# Beware of What is Coming … It Might be Useful

One of the unique features of the U.S. banking system is the relatively enormous number of banks throughout the country.  This number has been falling rapidly through mergers as well as financial 'crises', but there are still thousands more than in most countries.  There are giants that are global in scope but the majority remain relatively small and concentrate their energies and capital on serving local communities with most bank services, but in particular retail banking, mortgages and small business lending.

Regulation and accounting must deal with all types of lenders but gravitates toward the biggest systemic risks, which are the largest and most complex institutions.  In doing so, burdens of compliance are imposed on small banks (and other financial institutions) without a great deal of regard for their cost or the resources available for the work.

In 2008, following the most recent 'crisis', focus turned to forcing higher reserves for credit losses in healthier periods. To do so, regulators have embraced the concept of Expected Loss ("EL") as a means to recognize the risks in lending portfolios by setting aside loss reserves that would deal with the inherent volatility of credit portfolios.

## Expected Loss

The underlying concept of EL is fundamentally logical and sound.  Every loan and irrevocable commitment to lend contains a risk that the borrower may fail to repay some or all of the principal.  Most, indeed the vast majority, will repay, but of course we do not know which will not.  Thus in every credit portfolio there are losses which have not yet become apparent, but which are statistically inevitable.

We know this, however the accounting rules clearly differ.  Reserves against that probability are taken when the problems become apparent (for example through late payments, covenant breaches, renegotiation requests, Chapter filings) and not before.  In contrast, EL methods recognize *probable future losses* in *performing* portfolios.

Moving from incurred loss to expected loss will be difficult for the accounting profession.  The very long-standing principle has been that revenues and expenses are matched in the period in which they are earned or spent.  Under the proposed rules (FASB 825-15), reserves must be set aside in the current year for probable losses in future years extending to the contractual life of the asset.

EL is a complex calculation even when there is no long-term forecast involved.  The probability of default ("PD") has to be estimated as a numeric value or range; the exposure at default ("EAD") has to be estimated where the borrower has drawing rights or when the loan amortizes; and the final recovery amount, loss given default ("LGD"), has to be estimated.  Not only are these estimations difficult, they have to be backed up by historical performance data before both regulators and auditors can accept them.

This becomes even more complicated when the loan has a life extending over longer terms, for the possibility of a change in all three categories (PD, EAD, LGD) becomes very high, not to mention issues around guarantees, covenants and changes in macroeconomic conditions.

The calculation of EL can bring substantial benefits to those who can use a consistent process backed by good quality data.  Here are some of these benefits:

1. Calculating PD will validate your risk assessment process and make risk rating not only potentially more precise but also more valuable in managing and monitoring the loan portfolios.
2. Assessing EAD will probably lead to better and more effective loan structuring particularly in the area of covenants.
3. Guarantees and collateral will become better attuned to the individual borrower and asset.
4. Loan pricing will become less formulaic and more linked to the underlying risk nuances that exist.
5. Client relationships should be improved as the negotiation of loan terms becomes clearer and more evidently fair to the borrower.
6. Earnings volatility should be dampened leading to better relations with shareholders, regulators and analysts.

Unfortunately, it is all too easy to impose conservatism throughout the EL calculation with the probable, indeed the almost certain outcome being that of inaccuracy.
A simple example is shown in Figure 1.  A one year general business purpose loan in category 3 has a default risk of 1.5%-2.0%.  Based on previous history with the client, half of the available funds is expected to be drawn during the life. Covenants are in place protecting against a substantial decline in the current ratio. It is highly unlikely that the borrower could draw more than $750,000 due to the existence of covenants that protect against a decline in the current ratio. There is no collateral, however the firm has owned real estate and there are no major creditors that are ahead of the bank should a distribution occur.

