

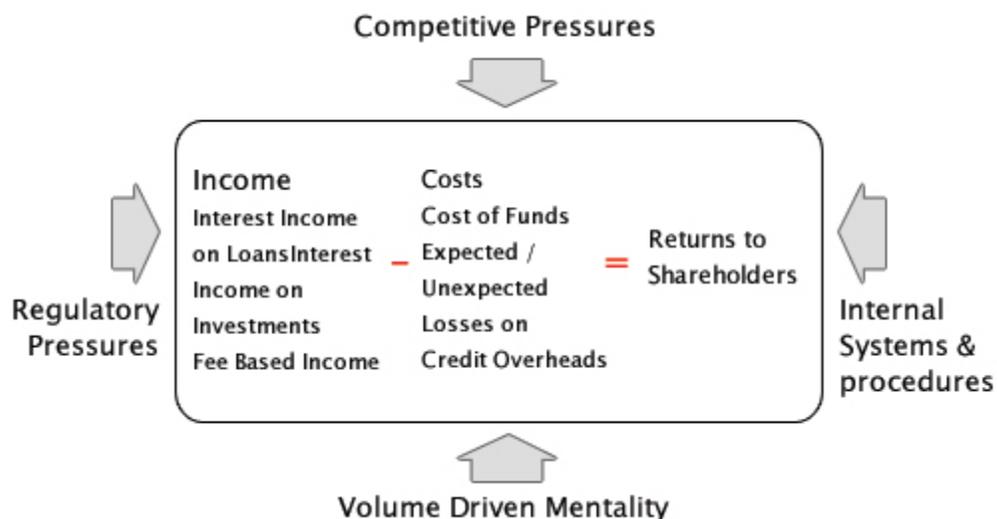
IS IT WORTH THE RISK? A FRAMEWORK FOR PRICING CREDIT RISK

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The commercial banking sector accounts for a large portion of the total assets in the Sri Lankan financial system. The local capital markets are underdeveloped and have not resulted in substantial financial disintermediation, and hence have not posed serious competition to the banking sector. Since disintermediation is low, banks maintain reasonably healthy spreads, and in general have reported healthy profits.

However, as competition intensifies, there is greater pressure on management to deliver adequate returns to shareholders. Management has to regularly scrutinise ongoing operations to ensure that the assets of the banks are being deployed in the most optimum manner. In this context, proper pricing of loans and other products takes on a crucial role, and this article discusses a framework for pricing of loans.

For banks, clearly defining and measuring the link between risk and pricing is the most critical factor. Risk adjusted pricing and risk adjusted performance measurement are considered increasingly important, driven by regulatory pressures and far-sighted shareholder expectations. However, competitive pressures and volume driven mentality have meant that pricing of advances, particularly corporate loans are often under priced. At the same time banks maybe foregoing attractive customer segments due to poor understanding of the risks or badly designed pricing frameworks. Inadequate data and management information have prevented a proper assessment of historical management decisions and misguides strategic plans.



What Risks to Cover in Pricing Loans?

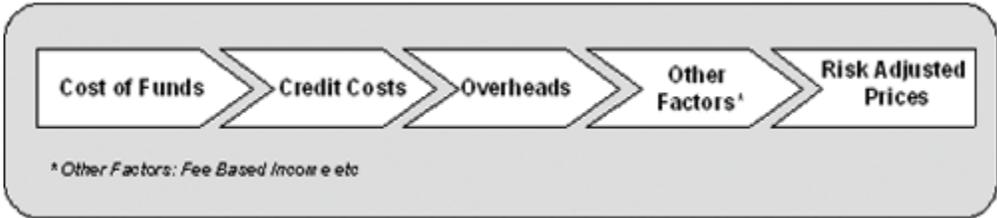
Risks faced by banks can be broadly categorized as Credit, Market, Liquidity and Operational risks. Credit risk stands out as the most important of these categories, even though it has

received far less attention than required. An integral function of controlling and minimizing credit risks is the proper pricing of loans, and in this context banks would do well to improve current systems.

