

## LOAN-LOSS RECOGNITION BY BANKS: PUMPS IN THE REAR-VIEW, BUMPS AHEAD

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Retail lending is still at the core of the banking business, and obviously accepting and managing credit risk represents a critical function of banks. Recognition of loan losses is a crucial part of that exercise, due to the high sensitivity of a bank's financial position to changes in the value of loans. However, neither managerial attitude nor accounting standards have facilitated market discipline in this domain up to now: a strict interpretation of IAS 39 has been used as an excuse by banks to avoid recognizing the impact of risks stemming from lenient practices and undue growth strategies.

In order to provide users of financial statements with useful and reliable information on the financial impact of retail lending exposures, the peculiarities of the banking business have to be considered. This article looks at current practices in the area of retail lending, and analyzes how those practices affect the estimation of loan losses. It then attempts to bring clarity on some common beliefs that have traditionally affected loan-loss accounting.

With all the arguments at hand, a suggested framework for the production of useful and relevant loan-loss information is presented. The framework is based on the assumption that loan losses accrue as credit risk builds up in respect of a loan or a group of loans. In the context of retail lending by banks, this means losses not only respond to credit quality deterioration, but also to the way loans are granted.

### 1 Introduction. Pumps in the rear-view mirror

London, summer of 1854. The Soho District was then a vastly populated neighborhood lacking the most basic sanitary services to cater for the flow of waste. In the lack of a sewerage system for the area many houses got rid of their debris by means of cesspits that were easily overrun, so authorities decided to dump the waste into the Thames.

By that time, Asian cholera was well known by Londoners, and it was a general belief that it spread through aerial means. However, evidence led Dr. John Snow, an anesthesiologist interested in the study of diseases, to locate the source of that summer's outbreak at the water pump on Broad Street. Though microscopic examination of a water sample was not conclusive, his analysis of the epidemic's pattern, including a mapping of cases showing high concentration in the pump's surroundings, convinced local authorities to seal the well pump.

The outbreak took away more than 600 lives and raised the mortality rate to nearly 13% in some parts of London, but it clearly represented a turning point in the investigation of epidemics and its causes, influencing public health measures throughout the world.<sup>1</sup>

Very much like cholera did with the water supplies credit risk contaminates cash flows. Banks carry out an important social function by accepting, pricing and transforming credit risk, which can be generally described as "the possibility that the borrower will fail to repay as promised".<sup>2</sup> Owing to their substantial leverage, inadequate estimation of this risk's

<sup>1</sup> See Johnson (2006).

<sup>2</sup> See for instance Walter (1991).

impact can have damaging consequences, since even small punches involving unforeseen losses on credit exposures could potentially knock any big bank down.<sup>3</sup>

As a result, adequately estimating how the exposure to credit risk affects the value of loans, and therefore the bank's financial position, should be at the forefront of priorities both for its managers and users of financial statements. In turn, it is the role of prudential authorities to ensure the adequate foundations for such estimation, which should be framed within the bank's credit risk management and thus be a natural consequence of how bank managers:

- a) *identify* the credit risk in the bank's transactions or activities; and
- b) *price* the related instruments based on the initially estimated impact of such risk.

When this process is followed, loan losses accrue in response to both changes in such initial estimate and inadequate consideration of risk factors. In this case, the impact of credit risk responds not only to credit quality deterioration, but also inadequate *identification* or *pricing*.

Existing accounting standards require the loss to be evidenced by an event in order to report it on the financial statements. A word-by-word interpretation of such requirement has led banks to recognizing credit losses solely in response to credit quality deterioration owing to borrower creditworthiness concerns or general economic circumstances affecting repayment prospects. The financial crisis brought the issue to the attention of G20 leaders, which in 2009 called on accounting standard setters to replace such "incurred loss" framework by a model that incorporated a wider range of information and thus avoided "too little" loss estimation and "too late" loss recognition. However, conceptual disagreement has affected such endeavor by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB).<sup>4</sup> The result is an "expected loss" model which may still be subject to substantial interpretive concerns.

In this context, the aim of this article is threefold:

- 1 Analyzing the peculiarities of retail lending by banks.
- 2 Based on that analysis, dismantling some of the widespread assumptions that traditionally have surrounded the issue of loan-loss provisioning.
- 3 Backed by the findings in such exercise, presenting a framework for the estimation and recognition of loan losses by banks that: a) considers the referred peculiarities; and b) is consistent with the fundamental concepts of accounting.

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3 According to Hoenig (2013), most of the world's largest "systemic" banks operate under extreme leverage, as shown by their capital ratios if calculated on the basis of accounting, rather than risk-based figures. Building on his analysis, the three banks which at end-2012 showed the highest Tier 1 Capital Ratio (average 16.61%) showed a bare 2.46% "Adjusted Accounting Capital" ratio, the calculation of which eliminates the risk-weighting of assets in the ratio's denominator and includes all loss-absorbing resources in the numerator (by subtracting goodwill, other intangibles and deferred tax assets from Total Equity and Total Assets). The ratio was even lower in the preceding years, bordering a nearly gaseous state at end-2008 (average 0.84%, meaning that each euro of the total assets for those three banks was funded with less than a cent of risk capital). This has been the common picture for large banks, and it implies that loss-absorbing resources would only endure a small write-down of their retail loan portfolios (again looking at the three above, adjusted Total Equity at end-2012 would only have been capable of sustaining a 5.90% to 12.20% adjustment on their net loans to customers).

4 Examples of such disagreement are found all throughout the process of replacing the incurred loss framework. See for instance International Accounting Standards Board (2013a), pp. 7-9. For a snapshot on the final clash between both Boards, refer to Financial Accounting Foundation (2012).

The application of the proposed framework would arguably enhance transparency on the value of loans. Although investors are designated by both the IASB and FASB as the primary addressees of financial information, their main concerns (“delayed recognition of losses”, “systematic under-reserving... of the expected losses”, or “inability... to use forward looking information to recognize expected credit losses”)<sup>5</sup> are shared by other stakeholders, mainly prudential authorities. In this sense, the framework would not only facilitate the adoption of decisions by investors, but also guide the efforts of those authorities in providing bank managers with sound criteria for the estimation and recognition of loan losses.<sup>6</sup>

Starting from a succinct description of how banks account for loan losses in Section 2, Section 3 develops the first of the objectives presented above.

Sections 4 to 8 tackle the second objective, with the following detail:

- Section 4 addresses how loans are priced by banks, while Section 5 discusses the connected issue of an individual loan’s fair value upon initial recognition when that loan is managed on a portfolio basis.
- Section 6 analyzes the timing of loss recognition in the context of existing assumptions by accountants.
- Section 7 counters the traditional arguments on the pro-cyclicality of loan-loss accounting, alongside other macroeconomic implications.
- Section 8 presents the shortcomings of extensive use of data and statistics for loss estimation purposes.

Section 9 builds on the arguments in the article to present the suggested framework as described in the third objective above, while Section 10 provides the main conclusions and current prospects for loan-loss accounting.

## 2 Accounting for loan losses by banks. A basic primer

Like any other asset, the estimation of a loan’s value depends on its lifetime expected cash flows. In the case of loans, those cash flows are particularly influenced by credit risk so in the end a loan’s value is basically dependent on the expected cash shortfalls to the contractual amounts due. Accordingly, adequate information on a bank’s financial position should include an appropriate estimation of those shortfalls and their discounted value.

Obviously this involves a substantial degree of management estimation. The allowance for loan losses deals with future cash shortfalls arising from current exposure. Accordingly, recognizing credit losses implies accruing the foreseen effects of events that affect an exposure, which means correcting the book value of the financial asset.<sup>7</sup>

While a substantial degree of discretion is unavoidable in estimating loan losses and determining when they accrue, most of the balance sheet of traditional banks is made up

<sup>5</sup> See Financial Accounting Standards Board (2013).

<sup>6</sup> These criteria should be part of wider efforts by prudential authorities regarding the full credit risk management process. In this regard, many prudential authorities already provide guidance on loan-loss estimation and recognition in the current incurred-loss environment. Moreover, as of the writing of this article the Basel Committee’s Accounting Experts Group is updating its own guidance in the context of the new accounting standards for loan-loss provisioning.

<sup>7</sup> In turn, final confirmation of the shortfall involves the asset’s write-off (which however does not imply legal surrender of the claim against the borrower).

of large groups of small, homogeneous loans (such as consumer or residential mortgage loans) representative of the bank's retail lending business. These assets are managed on a group basis, rather than individually. In trying to estimate their credit losses Dr. Snow's analysis of the viral process described in the introduction is illustrative. Like in the 1854 epidemics, where the outbreak's pattern evidenced a concentration of events in the vicinity of Broad Street, historical information for groups of loans similar to the group being assessed can be enlightening on the trends and behavioral patterns that led to observed defaults and the resulting cash shortfalls of borrowers therein.

The collection and analysis of such information for similar portfolios provides the stepping stone for the estimation of loan losses. In the context of an increased use of mathematical tools in finance there may be a temptation to rely exclusively on that type of information for undisputable answers, very much like some kind of Delphic oracle. But in reality, even the most granular set of data, filtered by the most sophisticated statistical model, might be useless in predicting what is yet to come. All relevant information must be considered, and every indicator has to be carefully assessed.

