

Loss Given Default

How Much is This Going to Cost?

An observer of larger banks might well observe that over a long period of time the only department that consistently manages to exceed its business plan is the loan workout group. They are blessed by the fact that the assets they control often come within that control at considerably less than their probable value. Thus when they are eventually liquidated, the realized gain enables the workout department to exceed expectations.

In this they are aided and abetted by the regulators and the auditors whose commitment to 'conservatism' leads to low recovery expectations for the small percentage of Commercial & Industrial ('C&I') loans that default. Soon this will change because under the FASB Accounting Standards Update *Financial Instruments – Credit Losses (Topic 326)*, every loan, and not just those already in distress or default, will have to have a reservation made against it *as soon as it is originated*.

This paper, the third in a series looking at the CECL rules, will focus on the final part of the Expected Loss ('EL') calculation which is the estimation of the probable recovery should default occur, usually referred to as Loss Given Default or LGD.

Prediction is Difficult.....

As Nobel prizewinner Nils Bohr said, "Prediction is difficult, especially the future," and LGD is essentially a forecast of the recovery value of realizable assets. That of course depends on a multitude of factors including the type and liquidity of the assets, obtaining title, whether there are creditors that rank in advance of the lender, the economic conditions at the time of default and more. As importantly, because this is a forecast, there will have to be some level of history, experience or comparable data if the forecast is to be accepted by the auditors and regulators.

Loan Loss Databases

The need for pooling data to provide meaningful statistics and a better understanding of the dynamics and cyclicity of LGD was proposed more than 25 years ago. However there was pronounced reluctance among banks to participate. For some banks, it was a concern over client confidentiality (even though most of these 'clients' were no longer operating), for others it was simply a reflection of their ability to collect data in a systematic way. Even after the first database of any substance was developed, the managers of the data had a dreadful time 'cleaning' the input and trying to get consistency in the reporting. A third factor in the lack of data development was cost, as the initial database in the U.S. was begun as a profit center by an intermediary which demanded not only data from each participant but also a high annual fee.

In Europe, a consortium of banks, with overt encouragement from the regulatory community, began the Pan-European Credit Data Consortium (PECDC) which now contains data on more than 100,000 defaulted facilities. This data is available to member banks. The association has been expanding to the point that it is now known as Global Credit Data ('GCD') and includes a number of large North American banks.

PayNet, Inc. also identified the need to maintain records of defaults and has been collecting default, loss and recovery data for more than 15 years. They have concentrated their efforts on loans and commercial leases to Small and Medium Sized Enterprises ('SME') and avoided duplicating the data from the large corporate and government markets. This database has become very large indeed and a summary of the size and coverage is included as Appendix 1 to this document.

It is increasingly clear that every lender that has to report under the new accounting standards will benefit greatly from having a robust sample of losses (in both number of observations and types of business) which span periods of both low and high loss incidence. This will allow them to estimate recoveries in a way that will be accepted by both auditors and regulators. For most lenders this will mean participation in a default database.

Default Database or Loss Database?

It is not uncommon for a lender to recover all of the principal after a borrower fails to meet the terms of a loan or lease. A *loss* database may not capture this important data and so it should be noted that the information that has to be collected is a record of *defaults* and their outcomes. On the other hand, a default database will invariably contain a number of what Tom Ware, Senior Vice President of Analytics and Product Development at PayNet, refers to as 'nuisance' defaults. These are the result of habitual slow payers (a group that contains some very large corporations as well as governments and hospitals) who violate the Days-Past-Due test. They essentially use their creditworthiness against their suppliers and thereby can have the effect of distorting the statistics unless their actions can be identified and isolated. They provide another challenge in the cleaning of the data, but do not provide a reason why the database should focus only on loss.

