



BANK OF ENGLAND

Staff Working Paper No. 594

Non-performing loans: regulatory and accounting treatments of assets

David Bholat, Rosa Lastra, Sheri Markose,
Andrea Miglionico and Kallol Sen

April 2016

Staff Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate. Any views expressed are solely those of the author(s) and so cannot be taken to represent those of the Bank of England or to state Bank of England policy. This paper should therefore not be reported as representing the views of the Bank of England or members of the Monetary Policy Committee, Financial Policy Committee or Prudential Regulation Authority Board.



BANK OF ENGLAND

Staff Working Paper No. 594

Non-performing loans: regulatory and accounting treatments of assets

David Bholat,⁽¹⁾ Rosa Lastra,⁽²⁾ Sheri Markose,⁽³⁾ Andrea Miglionico⁽⁴⁾ and Kallol Sen⁽⁵⁾

Abstract

Asset quality is an essential part of sound banking. However, asset quality is difficult for banking regulators and investors to assess in the absence of a common, cross-border scheme to classify assets. Currently no standard is applied universally to classify loans, the most sizable asset on many banks' balance sheets. As a corollary, no common definition of non-performing loans (NPLs) exists. This paper documents divergences in the definition of NPLs across countries, accounting regimes, firms and data sources. The paper's originality is in attending to the legal, accounting, statistical, economic and strategic aspects of loan loss provisioning (LLP) and NPLs, topics that are multidisciplinary by nature but have not been dealt with in the literature in an integrated fashion before. Since the 2007 Great Financial Crisis (GFC), accounting bodies and prudential regulators are increasingly focused on early recognition of credit losses and enhanced disclosure. A common approach to NPL recognition might complement these initiatives.

Key words: Non-performing loans, impairment, loan loss provisions, bank capital, data standards, credit risk.

JEL classification: G01, G21, M41.

(1) Bank of England. Email: david.bholat@bankofengland.co.uk

(2) Queen Mary University. Email: r.lastra@qmul.ac.uk

(3) University of Essex. Email: scher@essex.ac.uk

(4) University of Reading. Email: a.miglionico@reading.ac.uk

(5) Bank of England. Email: kallol.sen@bankofengland.co.uk

The views expressed in this paper are those of the authors, and not necessarily those of the Bank of England. We are grateful to Matthew Everitt and Eric Tan for assistance on this paper. We also thank Remi Boutant, Paul Ebling, Paul Robinson, Andi Joseph, Pedro Santos and Matthew Willison for their comments on a draft. We also appreciate the opportunity to have presented our paper at an EBA seminar organised by Dimitrios Laskos, and at an LSE seminar chaired by Charles Goodhart. Thanks also to Vicky Fitzpatrick at Bureau van Dijk for the data from Bankscope and Matthew Karwacki and his colleagues at *The Banker* magazine for their data.

Information on the Bank's working paper series can be found at
www.bankofengland.co.uk/research/Pages/workingpapers/default.aspx

Publications Team, Bank of England, Threadneedle Street, London, EC2R 8AH
Telephone +44 (0)20 7601 4030 Fax +44 (0)20 7601 3298 email publications@bankofengland.co.uk

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 it, the three institutions noted that “reducing the excessive levels of NPLs [non-performing loans] remains the number one priority” for economic recovery in the country (European Commission, ECB and IMF 2015). Their statement underscores the central role NPLs have played in recent financial crises, including those in Cyprus and in Greece. According to data from *The Banker* database, which tracks banks in more than 190 jurisdictions representing 90 percent of the world’s total banking assets, six of the top ten banks when it comes to non-performing loans as a percentage of their overall gross loan portfolio are based in Greece or Cyprus.¹ The prominence of NPLs in today’s crises is nothing new. On the contrary, NPLs are a recurring feature of economic and banking crises. Hence their definition, valuation, and mitigation are a crucial and enduring policy issue for central banks.