To appropriately price loans, a bank must understand the various 'cost' components. These could be broadly identified as cost of borrowing, overheads, and credit costs (i.e losses incurred due to bad loans) and return required by shareholders. Current systems in use in Sri Lanka, (excluding a few banks which have implemented risk adjusted pricing or return on equity based pricing frameworks) generally capture cost of borrowings and cost of administration and overheads, but are poor at factoring in credit costs.

Credit costs or losses due to bad loans could be viewed as a function of the borrower's probability of default, and an estimate of the loss experience in the event of default. (i.e. the net loss that would be incurred by the bank after realization of collateral). These are obviously estimates that have to be made at the time of granting the loan, and therefore could be viewed as 'expected losses'. The actual loss incurred by the bank on its portfolio of loans could be higher or lower; i.e 'the unexpected loss'. Unexpected losses will be written off against profits when it is actually incurred. A well designed pricing system will strive to minimize unexpected losses, thereby ensuring that the original profit estimates are achieved. This is easier said than done, and requires a comprehensive framework with adequate support systems. Usually the framework would comprise of a sound internal rating system supported by competent analytical staff and tools to analyse historical data and continuously refine assumptions.

Risk Adjusted Pricing



One example of a pricing model which incorporates the key components discussed would be as follows.

Assuming 10% of advances are funded through equity and the remainder through customer deposits/ debt			
Component	Spread for Loan of LKR 100.	Assumptions/Comments	
1 Required ROE - 15% (15% @ on capital of 10/-)	1.5	Assuming that management has targeted an ROE of 15%.	

2	Overheads and administrative cost	6.0	Total overheads as a % of average loans was 6.8% in 2003. Ideally banks should use a forward looking number, as opposed to a historic number. For example budgeted overheads as % of budgeted average loans. For an inefficient bank, the use of historical numbers will result in the pricing model suggesting a higher spread. Could result in foregoing good opportunities, due to historical inefficiencies.
3	Credit Cost	1.0	This is based on the assumption that the annual incidence of NPLs is approximately 2% of average loans. Loss experience is estimated at 50%. i.e 50% of NPLs are recovered by realizing collateral or other means. (Ideally, this must be based on the credit cost arrived through the internal rating framework)
=	1+2+3	8.5	Minimum margin required to cover overheads, credit costs and ROE requirements.
4	Cost of funds. (8%on borrowings of 90/-)	7.2	Should be higher of risk free rate or banks cost of borrowing.
5	Less: Anticipated fee income from loan relationship.	(3.0)	Bank could price loans cheaply, on the basis that the account would generate healthy commission income.
=	Minimum lending rate.	12.7	To be used as a guidance. There are likely to be exceptions, but exceptions should be granted only for valid reasons.
<i>Estimates based on published data of the six largest commercial banks in Sri Lanka.</i>			

The model by itself is fairly simple. Its success however lies in the implementation. Ideally this exercise should be carried out for each customer segment since cost components could vary widely, especially credit costs. For instance, the probability of default and loss experience for top quality corporates would usually be very low. On the other hand, credit card loans would have a high probability of default and a high loss experience, as there is no collateral. Hence credit cost would be very high. Nonetheless, given the high rates earned, the product is still profitable.

The objective of the pricing model is to minimize adverse selection and ensure that loans are priced adequately. For instance, referring to the above example, although loans to the top corporates may have negligible credit costs, the loan may still not provide the bank an adequate return on equity, as margins to this segment are typically very thin. If appropriately informed, management could then decide to move away from such loans and deploy resources to more profitable segments. The use of such a model helps in instilling discipline across all lending units to ensure that products are not mis-priced. Typically the model would act as guidance. It is very likely that the bank would make exceptions, but these should be for valid reasons and approved by a credit controller or an apex credit committee. Under-pricing merely to overcome competition will eventually result in banks eroding their capital base.