Obviously banks have an incentive to limit the range of information being considered on top of historically evidenced patterns. Discretion in determining the loan-loss allowance levels incentivizes its use as a "smoothing" mechanism to manage earnings through the overstatement or understatement of such allowance. The linking of loss recognition to a narrow, interpretive set of trigger events as per the incurred loss framework has facilitated this.<sup>8</sup>

On the contrary, users of financial statements adjust estimates based on historical figures with a wide range of available information (on portfolio characteristics, borrower performance, and economic circumstances) to take account of both current and foreseen events and circumstances that are thought to impact payment behavior.<sup>9</sup>

So accounting for loan losses currently follows either a *preparer* or a *user* approach.<sup>10</sup> This speaks of a debate that revolves around an expected, rather than incurred loss notion.

While both approaches involve a high degree of judgment in substantiating such notion, the use of discretion by managers should be avoided if merely aimed at attaining their own goals at the expense of depositors. This is not a task for the accounting standard setters, but rather for prudential authorities in steering the credit risk management process. Regulation and supervision should provide banks with the correct incentives for the identification of risks, the pricing of loans commensurate with initially estimated losses, and the subsequent estimation and recognition of loan losses, whether they stem from changes in initial estimates, or inadequate identification of credit risk or loan pricing.

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8 Inconsistent application of IAS 39 requirements for the estimation and recognition of loan losses, coupled with inadequate revision and enforcement, are considered determining factors in its use by banks to postpone losses. See for instance International Accounting Standards Board (2014).

9 This is systematically confirmed by investors when questioned on their analysis of bank loan-loss allowances. Outreach by the Financial Accounting Standards Board (2013) gathered views noting that investors "spend vast amounts of time analyzing the allowance for credit losses, in conjunction with information about the credit quality of the portfolio", and that their analyses "aim to adjust the reported amounts for the analyst's forecast of all the... expected credit losses".

10 A similar classification can be found in Wall and Koch (2000), who distinguish an *economic* view capturing expected losses, an *accounting* perspective that excludes the expected effect of future events, and a *regulatory* approach which considers the allowance as a buffer built during good times to absorb losses during bad times. While the accounting perspective matches the *preparer* approach, the *user* approach would encompass the needs of anyone interested in estimating the value of loan portfolios, including regulators.

### 3 *En masse, prêt-à-porter.* Why banks are different

There is still no consensus on how financial statements should depict credit losses that affect the value of loans and the bank's performance. As discussed, the debate between users and preparers revolves around the notion of "expected credit losses", which can be described as "estimated losses on a loan portfolio over the life of the loans".<sup>11</sup> It is fair to say that a general state of confusion surrounds both the notion's meaning and the extent to which expected losses (whatever their estimate amounts to) are to be recognized on the financial statements.

In any case, when dealing with expected losses it has to be clear that a bank's exposure to credit risk stemming from its retail lending business cannot be compared to the exposures linked to other types of businesses. This differentiation affects the whole process of credit risk management, from loan underwriting practices to credit risk identification, initial loss estimation and the resulting pricing of loans, to the monitoring of payment capacity, collection efforts, and ensuing loan-loss recognition. It also explains the title to this section.

If we focus on their retail lending activity, it is clear that banks operate within a mature industry selling a plain, non-distinguishable product such as credit. Obtaining the loan from one bank or another makes no difference to a borrower, so bank managers faced with high competitive pressure have a natural incentive to sacrifice margin in order not to lose a borrower (and the prospects for cross-selling of products) to another bank. This makes bank earnings essentially dependent on volume. Bluntly, the nature of their product and the characteristics of their business force banks to grant loans inattentively of individual borrower repayment prospects.<sup>12</sup>

That simple fact is often disregarded by advocates of the *preparer* approach when considering how credit risk builds up and evolves. But the way in which a bank originates a consumer or residential real-estate mortgage loan cannot be put on a level with how other companies grant credit or purchase financial assets. Neither can it be compared with other lending activities conducted by the bank itself, such as corporate lending.

The reason for this difference has already been discussed: assets comprising a bank's retail lending business are small, homogeneous loans originated and managed on a portfolio basis.<sup>13</sup> In order to decide on each loan application, borrowers are scored on the basis of a series of general criteria that try to capture their common expected behavior. Ideally, the scoring model should explore a wide range of performance characteristics concerning what is usually referred to as the "five Cs": character, capacity, capital, conditions, and collateral.<sup>14</sup> But as stated by Henderson (2009), credit scoring models are not devised as tools to discern individual borrower creditworthiness, but rather "as tools to rank order the performance characteristics of the population" in order to facilitate "automated decision mechanisms".

Detailed borrower analysis on an individual basis is simply ruled out in order to facilitate the lending decision. This has contributed to "dramatic" loan growth based on the underwriting of products with standardized conditions.<sup>15</sup> It might be assumed banks have

11 See Basel Committee on Banking Supervision (2009).

12 Commercial bank advertising campaigns provide evidence of such behavior: a quick browse through the web pages of many big banks leads to useful tools that find the best-suited, plain product with pre-specified terms based solely on the property appraised value and the requested amount.

13 According to the International Accounting Standards Board (2011a), "portfolios" can be defined as a "grouping of financial assets with similar characteristics that are managed by a reporting entity on a collective basis". Bank portfolios can be described as "open", because "assets are added to the portfolio through its life by origination or purchase, and removed through its life by write-offs, transfer to other portfolios, sales and repayment".

14 However, as indicated in footnote 12, the initial filter is usually focused on the last "C", and more particularly on loan-to-appraised value (LTV).

15 See Henderson (2009).

leeway to adjust for initial concerns on a particular borrower's creditworthiness by requiring a higher compensation, tightening the loan's conditions, or simply rejecting the application. But because retail lending is based on offering credit *en masse*, the loan will normally be granted as long as the applicant meets the group's inclusion criteria (i.e., the minimum score). That loan's conditions (e.g., its amortization period, repayment schedule, collateral type and requirements, down payments, or the loan's price) are not tailored to each individual borrower's credit status, but rather standardized on the basis of the risk characteristics that are common to borrowers in the group.<sup>16</sup>

This basic feature of the retail lending business does not mean credit risk is ignored. Indeed the group's overall repayment prospects are considered, and contractual returns on loan portfolios should be commensurate with the identified credit risk. At least theoretically, when considered within a group the cash flows from borrowers expected to meet contractual payments compensate cash shortfalls from those expected to fail in honoring their obligations.

However, the tendency of banks to underestimate or underprice credit risk makes such compensation unlikely in practice. This has been repeatedly pointed out by the US Office of the Comptroller of the Currency (OCC),<sup>17</sup> and follows from a natural incentive of bank managers to game the referred theoretical balance in the search for increased profits. As already explained, the profitability of a bank's retail lending business depends basically on volume, so banks accept the risk of incorporating bad borrowers as a side effect of standardized, *prêt-à-porter* lending intended to boost profits.

With all banks engaged in retail lending being subject to the same incentive, a degree of competition is unavoidable. Banks compete for share, so they have to differentiate somehow in order to attract borrowers to their non-distinguishable product. So called "asset wars" are usually based on interest rate cuts. But relaxing loan conditions represents an alternative to directly sacrificing margin. This is particularly frequent during upturns, where borrower repayment prospects are overestimated.

The paradigmatic example of this practice is very recent and cruel: in the years preceding the crisis, newspapers were covered in adds offering loans subject to scarce or no verification of income sources, imaginative means of stretching borrower income, and based on the mantra that collateral appraisal values would stand for any difficulty in a context of ever-rising prices. Still today it is not infrequent to find loans being granted with substantial deferrals of principal repayment, flexible amortization schedules, no down payments, or excessive commitments with respect to the price of the financed asset. Concessions and refinancing, which were once useful tools to ease the difficulties of otherwise solvent borrowers, seem to be now devised as mere leaps in the dark.<sup>18</sup>

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16 In practice, the only way a bank adjusts for a particular borrower's riskiness is by means of requiring additional collateral or guarantees. But absolute limitations in a borrower's encumbrance capacity (either through property to pledge or valid guarantors) might tempt managers to overshoot the value of collateral backing the loan. Favorable economic conditions are the perfect setting for these questionable valuation practices, which specially affect collateral subject to independent appraisals, such as real-estate that backs mortgage loans.

17 As a matter of fact, it represents an essential criterion for its supervision of US national banks and thrift institutions, which is embedded in its "Comptroller Handbooks". For a more detailed explanation, see Office of the Comptroller of the Currency (1998), pp. 15-17.

18 HSBC (2014) reports how it offers "a wide range of mortgage products designed to meet customer needs, including capital repayment, interest-only, affordability and offset mortgages". It also explains how, although LTV thresholds and debt-to-income ratios "must comply with Group policy, strategy and risk appetite... they differ in the various locations in which we operate to reflect the local economic and housing market conditions, regulations, portfolio performance, pricing and other product features".