*Figure 1*

| $1,000,000 Loan Commitment | Most Conservative | Most Conservative | Most Probable | Most Probable |
|---|---|---|---|---|
| PD | 2% | | 1.5% | |
| EAD | 100% x 2% | $20,000 | 75% x 1.5% | $11,250 |
| LGD | 100% | - | 50% | $5,625 |
| Provision | | $20,000 | | $5,625 |

The conservative assumptions lead to a loss reserve that is more than triple the more realistically assessed outcome.  Multiply this result over an entire portfolio and it is readily apparent that the implementation of the new rules might produce a massive increase in loss reserves.

## Reaching the Best Result

In order to prevent the possible excesses of conservatism, a financial institution must show facts and data that prove that there are better estimates to use in the EL calculation.  These facts and data have one overarching need, they must have historical proof using data with statistically valid sample sizes from several years, including years of an economic downturn.

## Probability of Default (PD)

The probability of default is the foundation of all credit analysis of an obligor or business. It is the numeric value of the risk of default.

Every lender carries out a risk assessment of the borrower.  For retail bankers, scoring systems have been used for more than half a century and are reliable and backed up by huge amounts of constantly refreshed data. For commercial loans and leases, almost all banks maintain a risk rating scale which in all too many cases is based on regulatory prescription rather than designed for a purpose. Using the most common scale generally means that 40% of the grades are set aside for credits that are or are likely to be in distress. In other words 98% of a normal portfolio has to be placed in only 60% of the grades.

Determining PD is difficult for the number in most cases lies within a very narrow range and most banks have been more used to ranking credit risk ("a risk 4 is better than a risk 5") but this will not be enough when CECL is implemented.  Fortunately is it not difficult to move to a default rate grouping from a risk ranking, but in order for the new process to be acceptable for audit purposes there will have to be some testing against default experience. This means that the process of change, if needed, needs to begin as soon as possible.

Perhaps the biggest challenge of the FASB standard will be incorporating the risk changes that take place when a facility has a term longer than one year.

From the regulatory point of view this is understandable, for the statistics show that risk is dynamic and the probability of a risk change through time is very high.

For business loans and leases, PayNet AbsolutePD® provides default forecasts for a 24 month horizon and can augment traditional methods while bringing the benefits of accessing huge pools of data with a lack of any inbuilt bias.  PD models are not only valuable for the initial assessment of risk (even as a validation of the judgment-based process) but they may also prove invaluable in building sound and unbiased migration information that can be used to move the accountants and regulators to accept more probable outcomes.
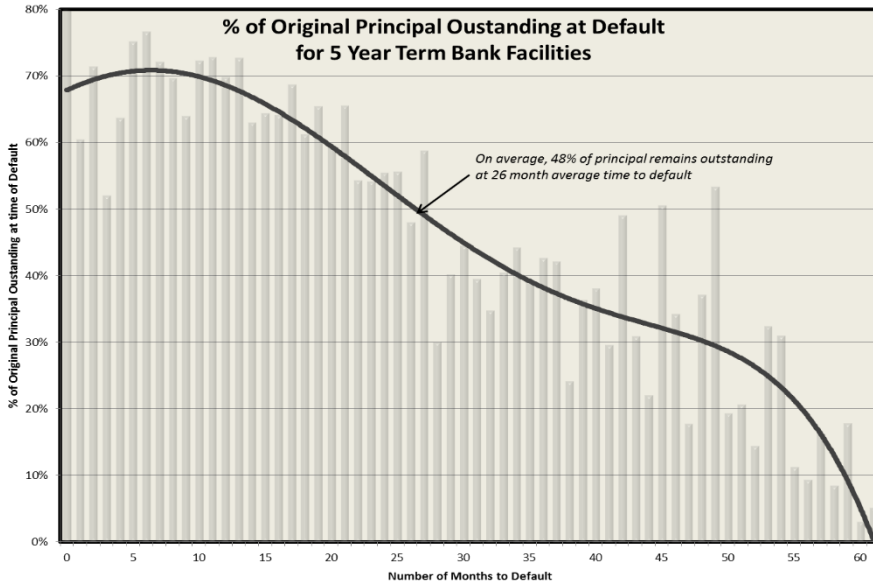
The danger for all lenders is that the requirement to look at the risks of each deal to the end of its contractual life will produce a significant loss provision as soon as the loan or lease is made. With high levels of migration risk with lower quality borrowers it is entirely possible that the EL will exceed the spread and thus the loan will be booked at a first year loss.