'Cleaning' the Data

It is important to note that data cleaning processes are both necessary and challenging. One bank that reviewed the accuracy of its industry risk coding (and they used only three digit codes) found that the error rate in their data was greater than 20%. They made corrections but a mere two years later the error rate had returned to double digits. Getting it right is one challenge, keeping it right is another. Being able to identify and isolate suspect data is an important skill and generally requires a lot of time and effort with a lot of data over a long period.

One of the earliest default databases required submissions for a December 31 year-end to be made before February 28, but it was not before September 30th that the data managers felt confident enough to release statistics. The message here is that before making the important decision to join and gain the benefits from a default database, you have to make the commitment to ensure your own data is as good as you can make it and to inform the data manager where flaws might be. The second important point is that the collector of the data needs to have the experience and expertise to be able to identify and remove probable data errors.

Global Credit Data (GCD)

The European database is proving its value as the implementation of the international equivalent of FASB 825-15 (IFRS-9) takes place. For the majority of U.S. banks, this database provides some useful pointers (after all it is more than 60% SME data) but it will not be a substitute for a U.S. solution usable by community banks and other smaller financial institutions.

One reason is that most of the contributors to the GCD are large banks. Another is that the data is spread over many countries with different bankruptcy laws and different laws on the ability of a bank to perfect security over assets. This provides country effects that are both meaningful and distortive. There are two countries (and perhaps more) where they have gone so far as to make foreign creditors subordinate to any local creditor in the event of bankruptcy. Data from such jurisdictions may not be applicable in the U.S. context.

Finding Relevant Data

In trying to find data that will yield valid information for the estimation of LGD we should look at the GCD data. We also need to identify other sources that are usable for CECL. Several possibilities exist:

1. Public bond issues
2. Secondary markets in defaulted loans and bonds
3. Credit derivatives
4. Studies by commercial banks
5. Evidence from commercial finance

Experience from the Bond Market

The large rating agencies have been commendably diligent for many years in maintaining records of the outcomes of defaulted bonds. These statistics are often available to researchers and are available through the agency web sites. In part, these defaults are a matter of public record because since the late 1980s, a robust secondary market has developed in which defaulted bonds (and to a lesser extent syndicated commercial loans) are traded. In the early 1990's, led in large part by J. P. Morgan, the risk of the default rather than the uncertainty of the outcome post default began to be traded as credit derivatives. Indeed this market rose to become the fastest developed market in financial history reaching over a trillion dollars in contracts within 10 years of introduction.

Because of these markets, those who wish to learn more about the LGD of larger corporations and sovereign nations can access price information that provides a free market estimate of the cost should default occur or have taken place. Thus, for this segment of credit risk, there are post default market prices and pre-default market estimates. A few observations can be made on these statistics.

Market LGD

Market LGD is a recovery rate that can be obtained by observing the post default prices of bonds and syndicated loans. The rating agencies use market prices with a one month delay to allow the initial exuberance or gloom to settle into a consensus price. Having these statistics can help in several ways. First, the difference between secured and unsecured can be seen, although it should be added that the nature of the security will be a factor that requires more care when it comes to C & I loans to SMEs. Second, the price is unbiased by timing differences. The cost of carrying a non-performing asset is ignored, although the expected duration of the collection period should be assumed as being part of the price. Third, there are none of the relationship complications that can occur with work-out processes.

Another aspect of market LGD is that the data has been available for academic research for a number of years and therefore we have the benefit of third party analysis. This said, the abiding problem is that the data covers only defaults by governments and large corporations.

Implied LGD

The CECL rules mean that an LGD factor will have to be determined for every loan including new business. This means that there will be loans to businesses where there is precious little default history either in the banking system or the bond market. What we do know is that the buyer of any bond does so in the knowledge that the issuer could default and therefore demands a premium for that credit risk. That premium should be a spread over the risk free rate for the same term to compensate for the additional risk (and perhaps poorer liquidity) of the instrument. Thus there are LGD expectations built into bond prices although research indicates that this is indistinguishable for the highest quality issuers.