Those involved in establishing pricing policy would have to consider each of the components mentioned above and set hurdle rates for each customer segment. While we have commented on some of the aspects alongside the respective cost items in the table above, we have

discussed in greater detail the measurement of credit costs and the inputs and system support required to arrive at assumptions for credit costs.

Knowing your Credit Risk.....

The accurate assessment of credit cost requires a fairly modern credit risk assessment and management system. Poor credit risk management is by far the most serious problem faced by domestic banks. This is aggravated by the fact that the legal environment in the country is not creditor friendly. It is imperative therefore that sound credit evaluation and sanctioning procedures, which reflect ground realities are implemented.

What does it take to implement a good credit risk assessment and management system? Information is at the very heart of the answer. For pricing purposes, the information systems should be designed to track credit costs for the various product segments. The current management information systems of most banks rarely track this, losing crucial information required for pricing of new loans. The lending institutions can also look up to external databases such as credit bureaus to further enhance their information store. Key attributes of a risk management system that would assist management in assessing proper credit costs would include the following.

The expected losses or expected credit costs is a function two aspects; i.e. The probability of default and loss in the event of default. (as shown in the diagram below). Estimating probability of default and loss given default, requires both qualitative and quantitative analysis along with expert judgement. Despite the subjective elements involved, through regular use banks would be able to refine the process to a fair level of accuracy to estimate credit cost for any particular/or pool of facilities.

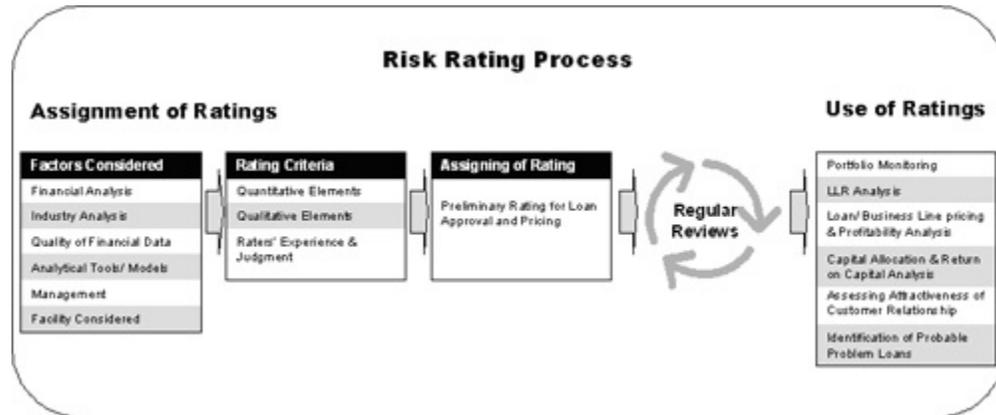
Probability of Default		Loss Given Default	
Based on Rating from the Internal Rating System	x	Value of Facility, Seniority, Maturity, Collateral Guarantees and expert judgement based on pervious experiences	= Expected Loss

Probability of Default.

Internal Risk Rating is a key tool.

Estimating probability of default for a loan or a product segment is usually carried out through the use of internal credit rating systems. Typically an internal rating system factors in a series of both quantitative (revenue, cash flows, leverage etc) and qualitative (quality of management, market position, industry features) factors. These factors would be assigned specific weights or points, which collectively determines the ultimate rating. An estimate of probability of default of a particular borrower is arrived at, by studying the default history within that rating category. While some banks in Sri Lanka have drawn up internal rating scales and assign ratings to borrowers, they do not carry out the vital function of studying historical data to understand default patterns. Hence, validating the rating scale is not possible. Furthermore, such internal ratings offer very limited utility to the loan pricing function, except

for very broadly categorizing borrowers. It is only through the constant analysis of historic data could the scale be refined to produce accurate estimates of probability of default.