At the most general level, a NPL is a loan where a borrower is not making repayments in accordance with contractual obligations. NPLs are impaired when the amount expected to be repaid falls below the contracted value carried on bank’s balance sheet. When this happens, loan loss provisions (LLPs) are made. LLPs are an accounting deduction. This accounting deduction amounts to the difference between the money borrowers from banks have agreed to repay, and banks’ most current estimate of the amount they will actually receive.²

¹ These are the Bank of Cyprus (63%); Hellenic Bank (56.6%); Universal Savings Bank (44.5%); Piraeus Bank Group (38.8%); Eurobank Ergasias (33.4%); and Attica Bank (27.9%).

² In some jurisdictions, the provision is shown as a separate line under the gross loan number; in others, there is or will be a disclosure requirements in the notes to the account to show the provision separately, even if loans are reported net on the balance sheet. The value in reporting loans gross and provisions separately is that it gives additional insight into the credit risk banks are running than if they were netted. If, for example, loans were only reported net of provisions, with no additional information, then there would be no way to discern from the

But beyond this general definition, the specific criteria for loans to be classed either as ‘impaired’ or as ‘non-performing’ vary across jurisdictions and firms, and within firms and across time. As a corollary, the threshold for impairment and provisions is different. This matters because it makes meaningfully comparing the quality of different banks’ assets difficult. There are also wider implications. Bad lending is the root of many banking crises. These in turn often induce wider economic contractions (European Central Bank 2013). So under-provisioning for loan losses can play a significant role in contributing to the creation of crises. And uncertainty about the definition of non-performance can exacerbate them because it makes it difficult for outsiders to decide whether recapitalisation and recovery of the firm can occur.

Our paper proceeds as follows. Section 1 sets out the reasons non-performing loans often feature in banking and economic crises, and why they are often obstacles to their resolution. In this section we review the existing economics literature on the significance of NPLs to bank solvency and systemic risk. A key economic consequence of insufficient LLPs and the persistence of NPLs on bank balance sheets is the combined threat of a ‘capital crunch’ with a ‘credit crunch.’ The Japanese ‘lost decades’ and the recent Great Financial Crisis (GFC) are cases in point (Alessandri and Haldane 2009; Hoshi and Kashyap 2009; Caballero, Hoshi and Kashyap 2008; Peek and Rosengren 2005). Section 1 of the paper notes some of the challenges that the persistence of NPLs on bank balance sheets has posed post-GFC.

Section 2 of the paper shifts the level of analysis from macro to micro considerations. While early recognition and adequate provisioning for NPLs is ideal, several factors may

balance sheet a bank with £1 billion in loans with a large number of provisions and therefore poor ex-ante credit risk management, from a bank with a similar figure but few provisions and better credit risk management.

influence banks' achievement of these in practice. These include their business model, how they have classified loans, and the tax treatment of provisions. There is also a trade-off between higher levels of provisioning, and higher levels of write-offs, and equity. In this section we note how the issue of LLPs relates to recent Basel III capital requirements and international financial reporting standards such as IFRS 9.³

We think the trade-off between LLPs on the asset side of the balance sheet, and the equity of shareholders' on the claims side, is particularly important. 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.⁴ However, LLPs and shareholders' equity are more linked than these conventional descriptions of their different functions might imply. When provisions are made, the amount of assets on a bank's balance sheet is reduced. What happens on one side of the balance sheet, impacts the other side. The consequence of a reduction in asset values is lower income in the period, which in turn leads to a reduction in shareholders' equity. In the extreme, these losses can reduce shareholders' equity below the minimum required of banks by regulators in order to operate. At the limit, it can cause insolvency, with losses to the bank's creditors. Like a bank with non-performing loans on its books, these creditors may then find they are repaid less than the amount they contracted. It follows that the management of banks may be incentivised to lower the amount of provision charged, particularly when a bank is under stress.

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

³ This is the international accounting standard, effective from 2018, that governs loan loss provisioning.

⁴ 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.

term it may reduce the need to raise equity during or after a crisis when it is more difficult to do so. Following Borio, Furfine and Lowe (2001) and Laeven and Majnoni (2003), 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 in the scholarly literature on financial stability than bank capitalisation, though, as we note in the conclusion of this paper, both issues are now prominent items on the post-crisis regulatory agenda.