There are commercially available LGD estimation products that attempt to capture and isolate the loss estimate should the bond default (the 'implied' LGD). The thinking behind these models is both highly developed and increasingly data-rich. For the larger lenders there can be real value as their portfolios contain substantial amounts of like credits. Once again however, for the average C & I portfolio, their use is very limited.

Can Smaller Lenders Learn from the Bond Market?

In a word, no. When bond issuers default it is usually impossible to access specific assets. As has been proven over any number of cases, government defaults do not provide recoveries based on their assets. Defaulted bonds of large corporations also do not provide much useful data because the bond holders are quite often subordinate to other claims, moreover in the largest cases there is often a negotiated class settlement which can be pushed through more easily as the owners at that point have either written the asset down to a low value or have acquired the asset at a distressed price.

Despite these realities there seems to be an interest in bond recoveries as a proxy for loan recoveries, but this should be resisted if proposed by either regulators or auditors. The result of using bond data will probably be an overestimation of loss which may be conservative, but is likely to be wrong.

LGD for C & I Portfolios

As noted above, any suggestion by auditors or regulators that a smaller financial institution should adopt data from public markets should be resisted. There are five principal reasons for this statement:

1. C & I loans are typically senior obligations for the borrower, indeed it is rare for any bank to accept any level of subordination other than those prescribed by law. With a first charge over the assets, bank lenders should expect much higher recoveries than bondholders. *How much* more is the important question.
2. Bank lenders routinely monitor the health of the borrower in a much more detailed way than bond holders. Margined loans for example require the borrower to report as frequently as monthly on the value of the asset that the lender has selected as key to the soundness of the loan. In addition, the lender will invariably have a designated account

manager whose job it is to ensure that the business activities of the borrower are regularly reviewed.

3. C & I loans are carried out using custom contracts that focus on mitigating the specifically identified risk of borrower failure. Diligent lenders negotiate covenants within the loan contract that should enable much earlier detection of potential defaults and should also mitigate loss should default eventually take place.
4. The universe of C & I lending includes many businesses that are simply not represented in the bond market (and vice versa). There are few military defense or airplane manufacturers in the C & I world and there are equally few (read: none) dry cleaners or poultry farms in the bond world. The need for a much broader array of incidences among a much broader array of defaults means that C & I lending needs a different database to establish probabilities.
5. There are lenders who consider their business as 'asset-based' for they advance funds against a specific asset or asset class and rely on their knowledge of the value of that collateral for the safety and soundness of their portfolio.

'Workout' LGD and Present Value

The International Accounting Standards Board ('IASB') has released its new rules on loan loss accounting: IFRS-9. Included in the rules is a requirement for EL to be calculated as a present value. Taking into account the time variable has led to the terminology of 'workout' LGD and 'economic' LGD with the latter taking into account the time value of money in the workout process. An impending controversy that arises from this variable is the choice of the discount rate to be applied. IFRS-9 prefers to use the contractual interest rate of the distressed loan. Some researchers have chosen a 'vulture' rate as the distressed loan would attract such a rate if re-issued to a willing lender. A stronger argument might be made for the use of the lender's marginal cost of funds as the discount rate for the funding of the non-paying balance. In any event, calculating the present value adds a further layer of complexity especially when the problem is finally dealt with by either total loss or final recovery.

Of course the length of time for a loan workout is yet another imponderable. Loan workouts are often protracted sometimes for reasons that benefit the lender, but adding this factor into the calculation of EL adds a layer of conservatism that can (and perhaps should) be more readily captured in the LGD estimates.

One further point on the question of time to resolution. It is not uncommon for a lender to realize the majority of the remaining value in the first few weeks or months post default. If a small residual remains uncollected, the lender may choose to keep this small sum on their balance sheet rather than write it off and perhaps lose sight of the amount permanently. This approach, while commercially reasonable can have the effect of making time to resolution look much longer than it is in practice and thus needs to be considered carefully in the compilation of LGD outcomes. It is recommended that each lender defines a criterion for time to recovery. For example, a lender might select a recovery level of 90% or more as 'full' in the computation of average time to recovery to avoid having to use a much longer time period for the whole portfolio.

