Non-performing loans at the dawn of IFRS 9: Regulatory and Accounting Treatment of Asset Quality

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Abstract

Asset quality is a key indicator of sound banking. However, it is difficult for banking regulators and investors to assess it in the absence of a common, cross-border scheme to classify assets. Currently no standard is applied universally to categorise loans, the most sizeable asset on banks' balance sheets. As a corollary, definitions of nonperforming loans (NPLs), despite recent steps towards greater harmonisation, continue to vary between jurisdictions. This paper offers a comprehensive analysis of NPLs and considers variations in the treatment of NPLs across countries, accounting regimes, and firms. The paper relies on a multi-disciplinary perspective and addresses legal, accounting, economic and strategic aspects of loan loss provisioning (LLP) and NPLs. A harmonised approach to NPL recognition is particularly desirable, in view of the fact that IFRS 9, the new accounting standard on loan loss provisioning, will be mandatory from January 2018. IFRS 9 changes the relationship between NPLs and provisions, by relying on greater judgement to determine provisions. The potential for divergence makes the need for comparable indicators against which to assess asset quality all the greater.

JEL: G01, G21, K20, M41.

Keywords: Non-performing loans, asset quality, IFRS 9, impairment, loan loss provisions, bank capital, data standards, credit risk.

1. Introduction

On 16 November 2015, the European Commission, the European Central Bank (ECB), and the International Monetary Fund (IMF) issued a joint statement following review of their economic assistance programme to Cyprus. In this statement, the three institutions noted that "reducing the excessive levels of NPLs [non-performing loans] remains the number one priority"[1] for economic recovery in the country.

The story of the financial crisis in Cyprus, and indeed of recent financial crises across the globe, is one that can be told through the trajectory of NPLs. Table 1 presents data from the World Bank on the ratio of gross NPLs as a percentage of gross total loans (hereafter the NPL ratio) in various countries.[2] For reasons we discuss in detail below, these and any data on NPLs should be treated with caution because reporting countries compile these figures using different methodologies and definitions, and these also change over time.[3] With that caveat in mind, the data in Table 1 nevertheless indicate the direction of travel, the path of NPLs across countries and time that show the salience of NPLs to the wider economy.[4]

Beginning in 2007-09, with US banks having devoted about three quarters of their total loan portfolios to real estate lending (peaking at about $14.8 trillion in 2008 Q2), the largest percentage of NPLs came from this category of loans. In particular, large US bank holding companies with greater than $500 billion of assets witnessed their asset quality deteriorate through their direct holdings of real estate loans, and through exposure to residential mortgage backed securities (RMBS), and credit derivatives based on them.[5] These assets also provided the channels for cross-border contagion.[6,8] Over the course of the crisis, Western European banks suffered large losses from impaired US RMBS.[7] While those American and Western European banks with exposure to US RMBS experienced considerable asset quality deterioration during the initial phases of the Great Financial Crisis (GFC),[8] NPL figures are now trending downward. By contrast, some countries on the periphery of the Eurozone along with Cyprus continue to experience highly elevated double digit NPL ratios well into 2016, and those in Central Europe and the Baltics have ratios that are high but considerably below 10% by this period.[9]

Table 1

Non-Performing Loan Ratios in Selected Countries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Central Europe and the Baltics	9.5	7	3.9	3.7	2.6	2.3	2.5	2.3	2.8	6.4	10	12.3	13.8	11.6	8.2	5.8	4.8
Cyprus									3.6	4.5	5.8	10	18.4	38.6	45.4	47.7	
Denmark	0.5	0.7	1.7	0.8	0.7	0.2	0.3	0.6	1.2	3.3	4.1	3.7	6	4.6	4.5	3.8	
Euro area	3.7	2.9	3	2.5	2.3	1.8	1.3	1.8	2.8	4.8	5.4	6	8.1	7.9	6.8	5.3	4.4
European Union	4.6	3.3	2.9	2.6	2.3	2	1.8	2.2	2.8	4.7	5.4	6.0	7.5	6.4	5.6	5.5	4.8
Eurozone Periphery (GIIPS)	4.9	3.3	3.7	3.6	4.1	3.2	2.9	2.9	3.8	6.6	8	11	16.3	22.1	18.7	17.4	
Finland	0.6	0.6	0.5	0.5	0.4	0.3	0.2	0.3	0.4	0.6	0.6	0.5	0.5				
France	5	4.1	5	4.8	4.2	3.5	3	2.7	2.8	4	3.8	4.3	4.3	4.5	4.2	4.0	
Germany	4.7	4.6	5	5.2	4.9	4.1	3.4	2.7	2.9	3.3	3.2	3	2.9	2.7	2.3	2.0	
Greece	12.3	5.6	7.4	7	7	6.3	5.4	4.6	4.7	7	9.1	14.4	23.3	31.9	34.3	36.6	36.3
Iceland	1.5	1.2	2.6	2.1	0.9	1.1	0.8			14.1	18.3	11.6	6.3	4.3			
Ireland	1	1	1	0.9		0.5	0.5	0.6	1.9	9.8	13	16.1	25	25.7	20.6	14.9	
Italy	7.8	6.7	6.5	6.7	6.6	7	6.6	5.8	6.3	9.4	10	11.7	13.7	16.5	18.0	18.1	17.1
Luxembourg	0.5	0.4	0.4	0.5	0.3	0.2	0.1	0.4	0.6	0.7	0.2	0.4	0.1	0.2			
Netherlands	1.8	2.3	2.4	2	1.5	1.2	0.8		1.7	3.2	2.8	2.7	3.1	3.2	3.1	2.7	2.5
Norway	1.2	1.3	2	1.6	1	0.7	0.6	0.5	0.7	1.3	1.5	1.7	1.5	1.3	1.3		
OECD members	2.8	2.6	2.4	2.6	2	1.5	1.3	1.4	1.9	3.3	3.3	3.4	3.2	3.1	3.3	3.4	2.7
Portugal	2.2	2.2	2.3	2.4	2	1.5	1.3	2.8	3.6	4.8	5.2	7.5	9.8	10.6	11.9	12.0	
Spain	1.2	1.2	1.1	1	0.8	0.8	0.7	0.9	2.8	4.1	4.7	6	7.5	9.4	8.5	6.2	5.6
Sweden	1.6	1.5	1.4	1.9	1.1	0.8	0.1	0.1	0.5	0.8	0.8	0.7	0.7	0.6	1.2	1.2	1.0
Switzerland	4.1	2.3	1.8	1.3	0.9	0.5	0.3	0.3	0.9	1	0.9	0.8	0.8	0.8	0.7	0.8	
United Kingdom	2.5	2.6	2.6	2.5	1.9	1	0.9	0.9	1.6	3.5	4	4	3.6	3.1	1.7	1.0	
United States	1.1	1.3	1.4	1.1	0.8	0.7	0.8	1.4	3	5	4.4	3.8	3.3	2.5	1.9	1.5	1.3
US BHS >$500bn#	1.2	1.4	2	1.9	1.4	1.3	1	1	3	7.2	6.7	5.5	5.3	4.5			

Sources: World Bank, http://data.worldbank.org/indicator/FB.AST.NPER.ZS/countries (Note: Some values are missing in the World Bank Tables); Federal Reserve Bank of New York, http://www.newyorkfed.org/research/banking_research/QuarterlyTrends2013Q2.pdf
The ratio of bank NPLs to total gross loans is the value of NPLs (gross value of the loan as recorded on the balance sheet) expressed as a percentage of the total value of the loan portfolio (including NPLs before the deduction of loan loss provisions). US BHS >$500bn is the number of US Bank Holding Companies with assets greater than $500 billion according to the New York Fed.

NPLs are thus a recurring feature of economic and banking crises. As NPLs rise, so do funding costs for banks with bad loans on their books. These costs are often then passed onto firms and households, potentially slowing economic growth as credit contracts.[10] Transparency around NPLs is therefore key to enabling banks and their regulators to understand where risk might be building up on balance sheets, and when higher provisioning or capitalisation is required. This in turn might lower the probability of bank crises, or at least dampen their impact. When crises do occur, clear identification of NPLs enables swifter policy responses.

However, while regulatory bank capital and other claims on banks are increasingly comparable internationally,[11] progress has been slower on standardising the asset side of the balance sheet, especially with respect to loan classification. As a result, material divergences still exist in NPL definitions across jurisdictions, although the Basel Committee on Banking Supervision's 2017 Guidelines in this area[12] contain a suggested definition and constitute a welcome development. However, the Guidelines – soft law recommendations – are not binding and it is not clear yet which jurisdictions are looking to implement them and by when.

This paper is divided into five sections, following this Introduction. Section 2 examines the existing divergence in the definition of NPLs and considers the coherence and reliability of NPL data. At a general level, an NPL is a loan where a borrower is considered unlikely to make repayments in accordance with contractual obligations. In many jurisdictions and for many firms, an NPL is defined as a sum of borrowed money upon which the debtor has not made his or her scheduled payments for at least 90 days. However, beyond this simple understanding of what constitutes an NPL, there is heterogeneity across jurisdictions and among global systemically important banks (G-SIBs), as we document further in appendix B. These differences complicate cross-country and cross-firm comparisons, and make accurate aggregation challenging, if not impossible.[13]

In section 3 we look at how accounting standards assess loan quality. NPLs are not an accounting concept. Instead the relevant accounting concept is 'impaired loans.'[14] Loans are impaired when accounting rules require loan loss provisions (LLPs) to be made, representing the fact that the amount expected to be repaid falls below the contracted value carried on a bank's balance sheet. Following the 2007-09 financial crisis, calls were made for a single set of global accounting standards that ensure earlier recognition of loss. In response, IFRS provisioning rules have been changed[15] such that provisions are raised earlier on banks' balance sheets, so the amount of provision held at any point in time is higher. However, international consistency has not been achieved, and the new forward-looking provisioning frameworks inevitably requires a greater level of estimation by banks in calculating provisions, making diversity in impairment recognition more likely and thus potentially making banks' financial statements less comparable.

Section 4 examines the strategic choices and trade-offs banks will need to make under the new IFRS 9 provisioning rules. While IFRS 9 encourages early recognition of NPLs and adequate provisioning, several factors may inhibit banks from doing so. In particular, banks may have an incentive not to draw attention to NPLs in order to avoid scrutiny as to the level of LLPs raised against them. LLPs are often described as a bookkeeping entry for expected losses, while equity is often described as a residual buffer for creditors from *unexpected* losses.[16] In a crisis, however, losses from LLPs can reduce shareholders' equity required to cover unexpected losses, and below the regulatory minimum required of banks in order to operate. While higher ex-ante provisioning against expected loan losses when the external environment is relatively benign lowers bank profitability in the short term, over the long term it may maintain the buffer needed against unexpected losses and reduce the need to raise equity during or after a crisis when it is more difficult to do so. Following Borio et al,[17] and Laeven and Majnoni,[18,66] who have argued that loan loss provisioning needs to be an integral component of banking regulation, we raise these issues because forward-looking provisioning is discussed less often than bank capitalisation in the scholarly literature on financial stability, though both issues are now prominent items on the post-crisis regulatory agenda.

We conclude in Section 5 by encouraging further work by policymakers to build on the progress made to date in standardising definitions and develop further criteria around how asset quality in banks is understood, both as an end in itself and to promote better understanding of loan loss provisions given the change in accounting standards.

2. Divergences in defining NPLs across regulatory jurisdictions

In this section we discuss the regulatory and accounting treatment of NPLs before and after the global financial crisis. We find divergences in how regulators and firms define and calculate NPLs.

2.1. Regulatory treatment before the GFC

Research conducted by Barisitz[19,20] gives an overview of the general drivers behind differences in the definition of NPLs across jurisdictions. He finds that though a majority of countries classify loans as non-performing when principal or interest is 90 days or more past due and/or there is "well-defined weakness of loan or borrower",[20] there are two issues which complicate comparability. First, the notion of "well-defined weakness" remains unspecified within and across jurisdictions. Different firms and regulators have different data and different interpretations of the data used to estimate obligors' ability to repay, and its deterioration. Second, there are other dimensions besides time since last repayment that matter in some jurisdictions. These include whether collateral, guarantees, or other forms of security are factored into the credit classification process; whether the full outstanding value or only part of a loan is reported as non-performing; and how to treat restructured loans. Qualitative factors are also relevant. Even if repayments are made on time, a loan can go into default if the borrower breaches a contractual covenant, for example, by exceeding a maximum leverage threshold specified in the loan contract.