Section 3 of our paper then scrutinises the definition of NPLs and the coherence of NPL data. 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. Generally, at some point after the debtor starts making payments again on an NPL it becomes a re-performing loan, in some cases even if the debtor has not caught up on all the missed payments. In a sense, an NPL is either in default or close to being in default (Cortavarria, Dziobek, Kanaya and Song 2000). However, the detailed definition of an NPL is not universal (Angklomkiew, George and Packer 2009). In this section and in the appendix we document this heterogeneity across regulatory jurisdictions, among global systemically important banks (G-SIBs) and widely used commercial data sets. These differences complicate simple cross-country and cross-firm comparisons, and make accurate aggregation challenging, if not impossible.⁵

One source of this variance is that detailed accounting standards in general are a relatively recent phenomenon, and, in particular, only in recent decades has there been

⁵ The heterogeneous valuation of non-performing loans has analogies in other areas of accounting. For example, different firms under different accounting regimes may value their inventory under different assumptions about which inventory has been sold and which inventory remains. Like differences in the valuation of impairments, differences in inventory cost-flow assumptions means that firms otherwise equal in performance may diverge in terms of their income in a given reporting period.

attempts to establish international accounting standards around the calculation of LLPs and, as supplementary disclosure, the classification of loans according to credit quality. Previously, even at a national level, there were few standards. In the US, the issue of FAS 5 *Accounting for Contingencies* in 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 and Capie 2009).

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, Richardson, Rismanchi and Sen 2014). 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.

Section 4 of this paper therefore looks at the accounting treatment of non-performing loans and loan loss provisioning. Following the 2007 financial crisis, a number of voices at the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the European Banking Authority (EBA), and the International Monetary Fund (IMF) have expressed concern with the lack of international comparability of assets on banks' balance sheets, and concern about delayed recognition of losses on assets. One specific criticism

voiced about pre-crisis accounting standards for provisions⁶ is that they operated on an incurred loss model. This meant that impairment was only recognised when a loss event occurred. Such a model is by design reactive and backward-looking. Indeed some critics have argued that it fuelled pro-cyclical lending and asset price bubbles ahead of the GFC because it meant loans were under-provisioned. In the aftermath of the GFC, there has been a growing chorus calling for a more forward-looking, ‘expected loss’ model. Here this shift in provisioning best practice from probable to possible losses can be read as reflecting a broader shift in the post-crisis regulatory paradigm from thinking about quantifiable risk to a concern with uncertainty.

In many respects, the current debate about the value of forward-looking provisioning revisits an older difference of opinions between securities and banking regulators about the appropriate allowance for managerial judgement and discretion in the estimation of future losses (Camfferman 2015; Beatty and Liao 2011). Banking regulators often take the view that early provisioning is prudent. On the other hand, securities regulators, given their responsibility for ensuring the integrity of equity markets, typically have been concerned with banks using provisions 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 use to overprovision for loan losses, creating so-called ‘hidden reserves’ (Billings and Capie 2009). 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

⁶ At the time of writing, these standards are still in force under US GAAP and IFRS, but both standard-setters have committed to change. As this section concerns itself with initial reactions to the financial crisis, the past tense is used.

changes in order to show improved performance in later years (Higson 2012). Justifiable concern with these kinds of accounting policies contributed to the adoption of the ‘incurred loss’ model that dominated until the GFC.

We conclude that the early identification of, and provisioning against, problem loans, as well as greater transparency that ensures a better understanding by bank management, regulators, the market, and others of overall loan quality, are key in enabling the bank itself and external parties to understand where risk might be building up in bank balance sheets, and where necessary holding adequate capital or provisioning against them. This in turn can assist both in lowering the probability of bank crises, and in mitigating their effect when they arise.

We note that, since the GFC, policymakers have reformed the framework around loan loss provisioning in order to enable earlier recognition of loss. However, the context around accounting provisions, including an understanding of how a loan portfolio is classified according to credit quality, is at least as important as the provisions themselves in understanding a bank’s overall health. We encourage further work by policymakers in this area to develop universally accepted criteria around how asset quality in banks is understood.