Bimodal Outcomes

Consider the story of the man who drowned in a river where the average depth was only 2 feet. In LGD, averages disguise the fact that there are a lot of total losses and a lot of total recoveries. Every study of LGD that has been published shows that there are large variations in the outcomes, but that the extremes are common.

So, at the outset, we have to understand how we are going to define default and what parameters we need to adopt to deal with the fact that there are significant percentages of full recoveries. A study using data from the GCD¹ found that in the case of 18,563 defaulted loans, there were no losses in 18.4% of the cases. It is important to note that the 18,563 loans were to only 11,345 counterparties and so it is likely that there was no loss from more than 20% of defaulted *clients*.

The generally accepted definition of default (adopted by the Basel Committee in 2004 and included here as Appendix 2) includes not only bankruptcy but also having a debt more than 90 days past due. It is not uncommon for an item to be in dispute or somehow slip between the cracks and cause a default event when the borrower is not in any distress. As mentioned earlier, we want to exclude the 'nuisance' defaults. That being said, a full recovery is not an unlikely outcome by any means. Well-structured loans with good collateral should have a good probability of zero loss.

Interestingly, the GCD also shows a number of defaults where the recovery was well in excess of the loan amount. Accounting rules for non-accrual mean that interest ceases to be booked on defaulted loans and yet these amounts will be contractually owed. If a full resolution takes place then these un-booked interest charges will be received but look like an excess of recovery over the amount owed. While over-recoveries may also be the result of residual data errors, it is not an inconceivable outcome as a lender may be able to eventually liquidate pledged collateral for more than the value of the debt on the books. Clearly any attempt at estimating LGD at the outset of a loan cannot include that possibility.

There will also be loans where no value remains. It may be that there are high prior claims (e.g. taxes, payroll), it may be that a legal liability overwhelms the assets, it may be that the product sold has no demand so both inventory and the means of production are obsolete. It may be fraud. Total loss is an extreme outcome but far from rare.

We therefore have a strong probability of full recovery and a strong probability of full loss leading to a bimodal loss curve, one where there are large numbers of observations at each end of the distribution. For bonds this curve is illustrated in research from Til Schuermann (then of the New York Federal Reserve).²

So we know that there is a reasonable chance of getting most principal back and a smaller but not insignificant chance of getting nothing back. Much lies in between and we need to learn what the key drivers are to help us understand how to make reasonable, auditable estimates. For this we have to look at evidence from different types of lenders and different types of assets.

¹ Loss-Given Default of Corporate Bank Loans: Large Scale Evidence from Europe *Laurence Deborgies-Sanchez, Lyubka Sokolova & Michel Van Beest*; March 2014

² T. Schuermann "What Do We Know About Loss Given Default?" *Credit Risk Models and Management*, Risk Books, 2004

Evidence from Commercial Finance

There are many lenders whose major focus is on the specific asset acquired with the funding. Most of these are commercial finance companies who provide either leases for a variety of assets or funding for the purchase of specific asset types. The most obvious of the latter types are the financing subsidiaries of auto manufacturers but there are captive lessors for many different types of equipment.

PayNet has gathered enormous amounts of default and loss data from commercial finance in the U.S. and Canada. These data provide valuable insights not only into the levels of recovery that might be expected from specific asset types but also in the variety of information that can be gleaned from the data.