In CESEE countries there has been divergence depending on whether they take a 'product' or 'customer' view when determining if loans are performing or not. At stake is the following: suppose an obligor has two or more loans from the same credit institution. If the obligor falls behind repayment on one loan but is repaying on the other, there is debate about whether the performing loan should also be classified as non-performing, i.e. adopting a 'customer' view, since the delinquency on one loan implies that the obligor's overall financial state has deteriorated.

The table in appendix A provides examples of loan and credit classifications based on public information from financial supervisory and regulatory authorities in the Group of Twenty (G20). Like Barisitz, we find convergence around the global statistical definition of NPLs established by the UN System of National Accounts, and followed by all countries adhering to IMF or European reporting standards, namely: "a loan is non-performing when payments of interest or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons (such as a debtor filing for bankruptcy) to doubt that payments will be made in full".[21] However, no two definitions in our table are exactly alike. Loan quality classification schemes range from three to nine categories in some jurisdictions. Furthermore, like the UN statistical definition, which comes with the proviso that it "is to be interpreted flexibly," the drafting of these definitions leaves scope for discretion by individual firms because the meaning of phrases like "other good reasons" are not precisely defined.

The table in appendix B presents extracts from the annual reports of financial institutions identified as Global Systemically Important Banks (G-SIBs).[22] While there is convergence towards the definition of an NPL as being loans 90 days or more past due, there are also differences along quantitative and qualitative dimensions.[23] Quantitatively, the threshold for NPLs range from 60 to 270 days, depending in part on the financial product. Several banks, for example, defer classifying first lien, residential mortgages as NPLs for some time after 90 days since last repayment. The same is sometimes the case where the loans are to government or government-backed entities.

Credit cards are also sometimes treated differently. Qualitatively, the detail of the definitions, and their substance, also show variety. For example, some firms take into account the status of the counterparty, particularly whether they have been declared bankrupt. Also, some firms explicitly address loan restructuring and concessions to borrowers, while in other instances the issue of loan restructuring, and, by extension, forbearance is not addressed. Another question to consider is that of whether or not a loan should be exempt from 'non-performing' status if the value of underlying collateral is sufficient to make good any shortfalls, even where there is poor performance of the underlying loan. Divergence in these issues makes the comparability of cross-firm, cross-jurisdictional NPL figures difficult.

2.2 Regulatory treatment after the GFC

Asset quality is often at the root of many financial crises, and the recent GFC is no exception. Bad lending decisions – subprime mortgages and others –and inadequate regulatory treatment of loans were central to the crisis plot both in the USA and in Europe. However, up until the start of the crisis, regulators focused on the measurement and adequacy of capital, while the asset side remained the 'Cinderella' of the bank's balance sheet. After the GFC, attention is naturally turning towards the issues of loan classification and NPLs to approach balance sheets holistically and to establish cross-border comparability.

NPLs constitute an economic concept and any definition that seeks to identify that subset of loans necessarily contains an element of judgement. It follows that it is not possible to expect full uniformity in the identification of NPLs. As with much of banking regulation, a compromise is needed between the desire for consistency (and therefore rules) on the one hand, and economic relevance (and therefore discretion) on the other. But it is not true to say that, in the absence of full uniformity, there is nothing that policymakers can do to harmonise NPL definitions to enable better identification of problem loans and greater comparability across banks and jurisdictions. Indeed, in the wake of the GFC, there is a renewed push to develop an internationally harmonised approach to NPLs.

The genesis of the current efforts can be traced back to some of the earlier work done by the Basel Committee mostly in the context of capital regulation. The Basel II capital framework, published by the Basel Committee in 2004, introduced a system of credit risk calibration based on banks' own internal risk models. The Internal Ratings-Based (IRB) methodology allowed firms to provide their own estimates of probability of default, loss given default and exposure at default. In the context of this Basel II framework a definition of default was established.[24,25]

In 2006 the Basel Committee issued guidance that specifically mentioned loan classification.[26] It recommended that banks should have a credit classification system on the basis of credit risk though stopped short of spelling out a classification scheme.[27] While some bodies, such as the Institute of International Finance have established such schema (Table 2), these are not regulatory standards (soft law recommendations) but industry initiatives. And the Institute of International Finance's system, while admirable, does not establish thresholds when loans should fall into the various categories but rather proposes a set of universal categories. These limitations notwithstanding, the IIF scheme provides a useful classification.

Table 2

Institute of International Finance loan classification scheme

Loan Category	Definition
Standard	Credit is sound and all principal and interest payments are current. Repayment difficulties are not foreseen under current circumstances and full repayment is expected.
Watch	Asset subject to conditions that, if left uncorrected, could raise concerns about full repayment. These require more than normal attention by credit officers.
Substandard	Full repayment is in doubt due to inadequate protection (e.g., obligor net worth or collateral) and/or interest or principal or both are more than 90 days overdue. These assets show underlying, well defined weaknesses that could lead to probable loss if not corrected and risk becoming impaired assets.
Doubtful	Assets for which collection/liquidation in full is determined by bank management to be improbable due to current conditions and/or interest or principal or both are overdue more than 180 days. Assets in this category are considered impaired, but are not yet considered total losses because some pending factors may strengthen the asset's quality (merger, new financing, or capital injection).
Loss	An asset is downgraded to loss when management considers the facility to be virtually uncollectible and/or principal or interest or both are overdue more than one year.

Source: Krueger (2002).[28]

In the EU context, from a legal perspective, the publication in 2014 by the European Banking Authority (EBA) of technical standards for the reporting of non-performing loans and forbearance is of great relevance.[29] The EBA document provides the definition of "exposure", "non-performing exposures" and "forborne exposures."[30] The EBA standard centres the definition of non-performing on the notion of either 90 days past due, or where the debtor is assessed as unlikely to pay its credit obligations in full without realisation of collateral. Further disaggregated reporting is required for forborne assets, and those defined as performing but nonetheless past due by 30 or 60 days.

The European Central Bank (ECB) published draft guidance[31] in September 2016 on non-performing loans that build on the EBA criteria, including consideration of how the 'unlikely to pay' criterion should be applied in practice, and how banks should manage and monitor forbearance, write-offs and collateral valuation.[32] This is significant since with the advent of banking union, the ECB – the institution at the centre of the Single Supervisory Mechanism – is in charge of the supervision of significant credit institutions.

The issue of the prudential treatment of problem assets was also the subject of Guidelines issued by the Basel Committee in April 2017.[33,34,37,38,39] This is the first time that a global standard-setter[34] issued rules (soft law) which, though not binding, and are intended to be observed and to complement the existing accounting and regulatory framework in relation to asset categorisation, aiming to arrive at a common definition of the terms 'non-performing loan' and 'forbearance.' The definitions apply to all credit exposures from on-balance sheet loans, debt securities, and other items due, and off-balance sheet items, such as loan commitments and financial guarantees.

The definition of non-performing according to these April 2017 Basel Guidelines combines three existing concepts. Firstly, all exposures defined as in default under the Basel definition quoted above are considered non-performing. Secondly, exposures determined to be credit-impaired for accounting purposes are defined as non-performing – this equates to 'stage 3' of the IFRS 9 provisioning model.[35] Thirdly, loans that are past due by 90 days or where it is determined that full repayment is unlikely[36] are also deemed non-performing. The BCBS clarifies that collateralisation does not influence past due status and that it should not be considered in the categorisation of non-performing exposures.[37] In addition, forbearance occurs where a bank's counterparty is experiencing financial difficultly, and "a bank grants a concession that it would not otherwise consider, whether or not the concession is at the discretion of the bank and/or the counterparty".[38] 'Forbearance' for this purpose includes concessions extended to any exposures in the form of a loan, a debt security or an off-balance-sheet item due to the position of the counterparty. Forbearance may be granted on performing or non-performing exposures.[39]

3. Accounting for NPLs

Having discussed the regulatory dimension of NPLs including recent efforts aimed at achieving a greater degree of convergence, we move now to the accounting field. In principle, one might have been expected that the meaning of non-performing loans would be reasonably well defined by accounting bodies. However, neither the International Financial Reporting Standards (IFRS) nor the US Generally Accepted Accounting Principles (GAAP) address the topic of non-performing loans as such. Rather, they deal with 'impaired loans' and note disclosures on credit risk.[40] Moreover, the accounting frameworks governing the impairment of loans are not globally harmonised, and recent developments in accounting standard-setting might result in further divergence, particularly between the US and IFRS jurisdictions.[41] To place the assessment of NPLs in the accounting context and to shed further light on banks' practice, it is instructive to consider the nature of provisioning rules and the direction of their changes. These change substantially with the implementation of IFRS 9 from January 2018.

3.1. Accounting treatment before the GFC

On the eve of the financial crisis, both the IFRS and the US GAAP accounting standards that governed[42] impairment of financial assets operated under a model known as 'incurred loss.' This meant that impairment was only recognised when a loss event had occurred. Within IFRS, the standard IAS 39 specifies that "losses expected as a result of future events, no matter how likely, are not recognised." Although not reflected in the wording of the standard, this was in many cases interpreted as meaning that actual arrears had to take place before provisioning was allowed. Either a loan was determined to be impaired (individually or at the portfolio level), hence requiring a provision;[43] or, there was no impairment charge for the loan(s) in question.

One area where this 'black-and-white approach' to impairment has been suspected of giving an incomplete picture of the health of the financial system is the restructuring of troubled loans.[44] While IAS 39 is clear that restructuring is a 'credit event' that might lead to impairment, and impairments have to be calculated based on the difference between the original and modified conditions, the standard does not rule out of the possibility that restructuring might not involve impairment and therefore there is ambiguity about whether a loan that has been restructured should forever be identified as impaired. Consequently, lenders can choose to extend or otherwise modify the terms of loans that show evidence of financial stress. These loans might avoid arrears and as such might not be identified as impaired (or non-performing), despite underlying credit deterioration of the borrower. If terms were modified, there would be no means of distinguishing problem loans from the general pool of performing loans since neither arrears nor impairment provisions were booked under IAS 39. The existence of large-scale avoidance of arrears through forbearance (sometimes known as "extend and pretend") therefore might be invisible to regulators, investors, and other users of financial statements. Indeed, in the past, forbearance sometimes has been a key cause of financial crises, for example, during the so-called 'Tequila crisis' in Mexico.[45]

In the US, whilst the notion of 'incurred loss' also formed the basis of accounting standards, the exact wording of the accounting literature differed to that used under IFRS, and there was traditionally a greater degree of regulatory intervention in accounting compared to many IFRS jurisdictions. The result was that provisions of US banks were often higher than those for banks reporting under IFRS. As well as taking charges for impairment provisions, US banks place certain loans in 'non-accrual' status, and no interest income is recognised for loans designated in this way. This latter practice is not shared by banks in IFRS jurisdictions.[46]

Before the GFC information on asset quality could be discerned through notes to the accounts prepared by banks. For example, under IFRS, firms were required to disclose credit quality information on those financial assets that were not past due; analysis of assets that were past due but not impaired, showing how far in arrears they were; and a further analysis of those that were determined to be impaired. Whilst this meant that the extent to which provisions covered loans that were past due was disclosed consistently, the nature of the disclosure of non-impaired loans was left up to the reporting firm, as long as certain higher-level disclosure principles were met.

For assets that were neither past due nor impaired, the International Accounting Standards Board (IASB) preferred an approach that gave more discretion to firms in determining credit quality, stating as the basis for its conclusion that "because this information will vary between entities, the Board decided not to specify a particular method for giving this information, but rather to allow each entity to devise a method that is appropriate to its circumstances." As a result, banks' disclosure practice has varied in this area. While some banks show asset quality tables based on internally determined probabilities of default, others take a more qualitative approach to bucketing loans into credit quality classes. The result was a significant focus on those loans that were either already past due or impaired, but little information in comparable form either on losses expected but not yet incurred, nor on asset quality more broadly.