1. The systemic impact of NPLs

This section takes its cue from Minsky’s (2008) schema regarding the seeds of financial and banking crises. Both Minsky and subsequent researchers have accumulated evidence showing that excessive credit growth and leverage often precede banking crises, signalled by a rapid growth in the rate of loans relative to deposits; that these lending booms lead to non-performing loans; and that NPLs are then major stumbling blocks to economic

recovery (Davis and Karim 2008; Demirgüç-Kunt and Detragiache 2005; Borio and Lowe 2002; Demirgüç-Kunt 1989). A rise in the number of non-performing loans is bad news all round. As NPLs rise, so do the funding costs for banks with bad loans on their books. These costs often are then passed onto firms and households, potentially slowing economic growth as credit contracts (European Banking Coordination Vienna Initiative 2012). In the extreme, systemic failures can occur when NPLs lead to bank and borrower insolvencies, with negative effects on third parties through direct inter-linkages, and indirect effects as asset prices decline in the course of liquidations (USAID 2011), and overextended borrowers refrain from spending, reducing income down the line for others, including even for those that are not heavily indebted (Mehrling 2010).

Factors in banking crises

There are three common factors in banking crises that map onto the three components of balance sheets (assets, liabilities, and equity). The first factor is too little funding from equity to absorb losses. This is often termed the problem of *excess leverage* (a high ratio of total assets relative to equity). The second common factor is a high proportion of liabilities funded on a short-term basis in wholesale markets where liquidity can dry up quickly. This is often termed the problem of *maturity mismatch and illiquidity* (short-dated liabilities funding long-term assets). Finally, a third common factor in banking crises is a decline in the value of banks' assets brought about by a chase for yield. On most banks' books, this problem manifests itself as *non-performing loans*.

In fact, the problem of non-performing loans and overall asset quality has played a central role in the models of financial instability proposed by many distinguished economists. Hyman Minsky, for example, argued that many banking crises have their root in declining

lending standards when banks seek to increase profits. According to Minsky, at some point in the lending cycle, a critical threshold is reached when the only way to accommodate further growth in assets is to allow the quality of those assets to decline. At this stage, the banking system transitions from *cash flow banking*, that is, banking proper, in which loans are made according to the value of the expected cash flow from productive investments, to *collateral-oriented banking*—essentially pawn brokering—in which loans are granted based on the value of their underlying security (Minsky 1986). Asset quality then becomes dangerously susceptible to a decline in the price of the underlying collateral. And at the peak of lending booms just before they go bust, Minsky argued that some banks start to engage in *Ponzi banking*, granting loans that they are doubtful will be repaid, but are still originated because the loans can be sold. In the most recent crisis, this ‘Minsky moment’ took shape through the securitisation of loans and their sale to off-balance sheet conduits and special purpose vehicles (Wray 2011).

Post GFC Trends in NPLs

Table 1 presents data from the World Bank on the ratio of gross non-performing loans as a percentage of gross total loans (hereafter the NPL ratio) in various countries (Bloem and Gorte 2001). 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 (World Bank 2015).⁷ With that caveat in mind, the data nevertheless indicate the direction of travel, a growing

⁷ 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.

divergence in NPLs across countries that help explain differences in these economies' recent performances, although causality runs both ways.⁸

Initially, 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 reported a larger NPL ratio than other, smaller lending institutions. Their asset portfolio deteriorated through direct holdings of real estate loans, and through exposure to residential mortgage backed securities (RMBS), and credit derivatives based on them (Markose, Giansante and Shaghghi 2012). These assets

⁸ Even in countries often seen as having experienced a rather benign version of the GFC, NPLs have risen (King, Kitson, Konzelmann and Wilkinson 2012). For example, in Canada, NPLs have more than doubled in recent years (Allen, Boffey and Powell 2012).