For example:

1. Firms that specialize in a particular asset have higher recovery rates than generalists. They have highly developed and tested methods to estimate residual values throughout the term of the lease.
2. The definition of default is important. With commercial leases generally reporting defaults as accounts that are >30 days-past-due, there are many more 'nuisance' defaults than with the 90 days-past-due test for commercial loans. The increased number of instances that need to be excluded from analysis underlines again the importance of the data cleaning protocols that have to be developed and honed through time.
3. Specialization in assets (particularly evident in captive leasing companies that finance the product of the parent) produces a very strong knowledge of residual values which means that losses are minimized whenever the default occurs.
4. Because commercial leases are generally amortizing, a database that can demonstrate the probability of time to default can also have the ability to prove the assumption of remaining principal that is an essential part of the LGD calculation.
5. Size of loan turns out to be an important factor in the prediction of LGD/recovery. The higher the initial loan amount, the less the chance of a total recovery. On the other hand, incidences of total loss do not appear to be correlated with initial loan size.
6. Rates of recovery are correlated to the economic cycle. For all types of assets, the recovery amounts decline during a recession (albeit the difference is not large). This is important data, for the CECL rules require data that includes results through at least one economic cycle.
7. There is a correlation between recovery and years in business. As experienced lenders know, firms that have survived previous economic downturns tend to have a better than average probability of being able to survive the next. The beauty of a comprehensive and deep database is that this 'knowledge' is now provable to even the most skeptical auditor or examiner.

These points are a few of the benefits of PayNet's collection of default and loss data. The large amount of relevant data collected through time coupled with careful compilation and quality control yields proven facts that are usable in the CECL process which can avert the possibility of

ultra-conservative (and likely incorrect) assumptions that might be forced upon a lender without data support.

Evidence from Large Bank Studies

Most of the published studies on LGD have been based on data from large banks whose portfolios are much different from community banks or credit unions. Nevertheless there are many consistencies, some of which are mentioned earlier, such as the need for clean data and a clear definition of default. The conclusions from all research are consistent. Unsurprisingly there is a tangible benefit in having specified collateral, there is a high level of volatility in recoveries, there is evidence of cyclical in the rates of recovery and borrower industry is not as significant a factor as might be expected.

A J. P. Morgan study³ found that the variability in recovery level for secured loans was insignificant but became pronounced with higher losses in recessions from unsecured loans. This was confirmed in the Schuermann study cited earlier which found that losses on unsecured loans were up to 33% higher during recessions. The importance of these findings to smaller banks is to underline how important the practice of collateralization is to final outcomes.

Industry Risk

The accumulated evidence on industry risk points to the conclusion that looking at LGD on an industry basis provides little or no value and may in fact be liable to mislead rather than inform. There are several reasons for this conclusion:

1. It is difficult to define any 'industry' for SME lending. There is regulatory need to collect data using a 3 digit NAICS code, but this level of detail is insufficient for meaningful analysis for smaller businesses. If 4 or 5 digit codes were routinely recorded, then there would be statistics on dry cleaners or cheese makers or bicycle manufacturers rather than 'retail,' 'processed foods,' or 'manufacturing.' but this is not available. Even if that data had been collected, the outcomes would have been driven by a myriad of factors and would therefore be unwise to use in any specific case.
2. The 3 digit-level data that we do have produces standard deviations from the mean outcomes that have an enormous range. We should not be surprised at this when we see an 'industry' such as 'retail' which can include huge sectors of the economy providing everything from soup to nuts provided by Macy's or the local hardware store.
3. The available data does allow observation of higher recoveries on recognized activities such as agriculture and professional services, but these are best approached from their asset values and asset liquidity even if the loans are not collateralized with these specific assets.
4. Most of the data that we have comes from the bond studies mentioned above, yet these firms are not representative of SME portfolios. Moreover, the larger the firm, the more likely it is to have operations that cover more than one single industry type.

³ M. Areten, M. Jacobs Jr., P. Varshney. "Measuring LGD on Commercial Loans: An 18-Year Internal Study", RMA Journal, May 2004 pp28-34

The table below provides a comparison of three studies. As can be readily seen there are challenges in having a standard 'set' of industries and thus problems in achieving comparability. Construction and Real Estate are sometimes combined and the category 'Other' is one of the biggest in number in two of the three studies cited. It is also notable that the GCD study, where the sample comprises more than 60% SME's, shows much higher recovery levels than the large bank client and bond defaults that dominate the others.