One of the reasons that banks under IFRS had relatively few accounting or disclosure guidelines to follow when it came to loan quality assessment is that IFRS standards are not intended to be industry-specific. This has the advantage that accounting principles can remain consistent across industries. However, it also means that banks, whose principal business is that of creating and managing credit risk, may require more specific guidance than is available from universal accounting standards. In particular, the term 'non-performing loan' is specific to banking.[47]

3.2. Accounting treatment after the GFC

The period that immediately followed the GFC witnessed intense criticism of the 'incurred loss' model, and multiple initiatives in the area of loan loss provisioning and related disclosures, both from accounting standard-setters and from prudential regulators.[48] Starting in 2009, the G20 called for accounting standard-setters to "strengthen accounting recognition of loan-loss provisions by incorporating a broader range of credit information" (G20 Research Group 2009). In the same year, the newly-created Financial Stability Board (FSB)[49] encouraged accounting standard-setters to agree standards that "will incorporate a broader range of available credit information than existing provisioning requirements, so as to recognise credit losses in loan portfolios at an earlier stage".[50] The FSB was thus explicit in preferring an 'expected loss' model of provisioning, rather than a retrospective incurred loss model.

In a 2009 draft, the IASB presented a set of proposals intended as the basis for a new provisioning model. As part of this proposal, IASB defined for the first time the notion of 'non-performing' as "the status of a financial asset that is more than 90 days past due or is considered uncollectible." Whilst the '90 days' threshold often had been used informally as a definition of 'non-performing', and in the Basel definition of default, this was the first reference to this threshold in the international accounting literature.

However, there has been disagreement between IASB and the US accounting standard-setter (Financial Accounting Standards Board, or FASB) over the exact nature of any new provisioning model. The IASB revised its proposals from the 2009 version and issued a final standard on provisioning, IFRS 9, in 2014. The FASB in turn issued its final standard in June 2016. Both the IASB and FASB models require provisions to be based on forward-looking expectations. This marks a clean conceptual break from the methodology of incurred loss. The IASB has also jettisoned the classifications based on past due status that previously formed part of its disclosure framework. Unlike the 2009 draft, the term 'non-performing' does not appear in the new accounting standard. One reason for this may be that a definition of a set number of days past due is arguably less relevant in a standard where provisions are calculated on a forward-looking basis.[51]

Under the IASB approach, the forward-looking provision is governed by a three-stage model. Loans where no significant increase in credit risk has (yet) occurred are deemed to be at 'stage 1', and a provision set at losses expected from events in the next 12 months is raised.[52] However, where a 'significant increase in credit risk' (defined as an increase in the risk of default) is deemed to have occurred, the amount provided increases such that losses expected from events over the lifetime of a loan are provided against, and the loan moves to 'stage 2.' The move from a 12-month to a lifetime horizon raises, perhaps significantly, the amount of provision required. When the loan becomes credit-impaired, it moves to 'stage 3' and interest income is also recorded net of credit losses. Thus whereas the current loan loss provisioning model is inherently backward-looking, and requires banks to assess what events of loss have occurred to date, the new approach bases the amount of provision explicitly on expectations of future loss. The FASB approach does not use the three-stage method described above but rather requires provisioning based on current expected credit loss for all loans (i.e. without reference to a 12-month horizon).

The introduction of forward-looking, and therefore earlier, recognition of provisions ought to mean that banks will hold higher provisions at the onset of a downturn, thus lowering their downside risk. It should also broaden the focus of policymakers, analysts and others on banks' asset quality beyond a narrow focus on past due or impaired assets. However, the calculation of future expected loss (whether under the IASB or FASB approach) necessarily involves a high degree of judgement based on forward-looking information, which in turn may lead to greater divergence in practice than is the case under incurred loss. Discretion over bank loan loss provisioning can have beneficial or negative consequences depending specifically on how managers exploit that discretion.[53] While management discretion to use loan loss provisions as a means to smooth profits is objectionable, better provisioning in anticipation of future deterioration is not.[54]

The potential for banks to diverge significantly from each other in measuring provisions arguably makes the need for comparable indicators against which to assess asset quality all the greater. A further consequence of a provisioning model based on 'expected' rather than 'incurred' loss criteria is that the relationship between NPLs (as the term is often currently understood) and provisions necessarily changes. As noted above, both NPL criteria and the definition of impaired loans are currently intended to capture loans that already display some evidence of deterioration, and are often past due by more than a set number of days.[55] NPLs can therefore be thought of as roughly analogous to 'stage 3' of the IFRS 9 provisioning model. But in an 'expected loss' world, every loan carries some level of provision against it, whether or not deterioration in credit quality or a loss event has occurred. Since provisions are raised earlier, and against all loans, whether or not they are deemed 'non-performing', the total amount of provision increases. At the same time, it continues to be the case that, due to expected recoveries and proceeds from collateral liquidation, provisions need not be 100% of the carrying value of NPLs. Thus, whereas in an incurred loss world provisions can be thought of as a subset of NPLs, and the provision to NPL ratio is less than 1, in an expected loss world the relationship is more complicated. Losses expected on NPLs will still be a subset of the total NPL exposure, assuming that cash or collateral recoveries mean that the total amount lent is not expected to be lost on these loans. But these provisions will be supplemented by further provisions on loans that are not yet in the NPL category, but for which provisions are also required. The difference between the expected and incurred loss approaches with respect to provisions for non-performing and other types of loans can be conceived graphically, as in figures 2 and 3.[56]

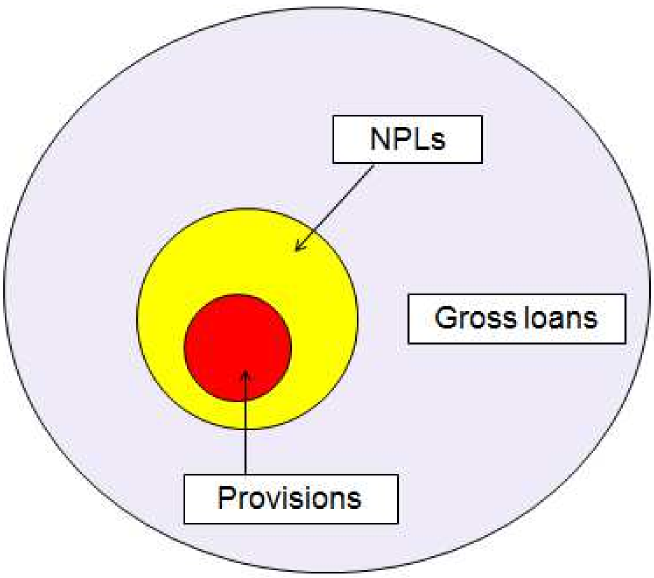

Figure 2. Provisions in an incurred loss approach.

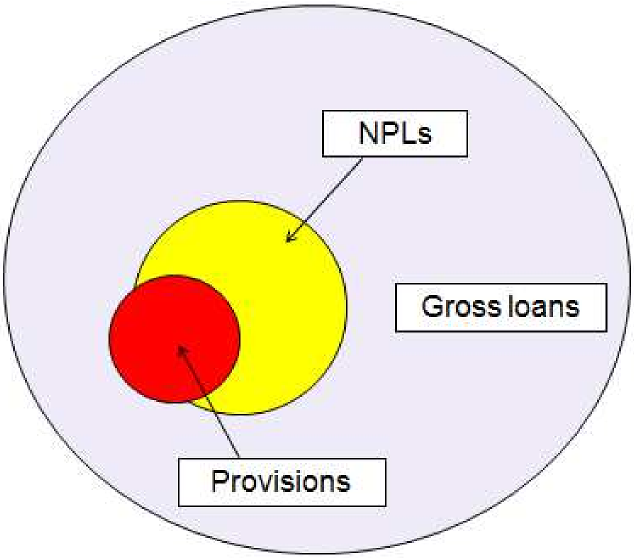

Figure 3. Provisions in an expected loss world.

Although firms are required to disclose how they determine whether a significant increase in credit risk has occurred, the criteria used in internal classifications more generally are often not disclosed. As a result, users of financial statements may not be able to understand the full context in which a loan is classified or reclassified, or to what extent loans have not been determined to have undergone a significant increase in credit risk even where some deterioration has occurred. A more comprehensive classification of asset quality, showing how credit quality changes from one period to the next, would arguably provide further colour in understanding how the bank goes about applying expected loss in practice.

4. Strategic trade-offs in provisioning for NPLs

As IFRS 9 implementation begins, banks will face a complex set of strategic choices in deciding how to make provisioning. This section discusses some of these strategic choices,[57] which include trade-offs between regulatory capital and loan write-offs on the one hand, and loan loss provisions on the other. Other considerations include a bank's business model, how they classify loans and the tax treatment of LLPs.

4.1. Regulatory capital

Current regulatory capital requirements give banks strategic reasons for wanting to keep LLPs low. The Basel Committee's Common Equity Tier 1 (CET1) and Tier 1 capital adequacy ratios include common stock and retained earnings. Since higher LLPs are taken as losses in the period when they are recognised, they reduce retained earnings and hence the CET1 and Tier 1 capital ratios.[58] This implies a trade-off between reporting higher Common Equity Tier 1 and Tier 1 capital ratios, on the one hand, and maintaining adequate LLPs, on the other.[59]

Whilst LLPs reduce retained earnings in all cases, the interaction of loan loss provisions with regulatory capital is more complex, and strategic considerations for banks are likely to change on implementing forward-looking provisioning models. For example, banks under the Basel IRB approach for credit risk are required to make a deduction for a regulatory measure of expected loss (based on a 12-month loss in a downturn scenario) from capital. The amount of the deduction from capital is the difference between this measure of regulatory expected loss and the accounting provision. Thus, assuming the regulatory deduction is higher than the accounting provision, the regulatory measure acts as the binding constraint on capital. For portfolios where this is the case, accounting provision levels do not influence capital ratios. But if the provision is higher than the regulatory expected loss calculation (as is more likely to be the case under IFRS 9), a further deduction may be required to take account of the extra amount of provision. Banks in this position may be incentivised to keep the accounting provision below the amount of the regulatory measure and avoid a further deduction.

In addition, some provisions in certain jurisdictions may qualify for an "add-back" to Tier 2, or a lower tier, of regulatory capital, subject to certain constraints.[60-62] While there has been considerable debate as to whether the constraints in place on adding back provisions into capital will adversely affect banks from making timely and adequate forward provisions for losses,[61] limited research exists to confirm or deny this hypothesis. In a similar vein, there is limited evidence on whether the inclusion of a countercyclical capital buffer of up to 2.5% of risk weighted assets for selected banks under Basel III rules will lead these banks to lower loan loss provisions. Ng and Roychowdhury have argued that an increase in capital, especially in the form of "add backs" from LLPs, increases pro-cyclical lending.[62]

In general, it is desirable for banks to have a level of provisioning commensurate with the initial expectations of recovery on loans and therefore the pricing of credit.[63] If provisions across entire portfolios exceed initial expectations of recovery, the scale of losses may be so large that they cannot be covered by income, bringing a bank's capital below or close to the regulatory minima required. At that point, banks might have to recapitalise when they and the wider system are in crisis. Since provisions under IFRS 9 are forward-looking and reflect a bank's expectations of the future, they are by nature more sensitive to changes in expectations, and therefore to the broader economic outlook. This in turn means that provisions can rise quickly in a downturn. However, crises are the worst possible moment for a bank to raise capital, as investors may be wary of subscribing new shares when profits are falling and general economic conditions are poor. As a general rule then, bank recapitalisation during a crisis is second best to higher LLPs before they occur. Conversely, delayed loan loss recognition and low LLPs during boom conditions exacerbate pro-cyclical lending.[64] Further, delays in LLP recognition pre-crisis can lead banks to reduce lending during busts because further asset growth can increase their risk of insolvency. The resulting credit crunch can thereby amplify the severity of the downturn. In brief, insufficient LLPs *ex ante* manifest *ex post* as losses to bank equity and systemic crises.