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central Europe and the Baltics	9.5	7.0	3.9	3.7	2.6	2.3	2.5	2.3	2.8	6.4	10.0	12.3	13.8	11.6	8.2
Cyprus									3.6	4.5	5.8	10.0	18.4	38.6	45.4
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	6.0	4.6	4.5
Euro area	3.7	2.9	3.0	2.5	2.3	1.8	1.3	1.8	2.8	4.8	5.4	6.0	7.5	7.9	8.3
European Union	4.6	3.3	2.9	2.6	2.3	2.0	1.8	2.2	2.8	4.7	5.4	5.8	6.7	6.4	8.2
EuroZone Periphery	4.9	3.3	3.7	3.6	4.1	3.2	2.9	2.9	3.8	6.6	8.0	11.0	16.3	22.1	22.6
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	5.0	4.1	5.0	4.8	4.2	3.5	3.0	2.7	2.8	4.0	3.8	4.3	4.3	4.5	
Germany	4.7	4.6	5.0	5.2	4.9	4.1	3.4	2.7	2.9	3.3	3.2	3.0	2.9	2.7	
Greece	12.3	5.6	7.4	7.0	7.0	6.3	5.4	4.6	4.7	7.0	9.1	14.4	23.3	31.9	34.3
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	1.0	1.0	1.0	0.9		0.5	0.5	0.6	1.9	9.8	13.0	16.1	25.0	25.7	18.7
Italy	7.8	6.7	6.5	6.7	6.6	7.0	6.6	5.8	6.3	9.4	10.0	11.7	13.7	16.5	17.3
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	2.0	1.5	1.2	0.8		1.7	3.2	2.8	2.7	3.1	3.2	3.1
Norway	1.2	1.3	2.0	1.6	1.0	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	2.0	1.5	1.3	1.4	1.9	3.3	3.3	3.4	3.2	3.1	3.1
Portugal	2.2	2.2	2.3	2.4	2.0	1.5	1.3	2.8	3.6	4.8	5.2	7.5	9.8	10.6	11.2
Spain	1.2	1.2	1.1	1.0	0.8	0.8	0.7	0.9	2.8	4.1	4.7	6.0	7.5	9.4	8.5
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	0.6
Switzerland	4.1	2.3	1.8	1.3	0.9	0.5	0.3	0.3	0.9	1.0	0.9	0.8	0.8	0.8	
United Kingdom	2.5	2.6	2.6	2.5	1.9	1.0	0.9	0.9	1.6	3.5	4.0	4.0	3.6	3.1	2.7
United States	1.1	1.3	1.4	1.1	0.8	0.7	0.8	1.4	3.0	5.0	4.4	3.8	3.3	2.5	2.0
US BHS >\$500bn#	1.2	1.4	2.0	1.9	1.4	1.3	1.0	1.0	3.0	7.2	6.7	5.5	5.3	4.5	

Table 1: Non-Performing Loan Ratios in Selected Countries

Sources: World Bank <http://data.worldbank.org/indicator/FB.AST.NPER.ZS/countries>.

New York Fed: http://www.newyorkfed.org/research/banking_research/QuarterlyTrends2013Q2.pdf

Ratio of bank non-performing loans to total gross loans is the value of non-performing loans (gross value of the loan as recorded on the balance sheet) expressed as a percentage of the total value of the loan portfolio (including non-performing loans 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.



also provided the channels for cross-border contagion (Allen, Boffey and Powell 2012). Over the course of the crisis, Western European banks suffered large losses from impaired US RMBS (IMF 2009). In this respect, the current crisis is different from those faced by the Western world in the recent past that had external triggers, manifesting when balance of payment problems in developing countries resulted in non-performing loans on the balance sheets of big American and European banks.⁹

While those American and Western European banks with exposure to US RMBS experienced considerable asset quality deterioration in the initial phases of the GFC (Allen, Boffey and Powell 2012), NPL figures are now trending downward. By contrast, countries on the periphery of the Eurozone, and Central, Eastern and Southeastern European (CESEE) countries are still experiencing very high levels of NPLs which have continued to increase in 2014/2015 (Cavalier 2014; Skarica 2014; European Banking Coordination Vienna Initiative 2012; and Klein 2013). From Table 1, we see that, for example, in Greece, the ratio of NPLs to total loans is estimated to have risen from 6.3 percent in 2005 to 34.3 percent in 2014. In Italy it has been estimated that the NPL ratio in 2014 was 17 percent of all loans totalling €160 billion (Jaussad and Kang 2015). In Romania and Serbia, the NPL figure has been quoted to be as high as 22 percent, and it is estimated to be 15 percent in Croatia (Fitzgeorge-Parker 2014). In sum, NPLs remain elevated in double digits on the periphery of the Eurozone, where the financial crisis morphed into a sovereign debt crisis and the economies have experienced prolonged recession and austerity. In contrast, many have claimed that measures taken by authorities in the US, UK, and the core of the Eurozone have helped to hasten GDP recovery and curtail NPLs (Rogoff 2015).