- *Lacking or inadequate verification of borrower income.* Even if automated systems are used to initially grade loan applications on the basis of simple parameters, the final lending decision should avail of some basic information aimed at verifying the borrower's *capacity*. Until very recently income verification has not been generally required, and origination of "low-doc" or "no-doc" loans has been usual in some jurisdictions.<sup>1</sup> As an alternative to these, "Alt-A" loans were characterized by less than full documentation, lower credit scores, higher LTV, or the pledge of additional collateral.
  - *Inadequate debt service coverage.* Banks should ensure the borrower has enough discretionary, recurring income to face payments and standard living expenses. However, loans are typically granted based on the loan-to-income (LTI) ratio,<sup>2</sup> rather than net available income. Furthermore the decisions are based on past and current, rather than expected income, so banks are confronted with borrowers who were considered to withstand huge leverage but became unable to face loan payments upon the turn of the tide.
  - *Unrealistic mortgage installments.* Instead of defining reasonable terms taking into account the borrower's repayment capacity, products can be designed with the sole aim of stretching affordability. Examples are loans granted with relieved repayment schedules, interest-only payments, or even flexible payment options giving way to negative amortization (such as adjustable-rate-mortgages, "ARMs").
  - *Excessive reliance on collateral and collateral valuation.* Equity buffers tend to vanish precisely as a bank's incentives to foreclose on the pledged assets rise, so collateral should never be considered a primary source of repayment, nor drive lending decisions. In this connection, LTV caps are not effective tools for risk mitigation, particularly within favorable economic environments.<sup>3</sup> Originating loans at excessive LTVs (which even exceeded 100% in the run-up to the crisis) eliminates any eventual buffer and discourages repayment. Additionally, home equity lines of credit ("HELOCs") are granted based on the borrower's equity in a previously financed property, or either on the basis of a foreseen house price appreciation.
  - *Multiple layering of risks.* Some banks go a step beyond by originating products that combine two or more of the above features (e.g., interest-only loans with reduced documentation, ARMs at 100% LTV, or first lien mortgage loans to high LTI borrowers combined with simultaneous HELOCs or second liens).<sup>4</sup>
  - *Inappropriate use of mortgage insurance.* The transfer of credit risk from lenders to mortgage insurers provides additional financing flexibility and can prove useful in risk mitigation if coupled with a prudent assessment of both the borrower and the insurer's creditworthiness. However, it has also been used as a tool to dodge sound underwriting.<sup>5</sup>
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- 1 A market for low-doc ("non-conforming") mortgage loans existed in the US and UK whereby borrowers were willing to compensate for the higher risk of not documenting income sources. However, in the run-up to the financial crisis many banks were broadly originating those loans with no compensation, both as an interim step to ensuing securitization, or with an aim to holding them for collection. As an example, a few banks originated and purchased non-conforming first and second lien real-estate secured loans, some of which were sourced by independent mortgage brokers.
- 2 LTI measures loan servicing requirements as a percentage of income available to repay the loan.
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- 3 Regardless of that fact, raising the bar is typically considered acceptable if the appraised value (or the long-term economic value) of collateral caters for the expected cash shortfall (refer to footnote 16).
- 4 See US Regulatory Agencies (2006).
- 5 See Joint Forum (2013).

A review of typical mortgage loan underwriting practices which follow patterns like those described above is provided by the Financial Stability Board (2011). Box 1 attempts at establishing a basic classification of those practices.

So *en masse* and *prêt-a-porter* define the retail lending business of banks, leading to an increase in their risk profile. This equates to failure in risk identification, loan pricing, or both, and inevitably has a consequence in terms of loan-loss information and the depiction of a bank's financial position.

By promoting sound underwriting standards and trying to steer the way banks define their credit policies, prudential authorities have long sought to mitigate the harmful incentives leading to such failure.<sup>19</sup> But with management compensation still being based

<sup>19</sup> One of the most prominent examples can be found in guidance by the Financial Stability Board (2012). Also the Basel Committee on Banking Supervision (2006) has attempted to drive sound credit risk management policies.

fundamentally on short-term performance, the main problem lays not so much on increased risk but rather failure to show its consequences on the face of the financial statements. Arguably a transparent depiction of a bank's expected credit losses and the resulting impact on its financial position would enhance market discipline and indirectly force banks towards a more prudent stance to loan underwriting.

Where this link between loan origination, pricing, and the booking of losses is not considered by accounting standards, it should also be the subject of guidelines by prudential authorities. As explained in the introduction, the ultimate purpose of this article is precisely to present a framework that can guide those initiatives, or more generally the approach to loan-loss estimation and recognition by preparers and users of bank financial statements.<sup>20</sup>

In any case, being aware of the peculiarities described in this section is key to understanding how credit risk affects a bank's financial position, and accordingly how it should be shown on its financial statements. It also allows a revision of some of the myths in which the area of credit risk, and particularly loan-loss accounting, seems to be shrouded.

#### 4 The “magic” of loan pricing

As described in the introductory section, the estimation and recognition of loan losses should follow a process that starts with the identification of credit risk inherent in loan exposures and the pricing of those exposures based on the initially estimated impact of risk identified. The first of widespread beliefs that can be dismantled precisely refers to the adequacy of loan pricing.

The Oxford Dictionary of British and World English defines the noun “price” as “the amount of money expected, required, or given in payment for something”, while the verb “price” means: a) “to decide the amount required as payment for something offered for sale”; or alternatively b) “to discover or establish the price of something for sale”.

Banks are assumed to adequately price financial assets, including loans. According to the above definitions of the verb “price”, that would imply they are either successful in “price discovery” [meaning b)], or in “product pricing” [meaning a)]. While price discovery for actively traded financial assets (such as equities or debt securities) is straightforward and reliant only on market depth,<sup>21</sup> it is not at all easy to find out the amount of money a borrower would be willing to give in payment for a loan (i.e., the loan's price). Accordingly, when granting loans managers focus on deciding the amount required as payment (i.e., product pricing) rather than trying to discover a loan's price which both themselves and the borrower would consider appropriate.

When the priced product is credit itself, as is the case for loans and financial assets in general, the amount required in payment is called “interest”, so in this context pricing is about determining interest charged in exchange for the amount lent. That should not be difficult if a company's lending activities are subordinate to its main business, like in the case of a manufacturer granting payment deferral to a client: interest charged (i.e., the price for the deferral) is based on thoughtful analysis of the client's payment capacity, in turn rooted in an adequate understanding of its business, even enhanced by data on payment history in cases of ongoing affairs.

<sup>20</sup> More detail is presented in Section 9.

<sup>21</sup> As stated by the Committee on Capital Markets Regulation (2013), debt securities have readily determinable fair values which reflect “the market's estimate of credit losses”.

A simple example can illustrate how the deferral would be priced. Imagine a company sold industrial equipment and allowed a well-known customer to defer a 1,000€ payment one year. History shows an average 3% cash shortfall for similar transactions, and the company expects to earn a 60€ return (covering time value of money, funding costs and overheads, plus a profit margin). Accordingly the price for the deferral is set at 90€, which includes 30€ of estimated cash shortfall. In other words, although the sole *contractual* cash flow due in one year is established at 1,090€, the *expected* cash flow is 1,060€.

Things change when exposure to the credit risk of wide groups of retail borrowers represents the core of a company's business, as is the case for banks. Expectations of cash shortfalls for the group as a whole are indeed considered when underwriting the loans that comprise it. However, the described peculiarities of the banking business make it difficult to assume that the price of any particular loan within the group is fully reflective of individual creditworthiness concerns. In fact banks themselves recognize that loan pricing cannot be perfect, and not surprisingly evidence shows they tend to misprice credit risk.<sup>22</sup>

We may use the numbers in the example above for a group of homogeneous loans. If diversification benefits from pooling the risk of individual borrowers resulted in an average 3% cash shortfall expected for the portfolio as a whole, this would imply keeping the price at 90€ despite higher shortfall expectations being possible for any particular borrower. The sole contractual cash flow would still be 1,090€ even if cash shortfalls in excess of the 30€ priced were expected. For instance, if the expected cash shortfall for a single loan climbed to 70€, its return would be cut to 20€, but overall the bank would still be expecting a 6% return on the portfolio because, in average, cash shortfalls on worst-performing loans would be theoretically compensated by cash flows on the performing (i.e., borrowers that repaid 1,090€, or at least above 1,060€).

As explained in the previous section, just lending to borrowers initially expected to perform would mean losing clients and thus prospects for product cross-selling and further engagement. So a bank typically risks adverse selection for the sake of market share.

This example shows that the price for a single, risky loan within the portfolio is not adjusted, thus leading to underpriced risk for that loan. But how is that price arrived at? What can we say about the process for pricing retail loans?

As indicated, the price for an individual loan should cover time value of money, funding costs and overheads, plus a margin encompassing the risk premium. Funding costs are readily observable and can easily be incorporated into the price, while overheads present more difficulties because usually banks do not have strong cost accounting systems.<sup>23</sup> This leaves risk as the key to the pricing dilemma and margin as the lever banks use to compete. Their natural incentive to venture into new business and relax conditions in order to gain market share leads to a narrowing of margins.<sup>24</sup> As indicated by the Office of the Comptroller of the

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22 Research by Barclays has found that banks systematically miscalculate the riskiness of loans they originate [see Masters (2013)].