Industry	Workout LGD (GCD)	Workout LGD (Acharya) ⁴	Workout LGD (Areten)
Utilities	19	26	37
Financial Institutions	22	41	35
Communications		47	22
Manufacturing	21		34
Construction	16		30
Transportation	15	61	24
Automotive/Aerospace		48	38
Consumer/Service		53	28
Real Estate	12	63	27
Leisure/Entertainment		48	28
Natural Resources		40	27
Wholesale and Retail	22		
Other	19		27

It is very difficult for any smaller financial institution to use the data from the bond and large banks studies as there is no real comparability with their lending business and the size of the firms in their portfolio. For J. P. Morgan 'Automotive' would include General Motors whereas for a community bank that same category is more likely represented by the Napa parts store in their city.

Notwithstanding, there is one common 'industry' area, commercial real estate, which deserves special mention for it is an area which has been one of the most problematic for lenders for a long time.

Commercial Real Estate ('CRE')

According to the Government Accountability Office, the most significant factor in the failure of more than 400 FDIC member institutions between 2007 and 2011 was not the problems of the *residential* real estate market but those of the *commercial* real estate market. Sadly this appears to be a common theme over at least the past 35 years in the U.S. despite more regulation and more awareness of the perils of these assets.

Getting to the heart of the problem is not simple in that the term 'commercial real estate' covers so many different types of assets from retail stores to malls, from small office buildings to multi-story towers, from small warehouses to large manufacturing plants. With all of these likely to have different characteristics and value volatilities, it is difficult to use any form of averaging with any confidence.

⁴ Acharya, Sreedhar and Anand (2003) "Understanding the Recovery Rates of Defaulted Securities" Working Paper

The solution is indeed simple. Stop doing this business and buy the assets of the nearby defaulting bank at a big discount. Of course this is impractical advice for community banks who see this type of lending as an integral part of what serving the community represents. Instead, here are suggested actions that can have a direct impact on the LGD for these assets:

1. Work with a default database to carefully define different commercial real estate types in order to gain a better understanding of these assets through time.
2. Take care in looking at collateral to decide whether the real estate security changes the risk of a borrower from the business that they are engaged in to the volatility of the real estate that they use. In other words, gain a better understanding of where real estate risk is the dominant risk
3. Be firm when it is clear that the development of real estate produces an unequal distribution of outcomes. So often the developer looks upon bank loans as a substitute for capital and uses that leverage to generate the chance for very high profits where the bank's measure of success is getting the principal returned plus a relatively modest amount of income. Negotiating a profit share would not be unreasonable in these circumstances, nor would saying 'no'.
4. Be realistic in estimating the LGD not only in recognizing the volatility of the asset values but also the time and expense that is likely for a defaulted asset to be disposed of in an orderly way. The GCD study reported an average of 1.8 years to resolution for real estate defaults and there are clear and mostly unavoidable costs directly associated with the disposal process that should be factored into the CRE LGD calculation.

Interim Solutions

Every experienced lender and risk officer has scars of past defaults. Every loan that fails usually generates recriminations even where the proximate cause of the failure was not apparent at the time the loan was advanced. Credit professionals remember getting everything back, they remember losing it all. So if you were to ask a number of them to encapsulate their track record and judgment into a hierarchy of collateral performance you might find the following results:

Security Type	High	Average	Low
Cash/Securities	100	95	90
Receivables	90	80	70
Inventory	75	55	40
Fixed Assets	60	50	35
Real Estate	55	45	25
Unsecured	50	40	20

This is not intended as a suggestion, rather it is a portrayal of a logical progression. The loan with the most liquid security has the best probability of a speedy and high recovery, however there is a range around that expected level that will be influenced by the nature of the failed firm's activities and the cause of the failure. There are lenders who use such tables on the grounds that they are better than nothing, but the research on LGD points to a number of issues that have to be addressed.

