price it according to the risk with a better price than Bank A. Since bank B knows the limitations of bank A in pricing, he will get a very good price of let's say 0.9%. Bank B got an additional spread of 0.4% above "normal price". For the same reasons the

more risky customers will get their loans in Bank A at a lower price than Bank B will be willing to offer.

In the long run, the good customers will move to Bank B and the bad ones to Bank A without being fully compensated for the risk. As a result, bank A will suffer losses, its credit portfolio risk will increase and its profitability performance is likely to be unsatisfactory.

From Theory to Practice: Competition vs theoretical risk premium

The big borrowers are very sophisticated and price sensitive and the corporate bonds markets finance unsecured corporate debts cheaply, so what if you can't get the price which is commensurate with risk?

In such a case, the CCRO can face a big debate with the business functions because theory and practice don't coincide. If you follow the theory you will be out of the market. Otherwise, your portfolio performance will suffer in the long run. How to deal with that?

The lending methodology as described above can tell you how far are you from the required price. If the difference is big you might consider losing that customer to another bank because the customer destroys value. But before letting him go or in the case where the gap isn't so big you may subsidize the price of that loan if he contributes significant profits from other activities with the bank. A more sophisticated approach (where legal) is to suggest a discount from the required price to market price level subject to increasing his other (profitable) activities within your bank.

CONCLUSION:

After the financial credit crisis, financial institutions generally addressed the gaps between the current credit practices and the best practice of credit risk management. Narrowing the gaps begins with a consistent and complete credit risk data base supporting different IT systems and follows with implementing effective credit risk practices within the credit process and throughout decision making. Pricing methodology which is commensurate with risk as described is a key success factor to create a competitive advantage and optimizing performance (Risk Adjusted Return On Capital).

Recommended Reading

1. John B. Caouette, Edward I. Altman, Paul Narayanan. 1998. "[Managing credit risk: the next great financial challenge](#)." John Wiley & Sons, Inc.
2. Darrell Duffi and Kenneth J. Singleton. 2003. "[Credit risk: pricing, measurement, and management](#)." Princeton University Press.
3. Bessis Joel. 2010. "[Risk management in banking](#)". John Wiley & Sons, Inc.

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