23 See Office of the Comptroller of the Currency (1998).

24 Examples of this can be found in different jurisdictions and for different products. Nawaz and Khan (2014) report a steady fall in US auto loan rates "as auto lenders aggressively compete for business". One of the CEOs of banks involved justifies their raid into the business despite it involving "lousier collateral and less quality customers". Crespo (2014) reports how the incipient economic recovery in Spain is spurring competition among banks for market share, which is making loans to households and small and medium-sized companies cheaper. With solvent demand for credit still being limited, bank managers are concerned about the likely hit on their income statements, but they accept the price cut as an unavoidable requirement to remain in the market.

Currency (1998), loan pricing is still “clouded” by banks incorporating other benefits “attributed to the lending relationship into the loan pricing decision”, despite developments in credit risk management. Goldman Sachs (2008) affirms to “have experienced, due to competitive factors, pressure to extend and price credit at levels that may not always fully compensate us for the risks we take”.

In his renowned study on asymmetric information, Akerlof (1970) explained how “the bad cars tend to drive out the good, in much the same way that bad money drives out the good”. Adverse borrower selection, which is inherent to the banking business, is increased even further during upturns owing to the relaxed underwriting standards and underestimated risks.

This may seem at odds with the argument by Stiglitz and Weiss (1981) that banks respond to adverse selection through credit rationing. However, it has to be observed that such argument is based on the bank’s ability to discriminate high-risk borrowers.<sup>25</sup> While it may be valid for corporate lending where borrowers are indeed analyzed individually, scoring systems used in the retail business cannot provide information at the borrower level that is sufficiently detailed to drive rejection of applications, or any kind of compensation through a tightening of other loan conditions (e.g., higher down payments or reduced terms).<sup>26</sup>

## 5 Matching the fair value

Accounting standards define fair value as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date”.<sup>27</sup> Just as banks are assumed to adequately price loans, a second, complementary, widespread belief is that the amount lent equals the loan’s fair value at origination.

However, as explained in the previous section, it is very difficult to find out the amount of money on which the borrower and the bank would be willing to come to terms regarding the loan. So in fact lending at the exact fair value is as utopian as accurately pricing loan losses. It would require considering all circumstances that affect future cash flows but, recalling the described pricing process, it happens to be the case that:

- a) the loan’s price is not tailored to each borrower’s credit status, but instead reflects general loss expectations for the group of loans considered as a whole; and
- b) owing to the nature of the retail lending business commercial considerations tend to outweigh prudence to the extent that final return might even fall short of that capturing initial credit risk expectations for the group.

Using the example in Section 4, the contractual 9% rate incorporates a 3% risk premium reflective of the expected 30€ cash shortfall included in each loan’s price. Fair value would thus result from discounting the expected cash flow at a 6% rate which excludes the initially priced-in risk.

In other words, the fair value of any individual loan within the portfolio would reflect expected cash shortfalls and discount them at the original, risk-free effective interest rate,

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<sup>25</sup> Despite recognizing that such discrimination may be accomplished through a variety of “screening devices”, Stiglitz and Weiss focus on the potential borrower’s willingness to pay higher interest rates.

<sup>26</sup> The credit rationing argument may also be valid for a bank’s retail business at times when the incentives to gain volume are not so pressing. For instance, during economic downturns potential borrowers are screened more closely, and indicators like the one studied by Stiglitz and Weiss may drive a bank’s decision to reject an application.

<sup>27</sup> IFRS 13, paragraph 9.

with any difference between the amount lent and fair value corresponding to the discounted extra shortfalls which had not been included in the loan's price. In the example, those shortfalls make the expected cash flow descend to 1,020€ for a particular risky loan within the portfolio (1,090€ contractual cash flow, reduced by the 70€ expected cash shortfall), so that its fair value of 962€ reflects the 40 € extra shortfalls (70€ shortfall for the particular risky borrower, in excess of the 30€, priced-in shortfall) discounted at the 6% rate.

$$\text{Fair value} = 1,020\text{€} \times a_{1|6\%} \approx 962\text{€}$$

$$\text{Amount lent} - \text{Fair value} = 1,000\text{€} - 962\text{€} = 40\text{€} \times a_{1|6\%} = 38\text{€}$$

Straightforward as it may seem, many struggle with the apparent contradiction: Why would anyone be willing to give up yield? Why would a bank make extra losses at inception of the loan? This question is especially puzzling for accountants, who require fair value as the initial measurement basis for any financial asset.<sup>28</sup> However, application of IAS 39 and US GAAP shows that even within the incurred loss framework it has not been unusual to see losses being recognized upon origination for assets added to an open portfolio (either in the form of “general” provisions, or as so called “incurred but not reported” losses). Recalling that fact, while revising the loan-loss accounting model the IASB Staff recommended that the allowance balance incorporates “expected losses which have not yet materialized” for assets “on which no meaningful deterioration has occurred”, even at inception of the loan.<sup>29</sup>

Furthermore, when competitive pressure results in risk premia falling short of those required to cover initially expected losses, the cash flows from performing loans no longer suffice to compensate shortfalls expected on the non-performing. Does that couple with fair value equaling the amount lent for every single loan within a portfolio? A value adjustment would also be justified reflecting the un-priced features affecting the performance of loans. How does this match with the assumption by accountants?

There is no need digging deep to solve the riddle. Besides the definition included at the beginning of this section, IFRS clearly state that the fair value of a financial instrument at initial recognition is “normally” the transaction price meaning that, for instance, when a loan is granted at below market interest rates its fair value reflects “the prevailing market rate” with any additional amount lent being treated as “an expense or a reduction of income unless it qualifies for recognition as some other type of asset”.<sup>30</sup> Though no active market generally exists for retail loans, their fair value would respond to initial credit risk expectations for the group of loans, while the remaining up to the amount lent would be the day-one loss resulting from lending at a premium falling short of that required to cover those expectations.

The rational explanation for such behavior typically observed in banks is that part of the amount lent is in fact consideration for keeping up with competitors in terms of share. In other words, the “prevailing market rate” should in this case be referred as a “required entry” rate. This must have an impact on day one.

28 According to the American Institute of Certified Public Accountants (2013), the economics of the lending business collide with recognizing loan losses on “day one”. Also the IASB's Chairman Hans Hoogervorst (2012b) has stressed that “when a loan is made on market terms, at inception a loss is not suffered” and that recognizing “lifetime losses on day one could bring the book value of a loan (significantly) below its economic value”.

29 See International Accounting Standards Board (2011b).

30 IAS 39, paragraph AG64, and IFRS 9, paragraph B5.1.1.

Day-one losses being the sum of all un-priced, discounted expected shortfalls, their consideration indeed allows recognition of the loan's "lifetime losses" as estimated at inception. Some argue that frontloading those losses goes against the "matching" concept whereby "expenses are recognized in the income statement on the basis of a direct association between the costs incurred and the earning of specific items of income".<sup>31</sup> However, as opposed to interest income which accrues ratably for a group of loans considered as a whole, credit losses tend to materialize "all at once" for individual loans within the portfolio, following some kind of pattern in response to the group's behavioral characteristics and environmental factors.<sup>32</sup>

More generally, useful information to users of financial statements requires the financial performance of any reporting entity to be reflected by "accrual accounting". Application of the "accrual" concept to the business of retail lending, and more generally informational objectives demanded of a bank's financial statements, represent another myth whose analysis belongs in the following section.

**6 "Good-old" accounting** Many accountants and accounting standard setters argue that only by reflecting credit deterioration of assets in a portfolio can loan-loss recognition be considered "proper" accounting.<sup>33</sup> Once again, the nature of retail lending counters that belief.

One of the lessons from the financial crisis is risks can build up in portfolios way ahead of their formal acknowledgment by management, enforcers, or even prudential authorities. Failure to promptly recognize their expected impact can lead to important hits on the income statement. Concentration of exposure to cyclical sectors, such as the development and construction industries, irrational growth strategies, or lenient underwriting practices, are but a few examples of situations where loss information is available well before credit deterioration is evidenced. Making use of that information to appropriately depict the impact of such exposures appears essential if the bank's financial position is to be conveyed.

Obviously this means broadening the scope of data used, including information on current and expected conditions affecting the factors that determine expected cash shortfalls. Such exercise of incorporating "forward-looking information" may lead to estimates that turn out to be even more subjective than those under the present, incurred loss model, and some may consider it inadequate due to the potential for earnings management.<sup>34</sup> As discussed in Section 2, in recognizing loan losses earnings can be managed by either their deferral or anticipation (understatement or overstatement of the allowance). The best tool accountants can use to avoid either is accrual accounting, which "depicts the effects of transactions and other events and circumstances on a reporting entity's economic resources and claims in the periods in which those effects occur, even if the resulting cash receipts and payments occur in a different period".<sup>35</sup>

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31 See the IASB Conceptual Framework for Financial Reporting, Paragraph 4.50. According to the American Institute of Certified Public Accountants (2013), interest revenue is recognized only as time passes, while not all credit losses occur at inception.

32 According to the Financial Accounting Standards Board (2013), credit losses for retail loans are often "very low shortly after origination, rise rapidly in the early years of a loan, and then taper to a lower rate until maturity".