1. Cash and Securities

Clearly the most liquid assets and ones with a current value. It will be rare (but certainly not guaranteed) that holding these assets as collateral will result in any loss to the lender. Notwithstanding the cautionary stories of fraud and of dot com securities that collapsed in value as collateral, we can assume that little will ever be lost.

2. Accounts Receivable

These are generally diversified, self-liquidating and of short duration. Little should be lost if the lender is careful to get regular reports, monitors returns and bad debts, and ensures that there is a diverse customer base.

3. Inventory

There are many features that make a generalized rule on inventory value impossible. The inventory may be perishable, have liens, be almost unsaleable and more. It is better than nothing and valuable if saleable and unrestricted. The value in distress is a matter of lender judgment.

4. Fixed Assets

Apart from real estate (see earlier) the assets of a firm that has failed will often be in poor repair, have use only in the business activity of the failed enterprise and likely to have a heavy discount as well as a higher disposal cost.

5. Unsecured

The fact that a loan is unsecured may be irrelevant if the lender has access to all the firm's assets in default because there are no creditors that can rank ahead of the bank other than those defined by statute. Studies using the GCD have shown that the existence of a *pari-passu* clause has a *material* effect on the probability of a higher recovery.

The opposite is true if the lender does not have control over their position in the capital structure of the borrower. Every study appears to confirm that the bank's ability to design a highly structured and specific loan agreement provides a material benefit that is lost when the agreement provides no protection either through attachment of specific assets or a general charge over assets.

There is of course another tool in the lending arsenal referenced below which is very important, common and yet one where we have very few adequate statistics to actually measure the benefits.

Covenants and Other Loan Conditions

The discussion of covenants is perhaps best placed in the context of 'life-of-loan' rather than LGD because the chief purpose of a loan covenant is to change the effective term of the loan. If a banker requests a certain ratio to be maintained and that ratio is evidence of health, then the loan term is as long as the period until the next financial information to confirm that the covenant is intact. A well-conceived covenant should enable higher recovery in default for it should provide the lender the opportunity to intervene at an earlier stage and thus preserve the value of the collateral or prevent the exposure increasing from its current level.

At this point it is far from clear how individual and often complex covenant clauses can be evaluated systematically. Moreover there is little useful evidence of consistent actions taken by lenders when these clauses are breached. For those reasons, the FASB decided that their rules will not have any concession for the existence of covenants. Over time this might change and it would be useful for any bank to record the use of covenants. One particular data

collection should include all cases where the breach of a covenant was followed by the attachment of collateral protection that was not available at the inception of the loan.

Guarantees

Evidence from both the PayNet database and the GCD shows that commercial loan guarantees are of far less value than might be commonly assumed unless they are provided by either a government or a bank. The difference in recovery from a guaranteed versus a non-guaranteed loan is a modest 2.3% with the former at 82.9% versus 79.6%.

This evidence will not surprise credit risk practitioners who have observed poor outcomes for many years. Indeed there is good reason to believe that a guarantee can have more impact on Probability of Default than LGD because the guarantor may act to keep a loan current rather than face the prospect of having to repay a large principal amount or have other problems compound as a result of such a call.

Developing an LGD Approach for C & I Loans

The above heading was originally entered as 'developing a model...' but there are many lenders and executives of smaller banks that have an aversion to the concept of a model with the concern that it implies the construction of a mathematical approach that either takes discretion away from the lender or produces results that are unexplainable without a deep knowledge of the inner workings of the formulae.

The thousands of smaller lenders in the U.S. are not likely to use neural networks, tree methods or advanced regressions to compute CECL. Rather they need a way to incorporate a realistic and supportable estimate for each loan. If they achieve this they have a number of benefits:

1. At the outset to identify and evaluate the most effective structural elements within the loan;
2. At the outset to enable risk sensitive pricing that is simply essential to a profitable portfolio through time; and
3. Through the life of the loan to enable a realistic calculation of the CECL that will be accepted by auditors and regulators and can be disclosed to the shareholders.