The 2007-09 GFC is a good example of how LLPs can be under-provisioned when the path of future NPLs differs from historical experience. For example, mortgage delinquencies and low recovery rates on repossessed houses from the 2007 house price fall in the US far exceeded any previous market downturns, so there was considerable under-provisioning for these losses.[65]

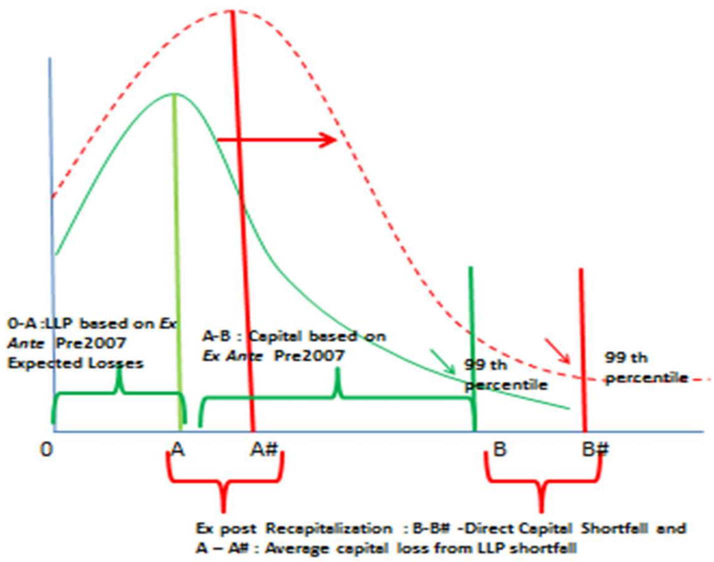

Figure 1. Loan Loss Provisions (LLPs) based on *Expected Losses* and Capital for *Unexpected* Losses: *Ex Ante* Pre 2007 (Solid Green Curve) and *Ex Post* 2007 (Dash Red Curve) Loan Loss Distributions.

Figure 1, based on the stylized framework of Laeven and Majnoni,[66] compares an *ex ante* loan loss distribution function[67] (solid green curve) for a bank, with the realized or *ex post* loss distribution function (dashed red curve) which has shifted considerably to the right under conditions of an extreme market downturn, as in the case of the period after 2007. The estimated expected losses for which provisioning is undertaken is given by OA in Figure 1. The amount of capital for unexpected losses is given as A-B. This is in keeping with models for economic capital based on estimates of deviations from the mean where capital to cover losses is calculated for a high 99 percentile confidence level of the tail of the loss distributions. In Figure 1, this has been marked by points B and B#.

The rightward shift of the realized loss distribution implies that the bank now has to contend with a substantial recapitalization programme equal to B-B# in Figure 1 which arises from a direct underestimation of capital requirements. The amount A-A# is the post 2007 average value of NPLs which exceeds loan loss provisions and gives an estimate for the extent to which bank capital has been eroded as current income has to offset NPLs.

In sum, banks have an incentive to manage provision levels so as to optimise regulatory capital. In a downturn, however, the risk increases that provisions are inadequate, and so that sudden catch-up adjustments are required. Under an expected loss approach, provisions in a downturn may also rise due to a more pessimistic view of the future than had hitherto been the case. The adequacy of banks' provisioning policies will likely be of continued concern to both micro and macro prudential policymakers.

4.2. Write-offs

Another trade-off exists between loan loss provisions and the level of write-offs. This follows from the accounting identity that the provisions at the end of one period are equal to provisions at the start of that period, plus or minus any additional provisions or write-backs, minus the effect of reductions in the portfolio (such as disposals of loans, or loans reaching maturity), *minus write-offs*. A loan is written-off when the bank no longer expects the principal to be repaid. This results in both the loans *and the provisions against them* disappearing from the balance sheet. Since such problem loans tend to have higher provisions as a proportion of the gross amount of the loan, it follows that a bank electing to write off more of its highly-provisioned problem loans will show lower provisions as a percentage of their gross loans than a bank with the same number of highly provisioned problem loans that elects not to write them off.

However, the aggregate ratio of LLPs to gross loans or to NPLs is often used by credit rating agencies to assess the riskiness of banks. Other things being equal, a higher aggregate provisioning ratio makes banks appear less risky. Therefore, there is an incentive for banks not to write-off highly provisioned loans even if they should. For example, Jassaud and Kang claim that one reason why Italian banks have delayed writing-off NPLs is that these would lower their overall provisioning ratio and possibly lower their credit rating.[68] Furthermore, in some jurisdictions, barriers to the resolution of problem loans such as legal or economic impediments to collateral realisation may also result in the inability or unwillingness of banks to write loans off in a timely manner. This too can result in a higher number of highly-provisioned loans remaining on these banks' balance sheets. Yet, the persistence of NPLs on bank balance sheets is a key reason for delay in the recovery from the GFC.[69]

4.3. Business models

The level of LLPs on a bank's balance sheet will be indicative of its level of expected credit losses. These in turn reflect a firm's chosen business model. Some banks' business models are riskier than others. At one end of the spectrum are conservative banks that seek to minimise credit risk, NPLs, and LLPs by only making loans whose principal and interest they expect will be fully repaid. In the not-so-distant past, prudent banking in the UK meant banks tried to minimise loan losses. While this behaviour had many advantages from a financial stability and systemic risk perspective, the disadvantage was that bank profits were lower than they might otherwise have been because loan origination levels were lower. As a corollary, loans were less available to borrowers.[70]

By contrast, in recent decades, UK banks increased their risk appetite in pursuit of greater financial reward. As a result, they developed a greater tolerance for some level of credit risk, NPLs, and LLPs if they appear to be profitable. Nowadays banks weigh up the marginal revenue from loans against the marginal costs from provisions, impairments, and losses, and may make loans even if the amounts collected from borrowers are expected to be less than the amount promised to be repaid in the loan contract. The result is a riskier financial system but – in good times – also a more profitable and credit abundant one.[71]

4.4. Accounting classification

Loan classification is related to the issue of banks' business models. In the past, loans originated by banks were held to maturity and accordingly carried at book value subject to impairment tests. However, many banks now buy other banks' loans, and sell and securitise their own. These loans are then shown at fair market value on the balance sheet. Although the economic effect of losses on loans is the same for banks, the actual accounting label they are given impacts where and when losses are reported in financial statements. Where loans are at fair value, the amount of loss that is charged to the income statement equals the market expectation of loss, including but not limited to credit loss,[72] rather than an estimate of credit loss only made by the entity itself. Whilst IFRS 9, by removing the need for identification of 'loss events' in provisioning, bring provisions closer to the market view of credit loss, the difference between a bank's own estimate of loss and that of the market can still be substantial.

In an economic downturn, where markets become illiquid, pricing information becomes more scarce and market participants become more cautious, the market's expectations might be more severe than the bank's own expectations, resulting in greater losses. In brief, because business models vary across firms, including their intentions to buy, hold, or sell loans, so too will the valuation of loans and therefore their level of provisioning, even if two firms have exactly the same amount of loans on their books.[73]

4.5. Tax treatment

Another issue bearing on how NPLs are provisioned for is their tax treatment. The tax treatment of accounting provisions varies across jurisdictions. In some places, all accounting provisions are allowable for offset against taxable income. In others, only certain types of provision are allowable, usually in cases where a loss is more certain.[74] Some tax authorities allow loan loss charges only when the underlying loan has been written off. The potential to realise a tax benefit provides an obvious incentive to prefer some means of loan loss recognition over others, or to recognise tax-deductible losses in certain periods. If an immediate tax benefit is available from making provisions early, there may be some offset of the incentive to delay provisioning in order to preserve capital as discussed in section 4.1.

Consider the following example. Accounting regimes require provisions to be deducted from earnings in the period when they are made. However, the fiscal authority may not recognise them as a deductible expense at the same time, instead doing so when losses manifest. That means provisions may be added back to taxable income increasing the overall base on which the tax is applied. Banks will recognise a deferred tax asset. In a regime such as IFRS 9 where provisions are made earlier, these deferred tax assets might grow in value. However, if, for example, tax rates fall in the future, and the bank makes insufficient profit against which to claim the tax credit, or the bank moves its operations to a jurisdiction with a lower corporate tax rate, then the value of that deferred tax asset will be less than anticipated so that the actual amount of taxes the bank pays over time is more than if the provisions had been tax deductible in the first place.[75] The extent to which tax considerations actually influence provisioning behaviour among firms is a topic worthy of further empirical research. The important point to bear in mind here is that there are tax implications that are factored into how firms go about loan loss provisioning, especially now with the dawn of IFRS 9.

5. Conclusion

NPLs and their under-provisioning pose a danger to economic and financial stability, especially in situations where the over-extension of lending has led to a banking crisis. The NPL situation facing some countries in Europe today is exemplary. Indeed, it bears more than a passing resemblance to past crises such as Latin America in the 1980s and Japan in the 1990s where protracted debt crises resulted in 'lost decades'.[76]

Ultimately it is poor lending, rather than accounting or reporting, that causes financial crises. However, the timely recognition of problem loans and credit loss by banks, and proper transparency so that asset positions are well-understood by the market, regulators and the general public, is critical to averting and mitigating crises. However, banks may variously calculate the accounting, regulatory and tax implications of NPLs and their provisioning differently. This can result in under-provisioning, particularly when the economic environment is relatively benign. But the early recognition of expected losses in good times is generally agreed by policymakers to contribute to greater bank resilience and mitigate the impact of crises on banks' balance sheets. This in turn lowers the probability of downturns resulting in debt crises that last several years or even decades.

Even before provisioning, problem loans need to be identified according to criteria that are transparent, understandable and economically meaningful. Recent initiatives by BCBS and EBA are a step in the right direction. The introduction of expected loss provisioning methodologies that require loans to be classified into different categories amplifies the need for more understandable methods of asset and loan classification.

Appendix A

Some loan and credit classifications across G20 countries. This list is not intended as exhaustive, but gives a flavour of supervisory practice and defined terms in different jurisdictions.

Country and source	NPLs/Impaired loans definition
Argentina[77]	Commercial loans are classified as follows: (1) normal; (2) special follow-up; (3) substandard; (4) high insolvency risk; (5) unrecoverable; and (6) unrecoverable based on technical criteria. Special follow-up loans are divided into: a) under observation, include those debtors up to 90 days past due in situations that if not controlled or corrected in a timely manner, could compromise their repayment capacity; and b) those under negotiation or with refinancing agreements, which include debtors that although unable to pay their obligations under the agreed conditions, have declared their intention of refinancing their debts no later than 60 days after becoming past due.
Australia[78]	A facility must be classified as impaired regardless of whether it is 90 days or more past due, when there is doubt as to whether the full amounts due, including interest and other payments due will be achieved in a timely manner. This is the case even if the full extent of the loss cannot be clearly determined. Such a requirement applies particularly to the range of flexible financing facilities common in the Australian financial system, including loans where repayment of principal and interest occurs only as a single payment at maturity.
Brazil[79]	The Brazilian Central Bank (BCB) does not provide a formal definition of non-performing loans. A proposed definition would include: (1) delinquent loans – more than 90 days overdue; (2) other loans not overdue more than 90 days but classified by the lending bank as E, F, G or H, according to the regulatory risk classification; and (3) renegotiated loans. Risk classification requires lending banks to classify loans according to a 9-level classification scale (AA, A, B, C, D, E, F, G or H). According to the BCB's Resolution 2.682, loans overdue must be classified on risk levels, as following: a) from 15 to 30 days: at least risk level B; b) from 31 to 60 days: at least risk level C; c) from 61 to 90 days: at least risk level D; d) from 91 to 120 days: at least risk level E; e) from 121 to 150 days: at least risk level F; f) from 151 to 180 days: at least risk level G; g) more than 180 days: risk level H.
Canada[80]	Office of the Superintendent of Financial Institutions considers the below listed conditions to be indicative of non-performing status: (1) a payment on a deposit with a regulated financial institution or a restructured loan is contractually 90 days in arrears; (2) a payment on any other loan (excluding credit card loans) is contractually 90 days in arrears unless the loan is fully secured, the collection of the debt is in process and the collection efforts are reasonably expected to result in repayment of the debt or in restoring it to a current status within 180 days from the date a payment has become contractually in arrears; and (3) a payment on any loan is contractually 180 days in arrears.
China[81]	According to the supervision rules, commercial banks classify their loans into five categories -- pass, special mention, substandard, doubtful and loss. Special mention loan means the borrower has ability to repay the loan currently but may be affected by some unfavorable factors. The last three categories of loans are referred to as NPLs.