33 See American Institute of Certified Public Accountants (2013) and International Accounting Standards Board (2013b).

34 Recommendation 1.4 of the Report of the Financial Crisis Advisory Group (2009) underscored the need to avoid fostering earnings management if an expected loss model was pursued in replacement of the incurred loss framework.

35 IASB Conceptual Framework for Financial Reporting, Paragraph OB17.

Credit losses are indeed evidenced following a transaction or event, so in order to avoid earnings management they must be recognized when they occur, irrespective of cash shortfalls that are finally confirmed. But determining the moment in which loan losses accrue requires considering the nature of the causal transaction or event. Could it be the case that a bank was completely unaware of circumstances affecting repayment prospects for a loan or portfolio of loans until default? With default being usually defined on the basis of a borrower's delinquency during a specified period of time (e.g., 90 days), that would certainly seem strange, except probably in the absence of any process for the identification and ongoing monitoring of credit risk.

If default cannot be considered the causal event, it is the likelihood of an event resulting in default and ensuing cash shortfalls that matters. So called "loss events" in the incurred loss framework provide such link. They include delinquency, but also the borrower's financial difficulty, or the granting of concessions.<sup>36</sup> However, despite their connection with eventual cash shortfalls, those events cannot be considered cause of the loss, but rather the consequence of an advanced stage of deterioration resulting from previous causing transactions or events. Such evidence of deterioration allows reliable estimation of future shortfalls, but as mentioned above risks can build up in a portfolio well before any particular borrower misses a single payment (delinquency, and eventual default) or shows any sign of alert (other loss events). And in many of those situations information is available allowing adequate estimation of losses. So how early can losses be recognized? Could it even reach the moment of loan origination?

When determining the range of "events and circumstances" capable of triggering losses banks should pay attention to the peculiarities of their retail lending business, as described in the previous sections. This means considering not only factors that affect particular borrowers or the effect of macroeconomic variables, but also circumstances specific to the entity (such as one-off growth strategies aimed at gaining volume) or the transaction (like the existence of terms that artificially stretch borrower affordability, for instance by deferring payment of principal). In both cases, there is in fact a risk that bad borrowers are attracted, so loan origination in itself represents the loss event.<sup>37</sup>

However, those are not the kind of factors bank managers tend to look at when estimating loan losses. The fact they are not considered despite their potentially huge, estimable impact alerts on the need for something to be changed. It may well be the approach to when a loss is incurred,<sup>38</sup> but accountants seem to be tied to a conceptual link between credit quality deterioration and the suffering of the loss.

The alternative is moving past the loss event notion as currently interpreted. Instead of telling readers of financial statements when the loss is incurred, accrual would be responding to a mere expectation of a loss event taking place in the future likely resulting in currently estimable cash shortfalls. In other words, even if the origination of loans under

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<sup>36</sup> See IAS 39, paragraph 59.

<sup>37</sup> A growing concern of investors is that loan-loss allowances are only responsive to credit quality deterioration. The Financial Accounting Standards Board (2013) has echoed analysts suggesting that reserves are "built as volume grows, not just as things deteriorate". This concern is backed by the results of empirical studies suggesting that loan growth represents an important driver of bank risk. An example can be found in Fooks, Norden and Weber (2007).

<sup>38</sup> Concerns on the "too little, too late" loss recognition and the need to incorporate a broader range of information may well have been appeased within the current incurred loss model by considering factors like those mentioned above when estimating and recognizing loan losses. This opens the question whether a real need existed to replace the framework. After all loss accrual would still be responding to an event, even if it turned out to be mere loan origination based on certain conditions.

particular circumstances is not assumed to be a loss event in itself, there is no doubt it has a likely financial impact that can be estimated, so losses would be recognized because they would in fact accrue.

In any case, if the informational needs of investors are to be met the impact of risks that build up in a portfolio must be adequately recognized even before any sign of credit deterioration shows off. Clearly some common situations that drive the performance of retail exposures are not being considered as loss events, so revising the traditional notion of when a loss accrues turns crucial in the context of retail lending.

## 7 Good times, bad times

Previous sections try to demonstrate how the special features of a bank's retail lending business drive risk accumulation, affecting pricing and loan-loss provisioning. A number of factors can lead bank managers to disregard prudent underwriting, and obviously the resulting risk buildup has to be translated into financial statements.

The mechanics whereby credit risk affects a banking institution are straightforward:

- 1 Upon origination or purchase of a financial asset, a bank accepts credit risk and its exposure to credit losses increases; in turn, repayments reduce such exposure.
- 2 The loss estimate is a function of both the probability of an event or events resulting in cash shortfalls, and the extent of those shortfalls.
- 3 In turn the probability of such events occurring depends on the factors that are determined to affect repayment prospects.

Things get more complex when considering the economic context within which loans are underwritten. During good times repayment prospects look bright, risks are underestimated and banks sacrifice prudence on the hands of volume: bad loans are originated. Later on borrowers start missing payments and managers are left no option but to recognize losses that were built up in the wake of such euphoria: income statements are hit, and even a sound bank can go under if the market understands that bad loans are eating up capital.

Instead of figuring out the factors behind that behavior, many blame current accounting standards of being pro-cyclical. By requiring an event to trigger the loss, they delay its recognition fueling further loan growth and adverse selection in good times, and forcing managers to lift up the carpet at bad times, thus jeopardizing the bank's financial position and discouraging lending. This belief has translated into calls for loan-loss provisioning to act as a countercyclical mechanism.<sup>39</sup>

Investors make use of available information to determine bank expected losses. It is clear that borrower payment capacity is overestimated during upturns, and some prudential authorities have sought to make that apparent in the financial statements even within the incurred loss framework.<sup>40</sup> Financial stability concerns are the common reason used to justify this regulatory requirement. However, arguments presented in the previous section make it clear that the link between credit growth and loan-loss accrual needs to be made explicit on the face of financial statements. The mere idea of pursuing any kind of economic

<sup>39</sup> Wall and Koch (2000) described this as the regulatory approach to loan-loss accounting.

<sup>40</sup> It is the case of the Spanish "dynamic provisioning" mechanism.



result through biased use of accounting standards collides with information needs of investors, but recognizing the impact of lenient practices observed during upturns is connected with adequate accrual accounting and not with the will to ensure a buffer.<sup>41</sup>

Advocates of the *preparer* approach to loan-loss accounting have also raised arguments based on alleged macroeconomic implications of the *user* approach. In their view, forcing to recognize expected losses would impose an excessive burden on banks and may have the effect of discouraging long-term lending. The need to anticipate the recognition of losses that may be expected to materialize far-off in the future could tempt banks to concentrate on the shorter horizons, especially during good times, fueling the procyclicality of their lending business.

It is true that an eventual new player in the banking industry could be discouraged to embark in long-term finance if forced to recognize losses based on mere peer data or theoretical assumptions. However, as described in Section 3 banking is a mature industry with severe entry restrictions. Owing to its peculiarities, the retail business is especially dominated by big, traditional banks, precisely those whose managers make the argument on possible restrictions to long-term finance. Those “century-old” institutions are in fact conducting analyses to infer economic losses for the purpose of determining capital requirements, and the referred arguments seem to forget expected losses could actually be close to nil if loans are prudently underwritten or priced commensurate to risks taken.

Clearly lifetime-loss recognition would affect the growth model pursued during the last decades, but is long-term lending to be guaranteed at the expense of loose underwriting standards, adverse selection, and an overall increase in leverage levels of households and companies with no reflection in the financial statements of banks?

In any case, the debate does not affect the bottom line that knowing the portfolio’s economic value is useful for investors.

## 8 Information shortfalls

Going back to the introduction, the accursed summer of 1854 laid down the foundations for a new approach to the study of diseases, based on analysis of that outbreak’s pattern. Inconclusive evidence out of samples pumped out was complemented by the fact that a vast number of cases of contagion packed in the pump’s vicinity, indicating an obvious correlation and thus establishing an indirect, yet effective method for determining the causes of the epidemic.

The same sort of indirect method is applied to the estimation of loan losses. Such estimation has traditionally been based on elaborate statistical models that measure the effect of credit risk through probabilities of default (PDs), credit ratings, or loan classifications. The models not only examine levels for those measures, but also the probabilities of those levels migrating favorably or unfavorably over time.<sup>42</sup> For instance, loss estimates will likely be higher for a portfolio showing higher probability of performing loans moving to a delinquent status.

Credit risk modeling frameworks for retail loan portfolios include scorecard, roll-rate and vintage methods,<sup>43</sup> as well as loss-rate methods and provision matrixes.<sup>44</sup> If based on

41 The proposed framework in Section 9 develops this idea.

42 An explanation of the rationale behind such models can be found in Ryan (2007), pp. 95-97.

43 See Henderson (2009).

44 See Financial Accounting Standards Board (2013).

quality inputs, they are assumed to provide reliable estimates for loan losses. Is this another myth?