For CECL, but more importantly for the calculation of EL and the pricing of loans, we need to take our knowledge gained from past (undocumented) experience and confirm that knowledge empirically. We can then codify the information in a way that will be acceptable by auditors and regulators. We have the chance to kill a flock with this stone.

Looking at this problem, with 'simple yet effective' as our goal, the answer for most small lenders might well be a 'look-up' table. Such a table would enable input of a business type, business size, a security type and loan conditions with an outcome of the most probable recovery post default derived from a deep sample of like events. Simple in the description but the chief practical difficulty is that there are too few events recorded by any single lender to provide an adequate 'deep sample'. Moreover most small business lenders have failed to maintain a record of outcomes that is of sufficient reliability to satisfy the needs of auditors and regulators. But if we know what we need to accomplish, then a logical plan with a good possibility of success can begin to emerge.

Thus the short term 'solution' will follow a process such as

1. Build a spread sheet of loans with data including the PD and EAD (Exposure at Default) for each loan.
2. Code the nature of any collateral (e.g. Cash and Securities might be '1,' Accounts Receivable might be '2')
3. Program look up for the expected loss (or recovery) rate
4. If needed, apply a PV calculation for the estimated time to recovery
5. Calculate the EL.

Over time there will be a need to replace the look-up table estimates with validated data from a source which contains like portfolios and results through at least one economic cycle. There will also be a need to link the data for the LGD calculation to the data that is used in the estimation of the PD of the borrower. In particular, there may be regional issues, the risk trends of the borrower business, management factors and more.

Research reveals that smaller lenders seek a CECL process that reflects their capabilities and business profile rather than a solution that is thrust upon them. These lenders will need to emphasize the need to have the CECL process recognize the essence of their business.

Improving Management Information and Reporting

As with so much of this topic, what can be used in management and reporting depends entirely on the quality and consistency of the management information yet so much of the key elements are numbers and qualities that are not generally recorded in any accounting system. Surely it would be useful to record the dollar value and percentages of loans where there is a specific pledge of capital, a guarantee or other form of protection against loss. But those facts have to be recorded at the time of the loan. It should also be important for the CEO to see whether the recovery levels achieved are in line with expectations which is not possible unless expectations are first determined based on agreed criteria and then maintained through the life of the loan.

The CECL rules are here and although there were a number of postponements, the FASB has resisted every effort to either exempt certain financial institutions or change the rules to make the need for data less intensive. The delay in full implementation for community banks and credit unions provides some breathing space for data to accumulate and for smaller lenders to develop processes to make the calculation and have the results blessed by the auditors and their regulators. Once again it has to be stressed that the outcome of compliance will be beneficial for business management. How much better this can be will be the theme of the final paper in this series, but at this point we can see that having confidence in being able to estimate how much is probably at stake when a loan is made is going to help not only in meeting accounting requirements but also in better loan structure, pricing and collateral management.

Appendix 1. PayNet Data Statistics

Appendix 2. Definition of Default

It is necessary to clearly define what the term 'default' means and for that purpose the definition that banks must adhere to is that provided by the Bank for International Settlements ('BIS'). The full details can be found in the BIS Committee on Banking Supervision publication of 2001 in section 3F Paragraph 146.

According to the BIS, a default is considered to have occurred with regard to a particular obligor when one or more of the following events has taken place:

- a) It is determined that the obligor is unlikely to pay its debt obligations (principal, interest or fees) in full;
- b) A credit loss event associated with any obligation of the obligor, such as a charge-off, specific provision, or distressed restructuring involving the forgiveness or postponement of principal, interest, or fees;
- c) The obligor is past due more than 90 days on any credit obligation; or
- d) The obligor has filed for bankruptcy or similar protection from its creditors.