France[82]	The national accounting framework provides the concept of 'doubtful', whose definition is similar but non identical to the 'non-performing' one as provided by the European Banking Authority (EBA). Loans are considered as doubtful when the debtor is considered as "unlikely to pay" or when 90-day past due amounts exist (for some types of exposure, the period could be longer, which explains why the definition of doubtful is similar but not identical to the EBA one). According to the credit risk and asset quality classification, impaired loans and past due are >90 days loans to total loans.
Germany[83]	The German legal framework does not provide specific guidelines for NPL recognition and classification/write-off. The General Banking Act of Germany does not explicitly refer to performing/non-performing loans. NPLs refer to non-performing exposures (NPEs)—as defined by the EBA Implementing Technical Standards on supervisory reporting on forbearance and non-performing exposures (EBA ITS)—excluding debt securities. According to the IMF Country Report 16/189, loan classification and provisioning are considered as an accounting issue. The supervisors do not re-classify loans or request increased provisions and rely on capital add-on. For portfolios of credit exposures with homogeneous characteristics, the exposures are classified when payments are contractually in arrears for a minimum number of days (e.g., 30, 60, 90 days).
India[84]	Banks are required to classify non-performing assets (NPAs) further into the following three categories based on the period for which the asset has remained non-performing: (1) sub-standard assets; (2) doubtful assets; (3) loss assets. A sub-standard asset would be one, which has remained NPA for a period less than or equal to 12 months. An asset would be classified as doubtful if it has remained in the sub-standard category for a period of 12 months. A loss asset is one where loss has been identified by the bank or internal or external auditors or the Reserve Bank of India inspection but the amount has not been written off wholly. A NPA is a loan where interest and/or instalment of principal remain overdue for a period of more than 90 days in respect of a term loan. According to the IMF Country Report No. 16/76, stressed loans include NPAs and restructured advances (i.e. loans that have been subject to stress and are thus more likely to turn into NPAs).
Indonesia[85]	NPLs are loans classified as substandard, doubtful and loss. Debtor has defaulted when: (a) there are arrears in principal and/or interest payments and/or other claims for 90 days although the Earning Assets (Bank fund provisions for gaining revenue, which are in the forms of credits, securities, interbank placements, acceptance claims, claims on securities purchased under resale agreements, derivative claims, equity participations and off balance sheet items) have not fallen due in the above mentioned categories; (b) payments on principal and/or interests and/or other claims have not been received at the time the Earning Assets fall due; and (c) other requirements aside from payments of principal and/or interest have not been met, which can cause event of default.
Italy[86]	According to Circular 272/08, the Bank of Italy adopted the following breakdown of NPLs: (1) past due/overdrawn exposures (past due by 90 days or more, with a further breakdown by days past due band); (2) unlikely to be paid exposures (with a further breakdown by days past due bands); and (3) bad loans (state of insolvency). When applicable, NPL forborne exposures are included in each of these categories. For performing exposures, the Bank of Italy has provided the following classification: performing; performing but past due by less than 90 days (1-30 days, 30-60 days, etc.); and performing forborne (with a distinction between one concession or more than one concession).With respect to forborne exposures, for regulatory purposes the Italian banks are required to follow the criteria defined by the EBA ITS. Also, Italian banks are legally required to comply with the EBA ITS regarding the definition/classification of NPEs. The Bank of Italy does not provide regulation concerning specific provisioning rules for NPLs, also in terms of how to treat the recovery time estimation. There are no specific national guidelines or rules for NPL write-off.

Japan[87]	Loans are classified into four categories: (1) bankrupt or de facto bankrupt ("bankrupt or quasi-bankrupt"); (2) doubtful; (3) special attention ("needs attention" or "substandard"); and (4) normal. Bankrupt or de facto bankrupt loans are those extended "to debtors who are legally and formally bankrupt, i.e., in the process of liquidation, reorganization and rehabilitation, or virtually bankrupt with no prospects of resuscitation". Doubtful loans are those extended "to debtors who have not gone bankrupt but are in financial difficulties, and thus whose lenders are unlikely to receive the principal and interest concerned on due dates". Special attention loans are those "whose interest and/or principal payments are in arrears by 3 months or more, and restructured assets with changes in terms and conditions," and the normal loans are "all loans to debtors who have no particular problems with their financial conditions" which are not classified as any of the first three categories. The total amount of NPLs is the sum of loans that are categorized as "bankrupt or de facto bankrupt," "doubtful" and "special attention."
Republic of Korea[88]	Under the asset classification rule, there are five classifications applicable to a bank loan: normal, precautionary, substandard, doubtful, and presumed loss. Loans classified as either substandard, doubtful, or presumed loss are collectively referred to as substandard or below loans (SBLs). The SBL classifications are influenced by forward-looking criteria (FLC), so a performing loan that currently generates interest income may be classified as an SBL if it is determined that the borrower's debt-servicing ability has significantly deteriorated and has raised the risk of future default. In contrast, the primary determining factor an NPL classification is whether a loan currently generates interest payment, so a loan would not be classified as an NPL if it continues to generate interest income.
Mexico[89]	There is no formal definition of NPLs under Mexican legislation. Banco de México does not provide specific rules for NPLs classification. In order to reclassify the loan as non-performing, 90 days must go by after the end of the extension period. The adjusted delinquency rate is the non-performing loan portfolio plus write-offs over the previous twelve months divided by total loan portfolio plus write-offs over the previous twelve months.
Russia[90]	There is no exact definition of "non-performing loan" under the Russian legal framework. The Bank of Russia shares an approach used in international practice, considering NPLs as loans with overdue debt over 90 days. The loans quality categories (probability of impairment of a loan) are classified on the basis of professional judgment using combination of two classification criteria (the borrower's financial position and the debt service quality). Loans are classified (except for loans grouped in a portfolio of homogeneous loans) into one of five quality categories: (1) standard loans – no credit risk; (2) non-standard loans – moderate credit risk; (3) doubtful loans – considerable credit risk; (4) problem loans – high credit risk; and (5) loss loans – no possibility of loan repayment due to the borrower's inability or refusal to meet loan commitments, which stipulates complete (100 per cent) impairment of the loan. Loans classified as non-standard loans and loss loans are impaired.
Saudi Arabia[91]	Credit risk comprises the following loan classification: (1) impaired loans; (2) defaulted loans; (3) past due loans (less than 90 days, 90-100 days, 180-360 days, over 360 days); and (4) allowances (specific allowances and general allowances). While past due loan simply means a loan which has not been paid on time and is now overdue by certain days (which after 90 days falls in the definition of default).Non-performing loans are considered to be loans that are more than 90 days past due.

South Africa[92]	According to the South African Reserve Bank, the loan should be classified as non-performing in line with the bank's credit and write-off policy. Loans which are in arrears (but not in default) and which are restructured should not be classified as performing until such time as the obligor's ability to meet the requirements of the revised terms and conditions has been established. Credit risk exposures are classified as either "standard", "special mention", "substandard", "doubtful" or "loss" by South African banks and reported on a quarterly basis.
Turkey[93]	The Regulation on Procedures and Principles for Determination of Qualifications of Loans and other Receivables by Banks and Provisions to be Set Aside (Article 5) requires banks to categorize loans and receivables under five groups. Loans categorized in "Group 1- Standard" and "Group 2-Special mention" are performing loans. Loans classified in the remaining 3 categories are considered non-performing loans. Following are the criteria for those non-performing categories. Group 3- Limited recovery: past due between 91-180 days or limited recovery expectation due to financing and liquidity problems of the debtor. Group 4- Suspicious recovery (doubtful): past due between 181-365 days or substantial deterioration in the creditworthiness of debtor but not considered loss because of the partial recovery expectation. Group 5- Loss: past due for over 365 days or no recovery expectation due to the significant deterioration in the creditworthiness of the debtor.
United Kingdom[94]	NPLs are not formally defined at UK level for supervisory purposes. The EBA definition is used for regulatory reporting. The definition for forbearance should be taken from either: (1) the EBA consultation paper on Implementing Technical Standards on Supervisory Standards; and (2) the definition of forbearance as detailed in the guidance published by FSA (now FCA) in 2011.
United States[95]	Non-performing loans include loans that are: (1) 90 days or more past due and still accruing; or (2) non-accrual (i.e., loans on which a bank has ceased to accrue interest).
European Union[96]	A loan is classified as a non-performing exposure where the loan is 90 days past-due or if there is a risk of unlikely repayment without realization of collateral. The definition applies regardless of the classification of a loan or debt security as impaired or defaulted, but a loan or a debt security that has been classified as impaired in the financial statements or that has been classified as defaulted in capital adequacy shall always be classified as a non-performing exposure according to EBA's definition. This definition applies in parallel to the definitions reported in this table for those jurisdictions that are members of the European Union (France, Germany and Italy).

Appendix B

Table: NPL Classification by Global Systemically Important Banks (GSIBs)
(Source 2014/2015 Financial Statements)

For all GSIBs, 90 days past due is not a sufficient condition for a loan to be considered to be an NPL. Qualifications on the 90 days past due criterion for NPLs are given below. This information is primarily obtained from the 2014/2015 Financial Statements of the GSIBs. Column 1 gives the overriding criteria of NPL/impairment status which can include but may be independent of the 90 days past due criterion. The purpose of Column 2 is to ascertain if credit card loans and non-secured loans are treated differently from the general criteria used. Column 3 lists any exceptions to the treatment of Home Equity Loans. Column 4 gives the cases when a non-accrual status is used[97] with the latter needing specific material evidence for problems of non-payment. Here we note that 'non-accrual' is widely used in the US but does not exist as a concept under IFRS; hence US banks will have a yes in column (4) and typically non-US banks do not. 'No Disclosure' (ND) is inserted when there is no specific information given in the Financial Statements of GSIBs and 'Not Applicable' (NA) where a practice (non-accrual of interest) is not permitted by the accounting framework used by the bank.

Name of GSIBs (Source)	**Col (1)** Internal system used showing degrees of credit deterioration?[98]	**Col (2)** Separate criteria for credit card loans or other non-secured consumer loans?	**Col (3)** Separate criteria for Home Equity Loans?	**Col (4)** Separate 'non-accrual' status?	**Col (5)** Other criteria or exceptions to NPL status not given in Cols 1-4
Agricultural Bank of China[99]	✓	General criteria apply	General criteria apply	NA	ND
Bank of America[100]	✓	Charged off 1 month after 180 days past due	Junior Lien is considered NPL if first-lien is 90 days due past, even if junior lien is performing	✓	Purchased credit – impaired loan portfolios or loans accounted under fair value option excluded
Name of GSIBs (Source)	**Col (1)** Internal system used showing degrees of credit deterioration?	**Col (2)** Separate criteria for credit card loans or other non-secured consumer loans?	**Col (3)** Separate criteria for Home Equity Loans?	**Col (4)** Separate 'non-accrual' status?	**Col (5)** Other criteria or exceptions to NPL status not given in Cols 1-4
Bank of China[101]	✓	ND	ND	NA	ND

Bank of New York Mellon[102]	✓	General criteria apply	At 270 (90) days past due all first (second) lien mortgages placed on non-accrual	✓	ND
Barclays[103]	✓ See Col 5	General criteria apply	ND	NA	Past due determined by contract
BBVA[104]	✓ As stipulated in Section II of Annexe IX of Bank of Spain Circular 04/2004	General criteria apply	General criteria apply	NA	See Col 1
BNP Paribas[105]	✓ When 1 loan to a debtor is deemed doubtful all other loans to the debtor classified similarly	General criteria apply	See Col 5	NA	6 months due past rather than 3 months for loans to real estate and local authorities
Citigroup Inc.[106]	✓	NPL status at 180 days due past	ND	✓ Non-accrual status automatic at 90 days due past	ND
Credit Suisse[107]	✓	ND	ND	NA	Subprime has NPL status at 120 days past due
Name of GSIBs (Source)	**Col (1)** Internal system used showing degrees of credit deterioration?	**Col (2)** Separate criteria for credit card loans or other non-secured consumer loans?	**Col (3)** Separate criteria for Home Equity Loans?	**Col (4)** Separate 'non-accrual' status?	**Col (5)** Other criteria or exceptions to NPL status not given in Cols 1-4
Deutsche Bank[108]	✓	ND	ND	NA	ND
Goldman Sachs[109]	✓	ND	ND	✓	ND
Groupe BPCE[110]	✓ As stipulated in French Accounting Standards Authority Reg. No. 2014-07	ND	ND	NA	Col 1 status at 6 (9) months past due for real estate (local authorities)