Those statistical models are conceptually based on solid (close to 1) “coefficients of multiple correlation”, which in this case measure how well expected losses can be predicted using a linear function of a set of variables such as PDs or the likelihood of loans migrating from performing to non-performing status. For the method of multiple correlation to be useful in predicting any kind of economic outcome it must be based on extensive populations of complete, measurable, and independent historical data. Moreover, the qualitative character of the causal relations must be clear before arriving at quantitative conclusions.<sup>45</sup>

Some of those conditions are not met by historical data (e.g., on actual cash shortfalls or write-offs) from which PDs, credit ratings or migration probabilities are derived. Those inputs are but a partial selection of all factors affecting repayment, merely capable of reflecting the historical propensity to repay of borrowers comprising the portfolio, as opposed to their current and future ability to perform. Additionally, whereas those inputs can readily and objectively be measured, shortfalls are not independent of one another: a borrower incapable of meeting payments on a loan is most likely to default on the remaining, and defaults within a group of loans tend to be driven by the same factors (e.g., unemployment).

On the other hand, it is seldom that extensive data populations can be found. Fortunately, borrowers normally meet their obligations, so the variables used to infer expected losses have to be put together out of scarce, incomplete, interdependent data. Contrary to the widespread confidence in statistical models, this is very likely bound to unreliable outcomes.

As regards the qualitative aspects of the underlying causal relationships, it is very difficult to grasp many of the links at work. For instance, historical cash shortfalls may have arisen due to “life events” (e.g., death, illness, or divorce), or may reflect an unaffordable lifestyle facilitated by instrument-driven incentives.<sup>46</sup> While the latter can be used to infer future shortfalls, life events cannot be captured by an automated system and translated into a quantitative measure, except probably if the objective was to measure the actuarial risk.

Moreover, individual assessments that consider any of those factors necessarily result in late recognition of losses. This makes it necessary for banks to collectively analyze borrowers on the basis of factors that drive directionally consistent responses for similar groupings of loans. In any case professional judgment is required to adjust for any kind of qualitative factor, whether it affects individual borrowers or groups thereof.

Considering all those hurdles, it seems clear that statistical models can only do so much. When available, historical experience should be considered a starting point to inform the loss estimate. Even if conclusive on the trends and behavioral patterns leading to observed defaults of borrowers comprising a loan portfolio, the data have to be complemented with borrower-related, transaction-specific and environmental information, both current and forward-looking.<sup>47</sup>

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<sup>45</sup> References to such requirements date back to Keynes (1940).

<sup>46</sup> See Financial Stability Board (2011).

<sup>47</sup> As stressed by Pérez Ramírez (2011), p. 294, “the regulatory framework ensuing Bretton Woods reduced volatility in interest and exchange rates in such a way that banking activity became essentially devoted to the assessment of credit risk”, and therefore “linked to a qualitative analysis of a borrower’s personal qualities rather than theoretical quantitative models”.

Met with all such information, sound management judgment is crucial to qualify and determine how each factor affects expected performance. Does it mean the numbers pumped out of statistical models are necessarily unreliable? Not at all. Estimations are inherent to financial information, so banks should devote every effort to arrive at estimates for expected losses without using the lack of quality data as an excuse in such endeavor. In fact, as already mentioned many resources are currently invested in inferring capital requirements for credit risk exposures, irrespective of the questionable effectiveness of statistics in estimating the impact of credit risk, and even if capital is meant to absorb the unexpected losses, which are by definition the statistical outliers of a loss distribution.

The lack of comparability cannot be argued as a setback for those estimations either. On the contrary, knowing not only the differing allowance amounts of different banks, but also how they get to the numbers can prove very useful to investors and prudential authorities, by providing an insight to each bank's business model and the different ways of managing credit risk. Notes to the financial statements and management reports are suitable channels to convey such information and thus contribute in enhancing transparency.

## 9 A suggested framework for loan-loss recognition

Challenges to common beliefs presented in the previous sections provide the grounds for a solid loan-loss recognition framework that enhances transparency on the value of loans and facilitates the adoption of decisions.

As advanced in the introduction to this article, the framework would not only facilitate decision-making by investors. Management would also benefit from more transparent information on the bank's financial position in adopting the decisions best suited to deal with troubled assets. But most importantly, this framework would contribute in guiding the assessments leading to corrective action by prudential authorities.

The framework revolves around the *underlying assumption* that *loan losses accrue as credit risk builds up in respect of a loan or a group of loans*. This assumption follows from a rational interpretation of the accrual principle in the context of the retail lending business of banks, and leads to the following components of the framework:

### **Component 1**

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The impact of credit risk needs to be recognized as soon as reasonable and supportable information on borrower ability and willingness to pay is available, and as long as such information allows the reliable estimation of such impact.

Loan losses are best depicted if estimated and recognized based on the fundamentals of accounting. The needs of investors, management and prudential authorities are covered if information is focused on the estimation of asset values, in turn based on expected cash flows. In the case of loans, the amount and timing of those cash flows are dependent on the borrower's ability and willingness to pay, so useful information should incorporate the estimated impact of every factor affecting repayment.

In this connection, loan impairment should no longer be triggered by loss events but rather the mere expectation that an event will result in measurable cash shortfalls.

### Component 2

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Credit risk is monitored, and resulting losses are estimated, based on evidence that risk factors will result in future events likely leading to the shortfall.

Representing decreases in economic benefits, the estimated impact referred to above is to be regarded as a loss resulting from the bank's expected inability to recover the whole of the amount lent plus interest.

Relevant factors are those capable of affecting repayment prospects (as judged by borrower capacity, capital or character) either individually or collectively for a group of similar loans.

### Component 3

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When available, historical experience provides the basis for identifying risk factors...

Behavioral patterns and trends surface the events and circumstances that eventually lead to cash shortfalls, as well as the process for such translation. This is valid both for individual loans and groups thereof.

### Component 4

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... based on adequate portfolio segmentation in order not to delay loss recognition...

However, in determining when to recognize loan losses on their retail loans, some banks claim to only be capable of monitoring credit risk by tracking the past-due status of individual borrowers. This is due to difficulties in establishing causal relationships between qualitative factors affecting repayment and cash shortfalls.<sup>48</sup> In effect, it amounts to recognizing losses upon each borrower's default.

As described in Section 6, being based mainly on individual borrower delinquency, default represents a lagging indicator of problems in a loan portfolio. This means bank managers should not rely on loan-loss measures based on default to get rid of bad assets or adopt risk transformation strategies. Neither should prudential authorities wait until evidence of delinquency to adopt corrective actions. Moreover, with loan losses being based on default the disciplinary role of market prices would have no impact on the efficient allocation of resources among different banks. In fact, it would benefit banks with a more lenient stance towards credit risk management.

The question then arises how to estimate, and when to recognize losses if delinquency cannot be used as a practical simplification. It is precisely in those cases when the collective assessment of historical information, in a way similar to Dr. Snow's analysis of the epidemic's pattern, best serves the purpose. Management should be able to segment borrowers subject to similar capacity, capital and character and, based on the historical trends and patterns of such groupings identify the factors more relevant to the eventual default and resulting cash shortfalls of borrowers within.

### Component 5

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... and subject to loan-loss estimates incorporating the impact of current and expected conditions.

In order not to restrict the estimation to factors representative of the historical propensity to pay, judgment should be exercised to adequately incorporate the effect of current and

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<sup>48</sup> Considerations on the qualities of the information set used for the estimation of loan losses have been discussed in Section 8.

expected conditions on the mechanisms for the translation of identified risk factors into final cash shortfalls. This is what the revised standards of the IASB and FASB refer to as “forward-looking information”.

#### Component 6

Estimating loan losses requires looking beyond priced-in loss expectations to determine how the quirks of retail lending affect the value of loans.

Among current and expected conditions referred to above, a prominent role should be reserved to underwriting practices that steer the features of loans within the group.

It follows from the discussion on pricing and fair value in sections 4 and 5 that the nature of retail lending prevents the particular features of a transaction from being considered when estimating loan losses. Although banks may be looking at *character*, *capacity* and *capital* when categorizing borrowers, it would seem odd if they took loan conditions into account. Otherwise they would be reducing the amount lent to compensate for risks introduced by features intentionally built into the transactions to compete for share.<sup>49</sup>

This means that, irrespective of a bank’s risk appetite, it is unlikely that the estimated impact of dubious terms in the transactions is priced into the loans through the appropriate premium. The same would be true of undue growth strategies, which have historically evidenced a strong correlation with ensuing cash shortfalls.

So in effect, many of those transaction-related characteristics linked to commercial goals have no reflection in the financial statements despite their impact on borrower incentives to perform, and thus on expected cash flows and the loan’s fair value.

Accounting cannot be expected to solve or mitigate the harmful consequences of imprudent lending, but it must put them forward to the markets. Accordingly, all those conditions should be considered in estimating loan losses.

The approach described up to now can better be understood through a practical example.

<sup>49</sup> Valid exceptions to this would be cases in which market for loans incorporating those features existed.