⁹ See Eichengreen, Rose, Wyplosz, Dumas and Weber (1995) and Kaminsky and Reinhart (1999) for the classic findings.

Given the observed link between the rise of NPLs and current and past crises, a growing economics literature has tried to find statistically significant indicators of non-performing loans. Broadly, this literature can be split between research on firm-level indicators, and research on wider macro-economic conditions. Key bank-specific factors tested for their correlation with NPLs include leverage (assets-to-equity), profitability (for example, net interest margin and return on assets) and efficiency (for example, cost-to-income) ratios. Since leverage is an indicator of banks' solvency and risk appetite, many scholars have found that lower capitalisation is correlated with higher levels of non-performing loans (Salas and Saurina 2002; Keeton and Morris 1987). The link between profitability and non-performing loans is more equivocal. If profitability reflects the quality of the firm's asset management, then this might indicate that the bank will generate fewer non-performing loans, as found by Klein (2013). Profits flow into retained earnings and this strengthens the capital position of banks. Alternately, higher profits (greater reward) might reflect greater riskiness and therefore higher non-performing loans in due course. The relationship between cost efficiency and NPLs may be similarly double-edged. A low cost-to-income ratio may indicate a firm that is efficient, including in loan origination (Louzis, Vouldis and Metaxas 2010; Podpiera and Weill 2008; Williams 2004; Berger and DeYoung 1997). Yet it could also indicate that the firm is making insufficient investment in its underwriting process that will lead to NPLs in the future (Rossi, Schwaiger and Winkler 2005).

Besides bank-specific factors, another strand of literature tests the statistical relationship between macroeconomic conditions and NPLs. Many studies show a correlation between declines in GDP (Bech, Jabubik and PiloIU 2013) and increases in unemployment, on the one hand, and NPLs on the other (Fofack 2005; Dhal and Rajan 2003). The likely reason is because

both of these macro variables signal lower national income from which loans can be repaid (Klein 2013).¹⁰ This is also why current account deficits are sometimes found to have a link with NPLs, especially in countries that rely heavily on external trade as a source of national income. Other studies find that currency depreciation is correlated with NPLs. Bringing these factors together, Jakubik and Reininger (2013) propose a model based on their empirical studies of NPLs in CESEE countries but perhaps with broader application, and with echoes of Minsky:

In boom times, the national economy is characterized by high, possibly overheating GDP growth amid a benign international environment in which financial investors have a positive perception of future financial and economic developments in the country concerned, leading to higher national stock index levels, nominal appreciation of the national currency...and lower nonperforming loans. But then credit to the private sector starts outpacing GDP growth. This leads to loosening underwriting standards. When the boom ends, there is a fall in the stock market, GDP slows down, currency depreciates, and NPLs rise (Jakubik and Reininger 2013).

The balance sheet counterpart of a rise in NPLs on the assets side is an eventual diminution to bank capital on the claims side. This is particularly the case if a firm's proportion of LLPs to NPLs (coverage ratio) is low (Beatty and Liao 2011; Fitch 2009). 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).¹¹ If this is not so, then 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 minima required. At that point, banks might have to recapitalise when they and the wider system are in crisis. 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

¹⁰ The link between inflation and NPLs is ambiguous. As Klein notes, although high inflation reduces the real value of debts, it may also reduce obligors' real income for repayment of those debts if wages are sticky.

¹¹ 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.