Name of GSIBs (Source)	Col (1) Internal system used showing degrees of credit deterioration?	Col (2) Separate criteria for credit card loans or other non-secured consumer loans?	Col (3) Separate criteria for Home Equity Loans?	Col (4) Separate 'non-accrual' status?	Col (5) Other criteria or exceptions to NPL status not given in Cols 1-4
Group CréditAgricole[111]	✓	General criteria apply	General criteria apply	NA	ND
HSBC[112]	✓	General criteria apply	General criteria apply	NA	ND
Industrial and Commercial Bank of China Limited[113]	✓ Overall most loans graded using these criteria	General criteria apply	General criteria apply	NA	Uses 12 category internal classification for corporate loans
ING Group[114]	✓	General criteria apply	General criteria apply	NA	ND
JP Morgan Chase & Co.[115]	✓	Excluded from 90 day past due unless Col 1 applies	30 day past due applies or as per contract	✓	Loans insured by US Govt. agencies excluded from 90 days past due unless Col 1 applies
Mitsubishi UFJ FG[116]	✓	General criteria apply	ND	✓	ND
Mizuho FG[117]	✓	General criteria apply	General criteria apply	All impaired loans also designated as non-accrual	Troubled debt restructuring uses ASC310 issued by US FASB
Morgan Stanley[118]	✓ NPL at 90 days past due, or through other grading criteria	General criteria apply	General criteria apply	✓	ND
Nordea[119]	✓	General criteria apply	General criteria apply	NA	ND

Royal Bank of Scotland[120]	✓ NPL classified as 'risk' element has 100% default probability	General criteria apply	General criteria apply	Concept of 'accruing loans' is used for classification but interest accrued under IFRS	For collectively assessed loans, loss provisions not allocated to individual loans and entire portfolio can be classified as impaired
Name of GSIBs (Source)	**Col (1)** Internal system used showing degrees of credit deterioration?	**Col (2)** Separate criteria for credit card loans or other non-secured consumer loans?	**Col (3)** Separate criteria for Home Equity Loans?	**Col (4)** Separate 'non-accrual' status?	**Col (5)** Other criteria or exceptions to NPL status not given in Cols 1-4
Santander[121]	✓ Past due varies between 30 and 90 days triggers NPL status	General criteria apply	General criteria apply	NA	ND
Société Générale[122]	✓ 3 months past due for doubtful status and NPL status after 1 year of this if loan not terminated	General criteria apply	General criteria apply	NA	Six months (9 months) past due for mortgages (local authority loans) with doubtful status
Standard Chartered[123]	✓	General criteria apply	General criteria apply	NA	Restructured loans excluded from 90 day past due NPL status for which no default occurs for upto 180 days
State Street[124]	✓ See Col 4	General criteria apply	ND	✓ 60 days past due non-accruing loans have NPL status	ND
Sumitomo Mitsui FG[125]	✓	General criteria apply	ND	No	90 days past due loans given NPL status excludes so called 'bankrupt loans' in order to support borrowers' recovery from financial difficulties
UBS[126]	✓	General criteria apply	General criteria apply	NA	ND

Unicredit Group[127]	✓	General criteria apply	General criteria apply	NA	ND
Name of GSIBs (Source)	**Col (1)** Internal system used showing degrees of credit deterioration?	**Col (2)** Separate criteria for credit card loans or other non-secured consumer loans?	**Col (3)** Separate criteria for Home Equity Loans?	**Col (4)** Separate 'non-accrual' status?	**Col (5)** Other criteria or exceptions to NPL status not given in Cols 1-4
Wells Fargo[128]	✓	General criteria apply	General criteria apply	Loans have non-accrual status if general criteria apply with Col 5 exemptions	120 days past due for real estate 1-4 family and first and junior lien mortgages which are not mortgage loans and some consumer loans

REFERENCES AND NOTES

[1] European Commission, ECB and IMF, Statement by the European Commission, the ECB and the IMF on Cyprus, 16 November 2015, http://ec.europa.eu/economy_finance/articles/eu_economic_situation/2015-11-16-statement-cyprus_en.htm, accessed 17 November 2015.

[2] Bloem, A.M. and Gorter, C.N. (2001) The treatment of nonperforming loans in macroeconomic statistics. IMF Working Paper No. 1/209.

[3] World Bank, 'World Development Indicators: Financial access, stability and efficiency', http://wdi.worldbank.org/table/5.5. It might also be argued that such a ratio rewards leverage, since a more leveraged bank would show a higher denominator and therefore a lower NPL ratio in situations where it has the same number of NPLs as a bank with lower leverage, even though overall risk of failure may be higher in a highly leveraged bank, since by definition it would have a lower capital buffer.

[4] Even in countries often seen as having experienced a rather benign version of the GFC, NPLs have risen. King, L. et al (2012) Making the same mistake again—or is this time different? Cambridge Journal of Economics 36:1-15. For example, in Canada, NPLs have more than doubled in recent years. Allen, D. et al (2012) The Impact of Contagion on Non-Performing Loans: Evidence from Australia and Canada. Journal of Business and Policy Research 7:13-24.

[5] Markose, S. et al (2012) Too interconnected to fail, financial network of US CDS market: Topological fragility and systemic risk. Journal of Economic Behavior and Organization 83:627-646.

[6] Allen *et al*.[4]

[7] International Monetary Fund (April 2009) Global Financial Stability Report: Responding to the Financial Crisis and Measuring Systemic Risks.

[8] Allen *et al*.[4,6]

[9] Cavalier, D. (2014) Non-performing loans in Southern Europe: define, measure, compare. BNP Paribas Research. Škarica, B. (2014) Determinants of non-performing loans in Central and Eastern European countries. Financial Theory and Practice 38:37-59. Klein, N. (2013) Non-performing loans in CESEE: Determinants and impact on macroeconomic performance. IMF Working Paper No. 13/72.

[10] European Central Bank (2013) Financial Stability Review. ECB Review.

[11] Basel Committee on Banking Supervision (July 1988). International Convergence of Capital Measurement and Capital Standards. Bates, C. (2014) Ending too-big-to-fail in Europe. Lecture delivered at the Centre for Commercial Law Studies, Queen Mary University of London; 11 November, London, UK. European Union Directive 2014/59/EU and Regulation (EU) No. 806/2014. European Banking Authority (2014) EBA Final draft Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013. Recently, there also has been progress towards a common international understanding of liabilities as a by-product of resolvability assessments, recovery planning, and 'bail in' regulation because it has been necessary to establish a hierarchy of debt instruments.

[12] Basel Committee on Banking Supervision (4 April 2017) 'Prudential treatment of problem assets – definitions of non-performing exposures and forbearance', Guidelines, http://www.bis.org/bcbs/publ/d403.htm.

[13] The heterogeneous valuation of NPLs has analogies in other areas of accounting. For example, fair values of illiquid assets and liabilities are calculated using models where the objective of the valuation is set out in accounting standards, but firms have discretion in practice. Differences in assumptions mean that firms otherwise equal in performance may diverge in terms of their income in a given reporting period.

[14] This paper is concerned with banks' treatment of asset quality, and particularly the concept of NPL, rather than accounting rules per se. However, the application of accounting provisions provides vital context: provisioning rules, for example, are key both in firms' approach to identifying problem loans, the disclosures they make around those problem loans, and their incentives in dealing with them.

[15] International Financial Reporting Standard (IFRS) 9 becomes effective in jurisdictions under IFRS accounting standards in 2018, and Accounting Standards Update (ASU) 2016-13 for financial years ending in 2020 under US accounting standards (US GAAP).

[16] This terminology from the Basel framework (see for instance paragraphs 12, 13 and 17 in the Basel II agreement) holds true regardless of the methodology of computation of LLPs: current accounting under IFRS and US GAAP requires LLPs to reflect incurred losses, that is losses that a bank estimates it has already suffered on a loan, instead of the future losses it expects to suffer.

[17] Borio, C. et al (2001) Procyclicality of the financial system and financial stability: issues and policy options. BIS papers 1:1-57.

[18] Laeven, L. and Majnoni, G. (2003) Loan loss provisioning and economic slowdowns: too much, too late? Journal of Financial Intermediation 12:178-197.

[19] Barisitz compares definitions in ten CESEE countries: Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Russia, Serbia, Slovakia and Ukraine. Barisitz, S. (2011) Nonperforming Loans in CESEE–What Do They Comprise. Focus on European Economic Integration Q4:46-68. Barisitz, S. (2013a) Nonperforming Loans in Western Europe—A Selective Comparison of Countries and National Definitions. Focus on European Economic Integration Q1:28-47.

[20] Barisitz (2011).[19]

[21] United Nations System of National Accounts (2008) Statistical Commission. 2009. System of National Accounts, 2008 (2008 SNA): New York.

[22] Compiled by the authors using the list of G-SIBs published by the Financial Stability Board on 6 November 2014, www.financialstabilityboard.org/wp-content/uploads/r_141106b.pdf.

[23] Laeven and Majnoni.[18]

[24] Basel Committee on Banking Supervision (2004) International Convergence of Capital Measurement and Capital Standards. Revised Framework.

[25] Given the importance of the Basel Committee in setting bank regulation worldwide, it is worth quoting this definition at length: Default is defined as where an obligor is 90 days past due, or is unlikely to pay its credit obligations to the banking group in full, without recourse by the bank to actions such as realising security. Indicators of unlikeliness to pay include the following:
- the bank puts the credit obligation on non-accrued status;
- the bank makes a charge-off or account-specific provision resulting from a significant perceived decline in credit quality subsequent to the bank taking on the exposure;
- the bank sells the credit obligation at a material credit-related economic loss;
- the bank consents to a distressed restructuring of the credit obligation where this is likely to result in a diminished financial obligation caused by the material forgiveness, or postponement, of principal, interest or (where relevant) fees;
- the bank has filed for the obligor's bankruptcy or a similar order in respect of the obligor's credit obligation to the banking group; or
- the obligor has sought or has been placed in bankruptcy or similar protection where this would avoid or delay repayment of the credit obligation to the banking group. In view of the passage of time since this wording was issued, two things are noticeable with regard to these criteria. The first is that it is not very different from later definitions of 'non-performing' issued by the EBA. The second is that the first of the indicators listed above makes reference to an accounting concept (non-accrual loans) that does not exist under the newer international accounting standards (IFRS) used in most jurisdictions but does exist under US Generally Accepted Accounting Principles (US GAAP).

[26] Basel Commission on Banking Supervision (2006) Sound credit risk assessment and valuation for loans. Basel Committee on Banking Supervision Paper.[53]

[27] In a further consultative document issued in December 2014 on revisions to the standardised approach for credit risk, the BCBS for the first time suggests a definition of non-performing, whose threshold includes (amongst other criteria) 90 days past due for loans, and 30 days past due for securities. The purpose of these criteria is to calculate a 'non-performing asset' (NPA) ratio when assessing exposures to other banks. At the time of issue, the proposals in this consultation were described by the Basel Committee as "at an early stage of development".

[28] Krueger, R. (2002) International Standards for Impairment and Provisions and their Implications for Financial Soundness Indicators (FSIs). International Monetary Fund.

[29] In a similar vein, the Central Bank of Ireland in 2013 produced comprehensive guidance on accounting practice for loans and related disclosure. This document included standardised definitions of terms such as 'performing loan', 'non-performing loan', 'cured loan', 'foreclosed loan' and 'forbearance'. Central Bank of Ireland (2013) Impairment Provisioning and Disclosure Guidelines. Financial Regulation.

[30] The focus of the EBA document is on non performing exposures (NPEs) broader than NPLs. Paragraph 149 of the EBA document states that for the purpose of template 18, "exposures" include all debt instruments (loans, advances and debt securities) and off-balance sheet exposures (loan commitments, financial guarantees and other revocable and irrevocable commitments) excluding trading exposures and off balance sheet exposures except held for trading exposures.

[31] European Central Bank (September 2016) Draft Guidance to Bank on Non-performing Loans. Consultative Document.

[32] In the south of the European Continent, the European Bank Coordination 'Vienna Initiative'— a private-public sector platform which brings together key international financial institutions, international organisations, public authorities and private banks—has called for an action plan to address NPLs in CESEE countries. The main purpose is to establish a central forum for dialogue to create the right conditions for Western banks to remain engaged in

emerging Europe. This means enhancing enforcement measures, improving consistency in the definition of NPLs and removing legal obstacles and execution issues in distressed transactions. In particular, the 'Vienna Initiative' is trying to establish an effective coordination mechanism for dealing with distressed assets. NPLs are considered a serious impediment to recovery from the financial crisis in certain CESEE countries because they impair banks' ability to resume lending and weigh down overextended borrowers. Roaf, J. (2014) Non-Performing Loans in CESEE.IMF WP/13/72.