In assigning ratings, the judgment of rating staff plays a critical role. Hence, in designing the rating systems and processes, steps should be taken to ensure accuracy and consistency without over restricting the exercise of judgment. A key operating design is the division of responsibility for grading; i.e the recommended practice is for the bank to maintain a separate risk grading unit, separate from the relationship managers or the individuals initiating the credit so that independence and consistency is maintained. Other key features should include; a review of ratings to detect errors, placing of ultimate authority over grade assignments, formality of the process and specificity of formal rating definitions.

Based on the above, it is clear that data plays a pivotal role in implementing a sound internal rating system. Data collection must cover a reasonable period in order to properly assess loss related probabilities. External data adequately validated could be used in the absence of a proper internal data base or coupled with internal data to further enhance the database.

Loss Given Default.

Focus on capturing information from NPL recovery and work out process.

The other component of estimating expected loss is the assessment of loss experience given default. While the quality of the collateral would obviously play a crucial role in this, we would like to focus on an aspect that appears to have been somewhat neglected by quite a few of the local banks, i.e. the banks NPL work out procedures and the effectiveness of the work out unit which could contribute significantly in reducing the loss experience. With accumulated non-performing loans accounting for broadly 162% of the aggregate equity of the banking system, the recoveries division of a bank should play a critical role in preserving or enhancing shareholders wealth.

Often banks retain collateral for a substantial period of time with the hope of realizing higher disposal value, but neglect aspects such as cost of carry and time value, ultimately realizing less value in economic terms. By ensuring that disposal and realisation of collateral is carried out on a more frequent basis, the management would ensure that valuation of collateral is more realistic. While this approach is likely to result in experiencing higher losses compared to what is presently experienced, it will focus the senior management's attention once more to

the loan approval process. After all the activity that drives NPLs is the granting of loans, and therefore continuous refinements should be made to the approval process with a view to containing NPLs. The regular realization of collateral would also ensure that assumptions made regarding loss experience are realistic and reflect current market conditions.

The loss experience of a bank could also be improved by strengthening the recovery units. Dealing with problem loans requires a relatively high level of experience and skills. In practice however, the resources made available to such units appear inadequate. In fact, in the past there have been instances where the units were regarded as a “punishment centre”. Given that the unit is responsible for a fairly significant portion of the banks assets, the NPL recovery unit must be treated as a specialist function that is provided with adequate resources and supported by other functions of the bank, especially loan approval and monitoring. Staff must possess strong negotiation skills that are important in re-structuring of credit facilities and for realizing optimal value during disposal of collateral. In some sense the skill requirement of this unit are similar to investment banking, and therefore the best resources should be employed.

Credit Bureaus: Not Just “Black Lists”

Credit bureaus which emerged to share bad experience with other borrowers play a critical role in today’s credit markets. The credit history information and other additional services such as credit scores and alerts provided by credit bureaus facilitate lenders to assess and monitor the risk of lending, and hence make more informed and profitable business decisions. More importantly, credit bureaus are a valuable source of data to assist banks in segmenting the market and identify new profitable opportunities. If used properly, this data, which is a lot more comprehensive than the bank’s customer information could provide valuable inputs for the bank’s pricing model.

Successful credit bureaus are dependent on both legislative and proper infrastructure support. While on the legislative side, the bureaus must provide adequate protection for lenders, data collected and data subjects, the legal system must also facilitate full-file data sharing. The bureaus must also possess sound data sharing and communication infrastructure along with proper delivery mechanisms. Data collection and provision of information is not necessarily restricted to lenders, but can extend to other industries such as insurance or the utility providers.

Full-File Credit Bureaus: Being Positive

In most emerging economies, credit bureaus share only negative information such as late payments and defaults, due to regulatory reasons and/ or not appreciating the value of positive information. Proper risk assessment requires both negative and positive information. The credit bureaus are a treasure trove of system wide data. Subjected to proper analysis, such data would enable banks to obtain a better understanding of the credit attributes of the various customer segments, and assist in identifying risks. Though, negative information may encourage borrowers to repay obligations so as to stay off the “black-list” and helps banks identify current defaulters, negative information alone has less predictive power than positive

and negative information combined. Decision tools, such as credit scoring, are difficult to develop without positive data.