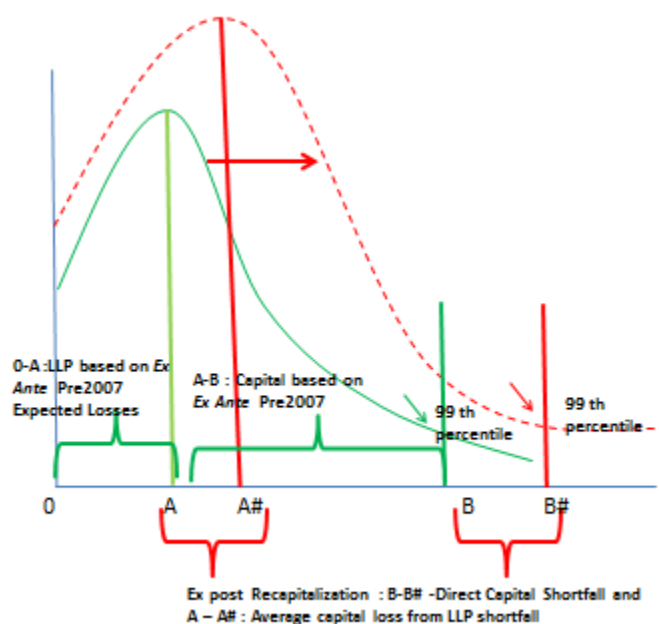
conditions may be poor. As a general rule of thumb then, bank recapitalisation during a crisis is second best to higher LLPs before they occur. Conversely, delayed loan loss recognition and low LLPs during boom conditions exacerbate pro-cyclical lending (Beatty and Liao 2011). And delays in LLP recognition 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.

However, the 2007 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 (Furlong and Knight 2010).¹² Figure 1, based on the stylized framework of Laeven and Majnoni (2003), compares an *ex ante* loan loss distribution function¹³ (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

¹² In 2005, 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.”

¹³ 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 (see, Dowd 2002).

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.



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.

2. Strategic trade-offs from provisioning for NPLs

Given the potential systemic consequences that can result from NPLs, higher levels of loan loss provisioning and their early recognition would seem desirable. However, adequate provisioning for NPLs requires factoring in the complex strategic choices banks face when making provisioning decisions. This section discusses some of these (see also Beck and Narayanamoorthy 2013; Beatty and Liao 2011; Hasan and Wall 2004; Laeven and Majnoni 2003; Borio, Furfine and Lowe 2001). They 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. Although we only treat these issues at a conceptual level in this paper, our ambition in future work is to model them formally; for example, by developing an agent-based stress testing framework of G-SIBs to analyse how banks can optimally balance the demands for dynamic, forward-looking loan loss provisions against increased capital requirements, and constraints on the size of total general provisions and countercyclical capital.

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.¹⁴ 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.

Whilst LLPs reduce retained earnings in all cases, some provisions can qualify for an "add-back" to Tier 2, or a lower tier, of regulatory capital, subject to certain constraints¹⁵ (Ng and Roychowdhury, 2013). The availability of such an add-back may in some cases influence banks' decision-making. While there has been considerable debate on whether the constraints in place on adding back provisions into capital will adversely affect banks from making timely and adequate forward provisions for losses,¹⁶ limited research exists to confirm or deny this hypothesis. In a

¹⁵ 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.

¹⁶ 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)

related 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 will lead these banks to lower loan loss provisions. Ng and Chowdhury (2013) have argued that an increase in capital, especially in the form of “add backs” from LLPs, increases pro-cyclical lending rather than decreases it.

Write-offs

Another trade-off that exists is 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 the 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 some loans tend to have higher provisions as a proportion of the gross amount of the loan, it follows that a bank that elects 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 did not. 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. So there is an incentive for banks to not write-off highly provisioned loans even if they should. For example, Jassaud and Kang (2015) claim that one reason why Italian banks

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 2013).

have delayed writing-off NPLs is that these would lower their overall provisioning ratio and possibly their external credit rating.¹⁷ Yet, the persistence of NPLs on bank balance sheets is a key reason for delay in the recovery from the GFC (Nkusu 2011; Espinoza and Prasad 2010).