[33] Basel Committee on Banking Supervision.[12]

[34] These new definitions are intended to complement existing accounting and regulatory measures, and as reference points to promote comparability. Other concepts such as 'weakened', 'loss' and 'write-off' do not form part of the consultation, as there was less commonality across jurisdictions and "achieving common definitions for these concepts may conflict with jurisdictions' local legal and tax considerations". Basel Committee on Banking Supervision.[12]

[35] 'Stage 3' represents assets that are determined to have become credit-impaired. The IFRS 9 model is considered further in section 3.2.

[36] This is similar to the definition developed by the EBA in 2014.

[37] Basel Committee on Banking Supervision.[12,33] The BCBS also notes that non-performing status should be applied at the level of the counterparty in the case of exposures to a non-retail counterparty; and, at the level of each exposure in the case of exposures to a retail counterparty.

[38] Basel Committee on Banking Supervision.[12,33]

[39] The BCBS recommends banks not to use forbearance practices to avoid classifying loans as non-performing. When forbearance is applied to a non-performing exposure, the exposure should remain non-performing. When forbearance is applied to a performing exposure, the bank then needs to assess whether the exposure meets the non-performing criteria, even if the forbearance resulted in a new exposure.[12,33]

[40] In the US, the issue of Financial Accounting Standards (FAS) No. 5 Accounting for Contingencies in March 1975 was likely the first formalised accounting standard in this area. Before then, while banks did make provisions against bad loans, neither the extent of bad loans nor the level of provisions was public information. In the UK, for example, banks were, through custom and law, exempt from reporting the true nature of their provisions, profits, capital and NPLs until around 1970. Billings, M. and Capie, F. (2001) Profitability in English banking in the twentieth century. European Review of Economic History 5:367-401. Over time, the need for accounting standards and enhanced disclosures has increased because the nature of lending has become longer term. For example, in the UK, until the second half of the twentieth century, short-term loans constituted the vast majority of UK bank lending; fewer than 10 percent of banks' loans to businesses between 1910 and 1914 had a contractual term greater than a year, for example. Knott et al (2014) Understanding the fair value of banks' loans. Bank of England Financial Stability Paper 31. The development of longer-term lending, where banks assume more credit risk, increases the importance of having accurate and timely data to monitor asset quality through a loan's long life.

[41] As at April 2015, 114 jurisdictions require the use of IFRS by all or most public companies (IASB 2015), including the European Union. However, there are notable exceptions: IFRS is not used by US companies and is not mandatory in Japan.

[42] At the time of writing, these standards are still in force. However, since this section concerns itself with the pre- and immediate post-crisis periods, the past tense is used.

[43] Or at least a test for impairment: if it was determined that the value of the outstanding balance could be fully covered through, for example, the repossession of collateral net of related costs, the amount of provision may actually be zero.

[44] In 2011 the UK Financial Services Authority (FSA) issued a guidance document on loan forbearance, noting that "we have concerns that certain accounting practices can have the effect of concealing the full effect of impairment and forbearance and thus may not present the true nature of credit risk within retail portfolios". Financial Services Authority (2011) Forbearance and Impairment Provisions – Mortgages. FSA Finalised guidance. Similar concerns were raised the same year in the US when the accounting standard-setter clarified its guidance around the definition of troubled debt restructurings (incidentally a term used only in US accounting), with the aim of developing more consistent standards in determining whether a modification of a loan receivable constitutes a concession to a borrower that is experiencing financial difficulty.

[45] Calomiris, C.W. and Haber, S.H. (2014) Fragile by Design: The Political Origins of Banking Crises and Scarce Credit. Princeton: Princeton University Press, pp. 366-367. While forbearance may be inappropriate if the obligor has no real chance of recovery, as this can hamper the reallocation of resources to other sectors of the economy and weigh down long-term productivity, it may be appropriate if an obligor is suffering just from a temporary cash flow problem, or restructuring or strategically reclassifying the loan gives them time to recover and become economically viable. Arrowsmith, M. et al (2013) SME forbearance and its implications for monetary and financial stability. Bank of England Quarterly Bulletin Q4:6-13. Indeed, in the past regulators have sanctioned loan forbearance at a firm or

system-wide level during financial crises as a means to stave off their worst depths. Kane (2015) Unpacking and Reorienting the Executive Subcultures of Megabanks and their Regulators, www2.bc.edu/edward-kane/UNPACKING.pdf. Consider the Latin American debt crisis in the 1980s. In August 1982, "the total risk to the nine money-centre banks in New York was estimated at more than three times the capital of those banks. The regulators, analysts say, did not force the banks to value those loans at the fire-sale prices of the moment, helping to avert a disaster in the banking system. In other words, the nine biggest banks were all insolvent in the 1980s". Lohr, S. (2009) Large U.S. banks on brink of insolvency, experts say. New York Times, 13 February: p1. The accounting treatment of NPLs encouraged regulators to effectively delay the recognition of any losses until banks had had the time to build up loan loss reserves. Haben, P. (2015) Standardizing the definition of non-performing loans. Case Study: Standardising the definition of non-performing exposure and forbearance. Paper presented at the European Banking Authority; 28 October, London, UK.

[46] It is also not an explicit accounting requirement under US GAAP, but there is guidance included in regulatory reporting instructions for US banks and the use of non-accrual loans is predominant practice in the US. IASB Staff Paper (11 April 2011) Non-accrual principle, joint IASB/FASB meeting. It is used for: (a) assets maintained on a cash basis because of deterioration in the financial condition of the borrower; (b) assets for which payment in full of principal or interest is not expected; and (c) assets for which principal or interest has been in default for a period of 90 days or more unless the asset is both well secured and in the process of collection.

[47] Accounting standards, particularly under IFRS, also tend to be written in principles-based terms, requiring firms to disclose risk information but usually not setting hard or industry-specific criteria around how that disclosure should be made.

[48] In many respects, the current debate about the value of forward-looking provisioning revisits an older difference of opinions between securities regulators and banking regulators about the appropriate allowance for managerial judgement and discretion in the estimation of future losses. Camfferman, K. (2015) The Emergence of the 'Incurred-Loss' Model for Credit Losses in IAS 39. Accounting in Europe 4:1-35; Beatty, A. and Liao, S. (2011) Do delays in expected loss recognition affect banks' willingness to lend? Journal of Accounting and Economics 52:1-20. Banking regulators often take the view that early provisioning is prudent. By contrast, securities regulators, given their responsibility for ensuring the integrity of equity markets, typically have been concerned with banks using provisions strategically as a means to reduce earnings volatility and therefore volatility in their share price in secondary markets. For example, in the UK, some banks historically overprovisioned for loan losses, creating so-called 'hidden reserves'. Billings and Capie.[40] By doing so, these banks could deflate current period income in order to inflate it in a future period, offsetting other losses by writing the provision back to income as a means of smoothing returns to their shareholders. More recently, some commentators have suggested that firms, including banks, might overprovision in the first year when top management changes in order to show improved performance in later years. Higson (2012) Financial Statements: Economic analysis and interpretation. London: Rivington Publishing. Justifiable concern with these kinds of accounting policies contributed to the adoption of the 'incurred loss' model that dominated until the GFC.

[49] The FSB took over from the 1999-born Financial Stability Forum, with a broader membership.

[50] Financial Stability Board (2009) Improving Financial Regulation. Report of the Financial Stability Board to G20 Leaders.

[51] Although a rebuttable presumption exists in IFRS 9 that a significant increase in credit risk has occurred when a loan is already 30 days past due, the conceptual basis of the standard is based on expectations of future loss, and so is forward-looking.

[52] Other approaches had been considered and rejected by the IASB. One such approach was 'dynamic' or statistical provisioning, aimed to provide an even distribution of losses through the economic cycle by requiring firms to raise more provisions in benign economic environments and release them in less favourable conditions. The IASB concluded that, since the economic cycle rather than the specific attributes of the asset in question would govern provisions, such an approach "would result in an allowance for credit losses that does not reflect the economic characteristics of the financial assets at the measurement date" and therefore was not appropriate for accounting purposes. IFRS Foundation (2009) Basis for Conclusions, Exposure Draft ED 2009/12. Amortised Cost and Impairment. The approach also necessarily involves an estimation of the economic cycle, and where the severity of a crisis is greater than predicted (such as in the years following 2008), can still result in large one-off losses.

[53] Basel Commission on Banking Supervision.[26]

[54] Bushman, R.M. and Williams, C.D. (2012) Accounting discretion, loan loss provisioning, and discipline of Banks' risk-taking. Journal of Accounting and Economics 54(1):1-18.

[55] This is the case in principle even where loans are assessed on a portfolios basis: the objective of the portfolio assessment is to estimate losses that have already been incurred.

[56] As noted above, the incurred loss model may have in practice given rise to higher provisions in some jurisdictions due to differences in how the accounting rules are applied. The US affords an example of a jurisdiction where incurred loss methodology has sometimes resulted in higher provisions in practice. The incurred loss model also allows firms to assess losses on a portfolio basis, where it may not be possible to identify in each case the NPLs from which those provisions arise – thus in practice some of the provision can relate to loans outside the NPL population. However, this stylised diagram represents the relationship in theory between incurred loss provisions and NPLs.
[57] Beck, P.J. and Narayanamoorthy, S. (2013) Did the SEC impact banks' loan loss reserve policies and their informativeness? Journal of Accounting and Economics 56:42-65. Beatty and Liao.[48] Hasan, I. and Wall, L.D. (2004) Determinants of the Loan Loss Allowance: Some Cross Country Comparisons. Financial Review 39:129-152. Laeven and Majnoni.[18,33]. Borio *et al*.[17]
[58] The exact mechanism by which this works depends on the interaction of the relevant accounting framework with bank capital rules. The Basel Committee has established a Task Force on Expected Loss Provisioning which is looking further into this area. At a high level, however, it is correct to say that an increase in provisions results in lower capital levels.
[59] One method by which regulators have sought to address the risk that banks may be incentivised not to provision adequately is through the use of dynamic provisioning. To counter the risk that banks might under-provision when credit is expanding and then become over-conservative in a downturn, they are required by the regulator to provision in line with estimates of long-run, or through-the-cycle expected losses. Sometimes the regulator provides a model based on its own historical credit loss data for this purpose. The use of dynamic provisioning is set to decline owing to the introduction of IFRS 9, which is explicit that point-in-time estimates are required.
[60] The amount of such an add-back, which usually only applies to 'general' provisions rather than those designated against specific assets, is usually limited to a certain percentage of risk-weighted assets. Ng, J. and Roychowdhury, S. (2014) Do Loan Loss Reserves Behave like Capital? Evidence from Recent Bank Failures. Review of Accounting Studies 19:1234-1235.
[61] There are the well-known positions taken at the American Bankers Association meeting on March 17, 2010, by the (then) Comptroller of the Currency John Dugan and the Federal Deposit Insurance Corporation (FDIC) Chairperson Sheila Bair. John Dugan argued for the relaxation of restrictions on the inclusion of loan loss reserves as capital, to encourage banks to report adequate and timely reserves. In contrast, Sheila Bair contested this view, arguing that "letting more reserves count [towards capital] could dramatically, in our view, dilute the quality of capital". Ng and Roychowdury.[60]
[62] Ng and Roychowdury.[60,61]
[63] For example, for collateralised lending, provisions under US GAAP and IFRS are net of the recoveries on liquidating collateral. So when the provisions are compared to the gross amount of the non-performing loan, they can be adequate even if less than 100% if there is adequate collateral.
[64] Beatty and Liao.[48,57]
[65] In 2002, the US Federal Deposit Insurance Corporation (FDIC) stated that, "while historical loss experience provides a reasonable starting point, historical losses, or even recent trends in losses, are not by themselves, a sufficient basis to determine an adequate level. Management should also consider any factors that are likely to cause estimated losses to differ from historical loss experience." Furlong, F. and Knight, Z. (24 May 2010) Loss provisions and bank charge-offs in the financial crisis: lesson learned. FRBSF Economic Letter 2010-16.
[66] Laeven and Majnoni.[18]
[67] We follow the well-known convention that losses are converted into positive values and the distribution function for losses is given as a right tailed distribution. Dowd, K. (2002) Measuring Market Risk. New York: Wiley.
[68] Jassaud and Kang also cite a lack of tax rebates on losses in Italy, and also that the current accounting standard in Europe (IAS 39) is not explicit on exactly when and how to write off uncollectible loans. Jaussad, N. and Kang, K. (2015) A Strategy for Developing a Market for Nonperforming Loans in Italy. IMF Working Paper No. 15-24. On April 2016, Italian Parliament enacted the Law No 49 of 14.2.2016, converting Law Decree No 18/2016 providing for a State Guarantee for NLPs securitization transactions. The Law No 49/2016 provides for a State guaranty covering, subject to certain conditions, the reimbursement of senior notes issued within securitization transactions of non-performing loans.
[69] Nkusu, M. (2011) Nonperforming loans and macrofinancial vulnerabilities in advanced economies. IMF Working Papers No. 1-27. Espinoza, R.A. and Prasad, A. (2010) Nonperforming loans in the GCC banking system and their macroeconomic effects. IMF Working Papers No. WP/10/224:1-24.
[70] Billings and Capie.[40,48]
[71] Bholat, D. and Gray, J. (2013) Organizational Form as a Source of Systemic Risk. Economics 7, http://dx.doi.org/10.5018/economicsejournal.ja.2013-27.