Credit Information Bureau of Sri Lanka

The Credit Information Bureau of Sri Lanka presently has 82 member institutions that include all registered financial institutions. Presently the coverage is restricted to advances and credit card facilities over a certain threshold, but contains some positive information such as details of loan repayments. However, the quality of information is not the best it could have been due to reasons such as technical barriers, practical difficulties in obtaining certain information from non-member institutions, such as the legal system and lack of support and understanding of benefits by the member firms. The number of reports requested from the bureau has increased significantly and seen constant growth. Today approximately 2,000 reports are submitted daily indicating the value placed on the services of the bureau, especially from the banking sector. However, these are almost entirely applications for credit references to assess a new borrower. The banks do not appear to have made use of the data for other analytical purposes.

Quality of Information

The current database only consists of details of loans above a particular threshold and strictly limited to credit granted by the financial sector. While the database is presently updated on the monthly basis, there are instances where member firms do not report details of all advances exceeding the stipulated thresholds. Further, the present database administration system is designed to capture advances by purpose / sector, the data submitted by member institutions often fall short of this. Preliminary attempts are underway to include insurance companies and other utility companies, expanding the database to include details of individuals and entities that are not covered by the members in financial services. This would enable banks to strengthen the credit evaluation process for consumer lending, which in recent times has proved to be a growing segment. Further, the database lacks adequate data regarding the collateral on facilities granted, which information is important in pricing and provisioning. The system is also not satisfactorily updated on outcomes of legal proceedings due to deficiencies that exist in the present operational setup in the legal system and lack of automation and inter-connectivity.

Are member institutions making optimum use of the Bureau Information?

A properly organised credit database has more use other than making distinctions between good and bad creditors. Credit bureau databases provide a wealth of data to banks to assess lending risks and for better pricing and provisioning. These databases can also be used to work as an early warning system to lenders in lending to a particular industry/ sector, where analysing of records could highlight industries experiencing a lull or having declining prospects.

Another positive outcome of sharing information is the reduced costs of credit research. Bureau data facilitates the evaluation of prospective borrowers, reducing the need for more costly and intrusive background and reference checks especially for the SME sector and consumer category. Given adequate availability of data for statistical analysis, lenders can

utilise automated or semi-automated credit decision tools, reducing the cost and time required for processing loan applications.

Use of bureau information by lending institutions also comes with benefits to “good” borrowers. A system that enables identification of good borrowers with the aid of bureau data creates competition (for instance by tracking debt service history), will result in cheaper and easier access to credit. This in turn works as an incentive for borrowers to maintain a good credit profile.

What Developments Are Being Made / Proposed?

The IT system of the Credit Information Bureau of Sri Lanka is expected to be upgraded to a web-enabled system, providing on-line data communication between the bureau and its members. The system will also ensure that details of all facilities granted, immaterial of size, are recorded in the database of the bureau. This may also include details of enquiries in addition to the facilities already granted. On the other hand, the members with on-line access could obtain credit reports instantly, speeding up loan application screening process.

The proposed system will also provide facilities to analyse data that would further facilitate risk management. For example, a member could obtain exposure to a particular sector, its default rates, growth rates etc. In the future, the bureau may also include insurance, utility and telecom companies as members, once the required amendments to the act are made, which currently limits members to the financial sector.

These developments are encouraging. However, it would be in the interest of all banks to re-examine the manner in which the credit bureau is presently used. As it stands the services of the bureau are clearly under utilised. Given that the bureau is about to embark on a programme to upgrade its systems, it would be a particularly good juncture for banks and other users to re-look at their needs and potential needs, so that the systems eventually put in place at the bureau reflect the market needs.

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