## INITIAL LOSS ESTIMATION BASED ON COMPONENTS 1-6. AN EXAMPLE

BOX 2

### Fact pattern

- Bank A is focused on retail lending. It embarks into a new consumer lending business.
- Part of that business is conducted in a specific rural area.
- Considering the trend in government policies for the region, the economic outlook looks favorable.
- Many banks and lenders are embarked in a similar business in the region, which is driving margins down. Bank A cannot compete through price (more specifically, it cannot set the interest rate below 3%), so management decides to relax the

conditions for new consumer loans by increasing LTV caps to 90% from the general 70% set at the level of the whole consumer-loan portfolio, and offering a standardized 15-year, amortizing loan at a 3.5% interest rate.

### Initial loan-loss estimation

Faced with the described fact pattern, what elements would management consider when estimating loan losses?

#### Step 1. *Loan segmentation*

The scores for consumer-loan borrowers in the region show a high degree of commonality in their repayment capacity, and very little

capital. As a result, management understands that defaults, and ensuing cash shortfalls, should respond similarly to a common range of credit risk factors.

Based on that understanding, the region's consumer-loan business is defined as a segment for risk-assessment and loss-estimation purposes.

#### Step 2. *Reference portfolio*

This business being new, management must determine whether any existing portfolio can be used as reference. The reference portfolio should be characterized by credit risk factors similar to those expected to affect the analyzed segment.

The bank identifies an existing auto-loan portfolio in that same region. The reduced equity buffer provided by the attached collateral (motor vehicles) makes cash shortfalls on that portfolio highly correlated to borrower defaults. Accordingly, the portfolio is considered a valid reference for the analysis of consumer loans in the region (which by definition are not collateralized).

#### Step 3. *Identification of credit risk factors*

A clear pattern in the reference portfolio is identified whereby borrower defaults leading to historical cash shortfalls basically respond to government cuts in subsidies to agricultural output. This is due to the fact that the payment capacity of auto-loan borrowers (most of which are closely linked to farming activity) is highly dependent on those subsidies due to the low productivity of farm land.

Accordingly those subsidies are identified as the sole determinant factor in the eventual occurrence of defaults and the resulting cash shortfalls.

#### Step 4. *Historical data as a starting point for the estimation of loan losses*

Data on cash shortfalls for 10 year auto loans are available for a period spanning the last 20 years. They show cash shortfall rates averaging a yearly 4% during the first 3 years of a loan's life, and raising to 8% from year 4 onwards.

#### Step 5. *Adjustment to current conditions*

On average, the bank has been capping LTV on consumer loans to 70%. Increasing the cap to 90% is likely to increase borrower incentives to default, so the historical loss rate is adjusted proportionally to arrive at foreseen cash shortfalls.

As a result, a yearly 5.14% rate of cash shortfalls [ $4\% \times (0.90/0.70)$ ] is projected three years onto the future, while a 10.29% rate [ $8\% \times (0.90/0.70)$ ] is projected for years 4 to 8. The 4% rate is used for the remainder of the loan's life, since the bank is unable to reasonably forecast repayment for loans that far onto the future based on available information.

#### Step 6. *Judgmental overlay*

Management considers prospects for increased subsidies to invite non-trustworthy individuals asking for loans. The related impact on character is considered to compensate enhanced capacity stemming from the increase, so the rates determined in step 5 are not adjusted further.

#### Step 7. *Initially expected loan losses (= 4 + 5 + 6)*

As a result of the previous steps, a 5.14% annual rate is applied to years 1 to 3, with a 10.29% rate for years 4 to 8, and 4% being applied from year 9 to 15.

These initially expected losses should feed directly into the price of loans through the appropriate risk premium. Otherwise a day-one loss should be recognized to adjust the value of loans accordingly.

But even if neither action was adopted by management, knowing how credit risk is identified, and the mechanics through which risk factors lead to ensuing cash shortfalls facilitates the external monitoring of credit risk and verification of the allowance level by auditors, investors and supervisors. It therefore allows early adoption of corrective action and forces managers to improve their credit risk management and internal control frameworks.

As described in the example's fact pattern, Bank A cannot compete through price, but the situation forces its managers to raise the bar on LTVs and set a 3.5% rate. Would that price cover initial loss expectations? If not, what would be the adequate pricing? How could the value adjustment be determined, either at day one or as soon as information on the mispricing was available?

The seven steps of the example in Box 2 lead to the determination of initially expected loan losses. An adequate risk management policy would ensure those losses were correctly priced.

Step 8. *Determination of minimum annual cash flows required to meet the expected yield*

According to management, Bank A would not be able to set the price for its consumer loans in the region below 3% if it were to compensate for the time value of money, funding costs, and overheads. As indicated above, this prevents it from competing via price, and forces a relaxation in other loan conditions.

For an average 10,000€ loan with a 15-year term, the 3% yield is used to calculate annual cash flows that the bank would expect to obtain, at a minimum, from each loan in the group. However, those cash flows would in no case cover loss expectations.

$$10,000\text{€} = \text{Minimum annual cash flow} \times a_{15}|3\%$$

$$\text{Minimum annual cash flow} \approx 838\text{€}$$

Step 9. *Grossing-up of cash flows*

The foreseen cash shortfalls shown in step 7 (Box 2) are projected for each appropriate period of the loan's life and added to the minimum required cash flows, resulting in grossed-up amounts.

$$\text{Adjusted annual cash flow (years 1-3)} = 838\text{€} / (1-0.0514) = 883\text{€}$$

$$\text{Adjusted annual cash flow (years 4-8)} = 838\text{€} / (1-0.1029) = 934\text{€}$$

$$\text{Adjusted annual cash flow (years 9-15)} = 838\text{€} / (1-0.04) = 873\text{€}$$

Step 10. *Determination of the adjusted yield (theoretical pricing)*

Using those cash flows, the adjusted yield is calculated, representing an internal rate of return that adequately incorporates initial loss expectations for the group of loans considered as a whole.

$$10,000\text{€} = [883\text{€} \times a_{3}|i] + [(1+i)^{-3} \times 934\text{€} \times a_{5}|i] + [(1+i)^{-8} \times 873\text{€} \times a_{7}|i]$$

$$i \approx 3.96\%$$

In other words, an approximate 0,96% risk premium would have to be priced into each originated loan for the bank to break even in terms of initial loss expectations.

Step 11. *Equivalent annual constant installment*

A constant installment can be calculated based on the adjusted yield.

$$10,000\text{€} = \text{Annual constant installment} \times a_{15}|3.96\%$$

$$\text{Annual constant installment} \approx 897\text{€}$$

Such installment would cover loss expectations so that the net cash flows provide the expected 3% return. Theoretically, loans yielding 3% and above (up to 3.96%) would compensate the shortfalls stemming from the non-performing.

Step 12. *Actual pricing (looking beyond priced-in loss expectations)*

Even if Bank A cannot set the rate below 3%, the tightening of margins by competitors forces a response in terms of pricing, besides the LTV measure adopted to attract borrowers. So the bank sets a 3.5% rate for all consumer loans in the segment.

With the risk premium falling short of that required to cover initially expected losses, cash flows from performing loans no longer suffice to compensate shortfalls expected on the non-performing.

So the bank ends up offering 10,000€, 15 year, amortizing, fixed 3.5% rate loans, with a final contractual installment of 868€ (instead of the 897€ that would cater for risk expectations).

$$10,000\text{€} = \text{Annual contractual installment} \times a_{15}|3.5\%$$

$$\text{Annual contractual installment} \approx 868\text{€}$$

“Ideal” step. *Recognition of the value adjustment*

The fair value of an average loan within the segment would result from discounting the expected cash flows (contractual cash flows net of expected shortfalls) at the risk-free rate (3%).

$$\begin{aligned} \text{Annual expected cash flows} &= \text{Annual contractual installment} - \\ \text{Annual expected cash shortfall} &= \text{Annual contractual installment} - \\ &(\text{Annual constant installment} - \text{Minimum annual cash flow}) = 868\text{€} \\ &- (897\text{€} - 838\text{€}) = 809\text{€} \end{aligned}$$

$$\text{Fair value} = 809\text{€} \times a_{15}|3\% \approx 9,658\text{€}$$

So a 342€ value adjustment (the difference between the 10,000€ lent and fair value) would be necessary for each single loan within the group. This reflects the cost for keeping up with competitors, and results from discounting the un-priced expected losses, i.e. those resulting from lending at a premium (0.5%) falling short of that required to cover all loss expectations (0.96%). The latter would result in 897€ installments, while the former results in 868€ installments, so the un-priced loss amounts to 29€ per year (897€ – 868€).

$$\text{Value adjustment} = 10,000\text{€} - 9,658\text{€} \approx 342\text{€} \approx 29\text{€} \times a_{15}|3\%$$

Besides mispricing, a value adjustment would also be required if expected losses were inadequately estimated due to involuntary risk understatement.

#### **Component 7**

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The estimation and recognition of expected loan losses in response to credit growth or lenient underwriting responds to the underlying assumption in this framework (“loan losses accrue as credit risk builds up in respect of a loan or a group of loans”), so it should not be understood as a way of creating a countercyclical buffer, or a means of attaining any other macro-economic purpose.