[72] The market would also include further discounts for illiquidity and/or uncertainty in a downturn environment. Other market factors such as interest rates could have a positive or negative effect.
[73] Up to now firms have classified financial instruments as either loans at amortised cost (or securities held to maturity), available for sale, or held for trading. Going forward, under a new international accounting standard IFRS 9, banks will classify financial assets such as loans based on two criteria. The first is the firm's business model for managing the financial asset. The second is the nature of the contractual terms governing the cash flow. If, as is the case with most loans, a bank carries the asset on their balance sheet to collect the contacted cash flow and these specify repayment of principal and interest, then the asset will be measured at amortised cost and changes in value will not be recognised unless the asset is sold or reclassified, with the exception of impairments. Weil, R.L. et al (2014) Financial Accounting: An Introduction to Concepts, Methods and Uses. South-Western: Cengage Learning.
[74] Sunley, E.M. (2003) Corporate Income Tax Treatment of Loan-Loss Reserves. In: Patrick Honohan (ed.) Taxation of Financial Intermediation Theory and Practice for Emerging Economies. Washington, DC: World Bank and Oxford University Press, pp. 291–292.
[75] Weil *et al.*[73]
[76] The Japanese 'lost decades' and the recent Great Financial Crisis (GFC) are cases in point. Hoshi, T. and Kashyap, A. (2008) Will the US Bank Recapitalization Succeed? Lessons from Japan. NBER Working Paper 14401. Caballero, R.J. et al (2006) Zombie Lending and Depressed Restructuring in Japan. National Bureau of Economic Research Working Paper No. 12129: 1943-1977. Peek, J. and Rosengren, E. (1995) Bank regulation and the credit crunch. Journal of Banking and Finance 19: 679-692.
[77] Banco Central de la República Argentina (December 2014) Prudential Regulations, http://www.bcra.gob.ar/SistemasFinancierosYdePagos/Marco_normativo_i.asp.
[78] Australian Prudential Regulation Authority (January 2015) Prudential Standard APS 220 Credit Quality, http://www.apra.gov.au/CrossIndustry/Documents/141120-APS-220.pdf.
[79] Banco Central do Brasil (17 August 2015, personal communication).
[80] Office of the Superintendent of Financial Institutions (December 2014) Financial Statements, http://www.osfi-bsif.gc.ca/Eng/osfi-bsif/rep-rap/qfr-rft/Pages/default.aspx.
[81] China Banking Regulatory Commission (2014) Supervision Statistics of Q2, http://www.cbrc.gov.cn/chinese/files/2014/A2726BEBE1AA406BB5CAC4ADA3875D35.pdf.
[82] Autorité de contrôle prudentielet de résolution (14 August 2015, personal communication).
[83] BundesanstaltfürFinanzdienstleis-tungsaufsicht (2014) Annual Report, http://www.bafin.de/SharedDocs/Downloads/EN/Jahresbericht/dl_jb_2012_en.pdf?__blob=publicationFile; ECB (September 2016) Stocktake of national supervisory practices and legal frameworks related to NPLs, https://www.bankingsupervision.europa.eu/legalframework/publiccons/pdf/npl/stock_taking.en.pdf.
[84] Reserve Bank of India (1 July 2015) Master Circular - Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances,
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/101MC16B68A0EDCA9434CBC239741F5267329.PDF
[85] Bank Indonesia (11 August 2015, personal communication).
[86] Bank of Italy (July 2013) The recent Asset quality review on non-performing loans conducted by the Bank of Italy: Main features and results, http://www.bancaditalia.it/media/approfondimenti/2013/analisi-prestiti-deteriorati/Asset_quality_review.pdf?language_id=1; ECB (September 2016) Stocktake of national supervisory practices and legal frameworks related to NPLs,
https://www.bankingsupervision.europa.eu/legalframework/publiccons/pdf/npl/stock_taking.en.pdf.
[87] Financial Services Agency (June 2014) Inspection Manual for Deposit-Taking Institutions, http://www.fsa.go.jp/en/refer/manual/yokin_e/y-all.pdf.
[88] The Bank of Korea (21 August 2015, personal communication).
[89] Banco de México (2014) Financial System Report, http://www.banxico.org.mx/publicaciones-y-discursos/publicaciones/informes-periodicos/anual/index-en.html.
[90] Central Bank of the Russian Federation (30 September 2015, personal communication).
[91] Saudi Arabian Monetary Agency (April 2008) Guidance On Application Procedures for Adoption of the IRB Approach by Banks Licensed in Saudi Arabia, http://www.sama.gov.sa/en-US/Laws/Documents/6.%20SAMA%20Circular%20concerning%20Revised%20Guidance%20Document/2.%20SAMA%20Revised%20Basel%20II%20II.5%20and%20III%20regulations%20and%20guidance.pdf.
[92] South African Reserve Bank (2014) Directive 9/2014 issued in terms of section 6(6) of the Banks Act (Act No. 94 of 1990), https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/6538/D9%20of%202014.pdf.
[93] Central Bank of the Republic of Turkey (11 August 2015, personal communication).

[94] Financial Services Authority (October 2011) Forbearance and Impairment Provisions – Mortgages, https://www.fca.org.uk/publication/finalised-guidance/fg11_15.pdf.
[95] Federal Reserve Bank of New York (2013) Quarterly Trends for Consolidated U.S. Banking Organizations First Quarter 2013, https://www.newyorkfed.org/research/banking_research/quarterly_trends.html.
[96] European Banking Authority (July 2014) FINAL draft Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013, https://www.eba.europa.eu/documents/10180/449824/EBA-ITS-2013-03+Final+draft+ITS+on+Forbearance+and+Non-performing+exposures.pdf.
[97] A nonaccrual loan is a NPL that has not generated its stated interest rate in the 90 days due date, but may not yet be classed as an impaired one for which collateral value has fallen below the value of interest and principal. Further interest income is usually not accrued on these loans.
[98] For example, the bank uses terms such as 'substandard' or 'doubtful' for deteriorated loans or 'write off' where legal measures have been exhausted, and/or has other set criteria based on number of days past due.
[99] Agricultural Bank of China (24 March 2015) 2014 Annual Results Announcement Report, http://www.abchina.com/en/AboutUs/annual-report/201603/P020160405603491905726.pdf.
[100] Bank of America (11 March 2015) 2014 Annual Report, http://investor.bankofamerica.com/phoenix.zhtml?c=71595&p=irol-reportsannual#fbid=RhTgal6Ri9h.
[101] Bank of China (25 March 2015) 2014 Annual Report, http://pic.bankofchina.com/bocappd/report/201604/P020160427507129146288.pdf.
[102] Bank of New York Mellon (27 February 2015) 2014 Annual Report, https://www.bnymellon.com/_global-assets/pdf/investor-relations/annual-report-2014.pdf.
[103] Barclays (2 March 2015) Annual Report 2014, https://www.home.barclays/annual-report-2014.html.
[104] BBVA (4 February 2015) Consolidated financial statements, management report and auditors' report 2014, http://shareholdersandinvestors.bbva.com/TLBB/tlbb/bbvair/ing/financials/reports/index.jsp.
[105] BNP Paribas (6 March 2015) 2014 Registration document and annual financial report, https://invest.bnpparibas.com/sites/default/files/documents/ddr_2014_gb.pdf.
[106] Citigroup Inc. (25 February 2015) 2014 Annual Report, http://www.citigroup.com/citi/investor/quarterly/2015/ar14c_en.pdf?ieNocache=156.
[107] Credit Suisse (March 2015) Annual Report 2014, https://www.credit-suisse.com/media/assets/corporate/docs/about-us/investor-relations/financial-disclosures/financial-reports/csgag-csag-ar-2014-en.pdf.
[108] Deutsche Bank (March 2015) Annual Review 2014, https://www.db.com/ir/en/download/Deutsche_Bank_Annual_Report_2015.pdf.
[109] Goldman Sachs (20 February 2015) 2014 Annual Report, http://www.goldmansachs.com/investor-relations/financials/current/subsidiary-financial-info/gs-bank-financials-2014.pdf.
[110] Groupe BPCE (18 March 2015) 2014 Registration document and full-year financial report, http://www.groupebpce.fr/en/Investors/Results/Registration-documents.
[111] Group Crédit Agricole (20 March 2015) Annual Financial Report 2014, https://www.credit-agricole.com/var/storage/original/application/87d362ebdaad1c81441a050698d30851.pdf.
[112] HSBC (23 February 2015) Annual Report and Accounts 2014, http://www.hsbc.com/-/media/hsbc-com/investorrelationsassets/annual-results-2014/hsbc-holdings-plc/a.
[113] Industrial and Commercial Bank of China Limited (26 March 2015) Annual Report 2014, http://v.icbc.com.cn/userfiles/Resources/ICBC/haiwai/Mumbai/download/2015/ICBC_Mumbai_Annual_Report_20142015.pdf.
[114] ING Group (March 2015) Annual Report 2014, https://www.ing.com/Investor-relations/Annual-Reports.htm.
[115] JP Morgan Chase & Co. (8 April 2015) Annual Report 2014, https://www.jpmorganchase.com/corporate/investor-relations/document/2015-annualreport.pdf.
[116] Mitsubishi UFJ FG (18 July 2014) Annual Report 2014, http://www.mufg.jp/ir/annualreport/2014mufg/pdf/mar/cr_all.pdf.
[117] Mizuho FG (23 July 2015) Annual Report 2014 on Form 20-F, https://www.mizuho-fg.com/investors/financial/sec/form20f.html.
[118] Morgan Stanley (2 March 2015) 2014 Annual Report on Form 10-K, https://www.morganstanley.com/about-us-ir/pdf/2014_MS_10-K_Final_Clean_Bannerless.pdf.
[119] Nordea (5 February 2015) Annual Report 2014, https://www.nordea.com/Images/36-102773/2015-12-31_Annual-Report-2015-Nordea-Bank-AB_EN.pdf.

[120] Royal Bank of Scotland (25 February 2015) Annual Report and Accounts 2014, http://investors.rbs.com/~/media/Files/R/RBS-IR/2014-reports/annual-report-2014.pdf.
[121] Santander (March 2015) Annual Report 2014, http://www.santanderannualreport.com/2016/sites/default/files/informe_anual_eng_acce.pdf.
[122] Société Générale (4 March 2015) Annual Financial Report 2014, https://www.societegenerale.com/en/measuring-our-performance/information-and-publications/financial-results.
[123] Standard Chartered (4 March 2015) Annual Report 2014, https://www.sc.com/in/assets/pws/pdf/Annual-Report-2014-15.pdf.
[124] State Street (23 March 2015) 2014 Annual Report to Shareholders, http://investors.statestreet.com/Cache/28828283.PDF?O=PDF&T=&Y=&D=&FID=28828283&iid=100447.
[125] Sumitomo Mitsui FG (August 2015) Annual Report 2015, http://www.smfg.co.jp/english/investor/library/annual/cy2015annu_eng_smfg.html.
[126] UBS (13 March 2015) Annual Report 2014, https://www.ubs.com/content/dam/static/global/investor_relations/annual2014/annual-report-group-and-ubs-ag-2014-en.pdf.
[127] Unicredit Group (12 March 2015) 2014 Consolidated Reports and Accounts, https://www.unicreditgroup.eu/content/dam/unicreditgroup-eu/documents/en/investors/financial-reports/2014/2014-Consolidated-Reports-and-Accounts.pdf.
[128] Wells Fargo (1 February 2015) 2014 Annual Report, https://www08.wellsfargomedia.com/assets/pdf/about/investor-relations/annual-reports/2014-annual-report.pdf.