## Exposure at Default ("EAD")

EL requires an estimate, at the time a facility is granted, of the extent to which the facility will have been used should default occur.  It requires a forecast. The challenge is to provide data that will allow a reliable estimate.  Realistically, most banks either do not have that data or they do not have enough of it to provide a statistically meaningful answer.  Moreover, even if they do have the data, it may not have been collected through a full economic cycle, as required by the proposed rules.

The challenge to estimate EAD is amplified for amortizing loans and leases. Therefore, you need to look at thousands of examples of defaulted amortizing loans at various original terms to see the distribution of outcomes.  You need a huge database that stretches through at least one economic cycle and contains multiple borrowers to avoid lender biases, such as the PayNet Loss Database, to produce Figure 2 which shows with a sample size of 18,000 observations over 15 years that the mean exposure at default was 48% of principal.  This can be repeated for sub-portfolios such as construction equipment, medical equipment, trucks, computers and more, but the point is clear.

*Figure 2*



Chart title: **% of Original Principal Oustanding at Default for 5 Year Term Bank Facilities**

Y-axis: % of Original Principal Oustanding at time of Default

X-axis: Number of Months to Default

Annotation: *On average, 48% of principal remains outstanding at 26 month average time to default*

## Loss Given Default ("LGD")

The conservative assumption of 100% LGD on a loan may be realistic. However if that is repeated over all risks where there is limited or no data on previous examples, the EL for the portfolio will be significantly overstated.  Most commercial lenders do not have sufficient data on losses through multiple economic environments and covering geographies. They need access to data that can provide the depth needed to persuade auditors and regulators of the most probable outcomes.

## The Importance of Multi-Period Loss Data

PayNet has a very deep database containing more than 750,000 defaults over more than 17 years.  They have data that arguably covers two economic cycles and data that comes from both asset-based and commercial lenders.  Figure 2 earlier was an example of the sheer size (and usefulness) of this data, but it can also answer questions on recovery levels, time to default, the value of third party guarantees, the effect of time in business and much, much more. The important message here is that good EL calculations need a very large pool of good quality data if they are to be realistic and accepted by third parties including regulators and auditors.

## Toward Better Measurement

All too often the law of unintended consequences comes along and bites back.  Examples abound in many fields. However in this case it seems possible that a radical change in accounting, prompted by regulatory rather than commercial pressure, can actually bring some tangible benefits, rather than simply add to the regulatory and administrative burden.

Saying this is not to make light of the challenges that will arise from these complex and far-reaching changes.  For most financial institutions the new rules will add yet another layer of data and complexity in an already challenging area. But this is the area where we know that the bulk of the risk resides, unseen through past accounting conventions.  Lenders understand that a small percentage of the portfolio is not performing, is late or has sought creditor protection. They devote a lot of resources (and costs) to deal with these problems and carefully set aside what is needed to deal with these problems.

Yet they also understand that the other 98%+ of the portfolio has probable failures which cannot yet be seen nor accounted for due to the annoying convention of historical cost accounting.  The new rules will make positive action a sanctioned virtue.

Lenders will be able to recognize the dynamics of the business and, in doing so, prove that the risk is well understood and its inherent volatility better controlled.  If this is done well using data and measures that are available, the conversations with accountants and regulators will focus on practical and logical outcomes rather than prescriptive conservatism.  This time the light at the end of the tunnel may be a way through rather than a train heading in our direction.