According to Hoogervorst (2012a), accounting standard setters cannot “*develop standards that make items appear to be stable when they are not*”. This statement reflects the traditional reluctance of accounting standard setters in accepting what Wall and Koch (2000) define as the *regulatory* approach to loan-loss recognition, which follows the perception that prudential authorities are usually biased towards excess conservatism.<sup>50</sup>

However, this perception has to be qualified in the context of the peculiarities of the retail lending business of banks. Excess optimism and the according underestimation of credit risk is particularly common in favorable economic contexts, but the need to consider the related impact when estimating loan losses should not be branded as a way of attaining “rainy-day” buffers aimed at making loans and loan portfolios appear as stable. Rather, it should be viewed as the response to a verified correlation between relaxed practices resulting from such undue optimism and ensuing problems.

After all, as discussed in Section 7 any macro-economic consideration has to be decoupled from strict loan valuation. Moreover, prudential authorities are legally enabled to require banks whichever additional information they deem necessary, so their approach to loan-loss provisioning should not be considered different to an economic view.

#### **Component 8**

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In estimating loan losses sound management judgment should be given prominence over statistical methodologies.

Management judgment should play the key role in determining how risk factors affect expected performance. While historical information serves as a starting point in the assessment, estimations are inherent to financial information and particularly relevant in the area of loan-loss provisioning.

In this connection, banks should not be allowed to use lack of quality data as an excuse for not devoting their best efforts in estimating losses.

However, the role of enforcers (mainly auditors) and supervisors in challenging loan-loss accounting practices by banks will have to be awarded increased importance, owing to: a) the described peculiarities of the retail lending business by banks; b) the resulting managerial incentive to relax loan conditions; and c) the increased judgmental nature of the expected credit loss model in relation to the existing accounting model.

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50 See footnote 10.



## Overall result

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Arguably if all the above components were considered, this framework would ensure that loan losses are recognized not only in response to deterioration of the originally assessed borrower creditworthiness, but also due to the way loans are granted.

The proposed framework would lead to indicators of cash shortfalls being based on lenient credit practices, changes in the underwriting criteria, growth strategies, or generally changes in the approach to risk management, in addition to macroeconomic circumstances affecting the loan or group of loans, and the worsening of credit quality.

The argument that upfront recognition of losses that may result from such approach is not solid accounting gets around the notion of accrual accounting.<sup>51</sup> The allowance should reflect collectability concerns on products which expose the bank to increased risks relative to traditional loans, and especially those with a higher potential for payment shocks (such as those incorporating features like the ones described in Box 1).<sup>52</sup> As an example, estimated losses on a loan in which the bank's commitment represents just half of the collateral's value should normally be lower (and be recognized later) than those on another in which the same committed amount equals the value of collateral pledged. The same differentiation of credit loss estimation and recognition should be expected from loans in which the principal amount (and thus exposure to credit loss) is constantly decreasing, as compared to others with negative amortization features.

In other words, the impact of any factor affecting a borrower's ability, propensity or willingness to repay has to be estimated, including not only changes in credit quality as compared to origination, but also risks that are ignored when pricing loans, or even purposefully "priced-out" in order to achieve what Haldane (2009) calls the "geared golden goose of finance".<sup>53</sup>

Such gearing being ultimately backstopped by public funds, it seems unlikely that bank managers admit the expected impact of lenient practices or undue growth strategies that are not compensated through pricing or other loan conditions. This requires loan-loss accounting to adequately portray such impact. Arguably accounting standards based on the proposed framework would achieve such objective.<sup>54</sup> Otherwise the implementation of those standards by banks should be based on guidelines consistent with the framework. Prudential authorities are in a privileged position to develop such guidelines.<sup>55</sup>

This is not to suggest an alternative standard for banks, nor a uniform way of arriving at loss estimates. Rather it should be viewed as a means of ensuring consistent application of the standard by banks.

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51 In fact, as stated in the IASB's Conceptual Framework for Financial Reporting (Paragraph 4.40), "assessments of the degree of uncertainty attaching to the flow of future economic benefits are made on the basis of the evidence available when the financial statements are prepared" so that "for a large population of receivables... some degree of non-payment is normally considered probable; hence an expense representing the expected reduction in economic benefits is recognized".

52 See US Regulatory Agencies (2006).

53 As explained in the introduction, banks presumed to be sound could in fact be leveraged up to 50 or 60 times. In the words of Haldane, even if "banks may not be special after all", leverage turns them into a "different animal". That "animal" runs systematically over the cliff of technical bankruptcy, and hence the importance of adequately valuing its assets.

54 Following the publication of its revised standard for financial asset impairment in July 2014, the IASB created a group aimed precisely at tackling the related application issues (<http://www.ifrs.org/About-us/IASB/Advisory-bodies/ITG-Impairment-Financial-Instrument/Pages/Home.aspx>).

55 See footnote 6.

In the same vein, such bank-specific guidance should not be considered incompatible with enforcement efforts. While banking supervisors would ensure that regulatory capital is placed as a last line of defense against inadequate allowance levels, the existence of specific orientation should instill the appropriate incentives on banks to timely recognize losses estimated on the basis of a broader range of information. This would help enforcers verifying the compliance of loan-loss allowances with the relevant accounting standard, as interpreted in the context of the retail lending business of banks.

## 10 Conclusions: Bumps on the road ahead

While accounting cannot cater for the unexpected, it should strive to determine the value impact of features that characterize the retail lending business of banks. Final cash shortfalls are obviously uncertain, but it would be cynical of bank managers to refrain from their estimation based on that hurdle. In the end, the aim should be to reflect the performance prospects of a loan, or a group of loans, on the face of the financial statements.

In the midst of the crisis, Haldane (2009) expressed the view that “a recovery in lending is best achieved if banks believe new loans will be profitable”. According to the analysis in this article, profitability can be sought in different ways, some of which may bring about undesirable outcomes.

After the initial stages of the crisis, credit started recovering through banks engaging in risky, uncharted lending based on relaxed conditions to gain volume. Curry (2013) warned of the “adverse financial consequences” of banks entering “new lines of business with the potential to generate higher profits, but also bigger losses”.

While it is no surprise that the current crisis (like most throughout history) has credit risk in its DNA, it strikes to find out that deficiencies in the use of existing information appear to be among the main factors at stake. Inadequate application of current accounting standards for loan-loss estimation and recognition has clearly contributed to the mess and, disturbing as it may seem, many banks are still reluctant to admit what their assets are really worth.

Obviously this should be avoided. Recurring “pandemic” episodes demonstrate the inherent fragility of bank balance sheet structures and the quick spillover of any institution’s problems. Society cannot afford to periodically bail banks out, so prudential authorities must ensure the safety and soundness of banks and protect their depositors. Among other measures, that implies responding to transparency concerns by adequately informing of a bank’s exposures to credit risk and their likely impact. This means providing reliable estimates of loan values, which in turn requires appropriate recognition of loan losses.

How can this be done? Identifying risk sources and loss patterns based on historical information is a first step, but bank loan losses depend on a wide array of factors affecting borrower behavior. Losses accrue as risks build up in the loan portfolio, and a bank can be exposed to those risks not only because of credit quality deterioration or visible environmental factors, but also well in advance due to the way loans are granted. As shown in this article, bank managers have a natural incentive to underprice credit risk.

Accordingly, enhancing the ability to estimate loan losses requires a framework that incorporates the anticipated effects of conditions known to affect relevant credit risk factors. Taking these conditions on board makes estimation highly judgmental, but the usefulness of financial reporting is not based on accuracy, and when it comes to loan-loss recognition no statistical model can replace judgment and due diligence.

In any case the prospects are for a bumpy road. When dissecting the situation of the US residential loan business Curry (2013) expressed concerns that might sound familiar at this stage of the article:

- “Many home-equity borrowers today face... a balloon payment that will require them to refinance or substantially higher monthly payments”.
- Credit risk is “once again on the rise, with relaxed underwriting standards, pricing for risk, and more risk layering”.
- “There are steps we need to take to be transparent about the current impairment of the loan portfolio”. Those steps include “prudent allowance practices consistent with GAAP and regulatory guidance”, and there is a “need for revisions in the way banks account for impairment so that bankers can start to increase... reserves as the risks in their loan portfolios increase”.

As a disturbing corollary, even if “we are not talking about an imminent crisis” banks now face the legacy of lenient practices and their strategy seems to be following past steps instead of looking at ways to reinvent their business responsibly.

Most likely, by incorporating all observable information affecting the expected collectability of loan cash flows, financial statements will better translate the economics of the banking business and enhance transparency. This may incentivize prudent lending through market discipline that penalizes banks running on unhealthy strategies. But better information is just a piece in the bigger puzzle, which might be useless in the absence of an authority that seals the pump and builds drains. Prudential authorities cannot sit on the fence while banks trip over the same stone. They should ensure adequate implementation of any standard on loan-loss accounting, but also introduce incentives that force bank managers to move in the direction of sound underwriting, as common sense requires of companies running on so huge leverage levels.

Far from empirics, granting credit deals with individual and social behavior, and thus with the errors and passion of human beings. Especially as regards estimation and recognition of loan-loss allowances, few thoughts better apply to this craftwork like Joseph Campbell's (1969): “I can see no reason why anyone should suppose that in the future the same motifs already heard will not be sounding still... put to use by reasonable men to reasonable ends, or by madmen to nonsense and disaster”.

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