Business models

The level of LLPs on a bank's balance sheet will reflect its level of non-performing and impaired loans. These in turn reflect a firm's chosen business model. Some banks' business models are more risky than others. At one end of the spectrum are conservative banks who 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 (Billings and Capie 2001).

By contrast, in recent decades, UK banks have increased their risk appetite in pursuit of greater financial reward. As a result, there is now a greater tolerance for some level of credit risk, NPLs, and LLPs if it is 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 less than the amount promised to be repaid in the loan contract. The result is a more risky financial system but also a more profitable and credit abundant one (Bholat and Gray 2013).

¹⁷ 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.

Accounting classification

Related to the issue of banks' business models is how they classify their loans. 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 may in turn be shown at fair market value on the balance sheet. Although the economic effect of losses on loans is the same for banks however they are categorised, the actual accounting label they are given impacts where and when provisions and losses are reported in financial statements. Where loans are at fair value, the amount of credit loss that is charged to the income statement equals the market expectation of loss, rather than that of the entity itself. In an economic downturn, the market expectation might be more severe, sometimes significantly, than the bank's own expectation, 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.¹⁸

Tax treatment

Finally, another issue bearing on how NPLs are provisioned for is their tax treatment. The tax treatment of accounting provisions varies by jurisdiction. In some places, all accounting provisions are allowable for offset against taxable income. In others, only certain types of

¹⁸ 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 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 fair value will not be recognised unless the asset is sold or reclassified, with the exception of impairments. Otherwise financial assets are measured at fair value, with changes in their saleable value reflected in gains or losses during the reporting period when they occur (Weil, Schipper and Francis 2012: 533-534).

provision are allowable, usually in cases where a loss is more certain (Sunley 2003). And still other 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.

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. However, if, for example, tax rates fall in the future, 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 (Weil, Schipper and Francis 2014). 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 simply that there are tax implications that must be factored into thinking about loan loss provisioning.

3. Divergences in the definition of NPLs

So far, we have assumed that the meaning of NPLs is obvious and required no further elaboration. In fact, nothing is further from the truth. As this section notes, there may be material divergences in how regulators, firms and commercial vendors calculate these figures.

Regulatory treatment

An important aspect of global financial regulation in the last few decades is that the definition of regulatory banking capital has been subject to a substantial degree of harmonisation because of work promoted by the Basel Committee on Banking Supervision, starting with the Basel I agreement in 1988. 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 (Bates 2014; European Union Directives 2014/59/EU and No 806/2014; Financial Stability Board 2014; European Banking Authority 2014). But while claims on banks are increasingly comparable internationally, much less traction has been made on standardising the asset side of the balance sheet, especially with respect to loan classification and the definition of non-performing loans. In fact, there can be material divergences in NPL definitions across jurisdictions.

Research conducted by Barisitz (2011, 2013) gives an overview of the general drivers behind these differences.¹⁹ He finds that a majority of countries in his study 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” (Barisitz 2011). But two issues complicate matters. First, the definition of “well-defined weakness” remains unspecified within and across jurisdictions. In other words, different firms and regulators have different data, and different interpretations of data, used to estimate obligors’ ability to repay, and whether it has deteriorated. Second, there are other dimensions besides time (since last repayment) that matter in certain jurisdictions. These include: whether collateral, guarantees, or other forms of security are factored into the

¹⁹ Barisitz compares definitions in ten CESEE countries: Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, Russia, Serbia, Slovakia and Ukraine.

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 sometimes matter too. 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, for example, there is divergence across the region in terms of whether jurisdictions take a ‘product’ or ‘customer’ view when determining if loans are performing or not. At issue 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 1 provides examples of loan and credit classifications based on public information from financial supervisory and regulatory authorities in the 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: “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” (United Nations System of National Accounts 2008). On the other hand, 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 the UN “definition of a non-performing loan is to be interpreted flexibly,” the drafting of these definitions leaves scope for firm discretion because the meaning of phrases like “objective evidence of impairment” are not always precisely defined. There are also likely differences within jurisdictions across time, and again between jurisdictions in terms of the intensity of prudential enforcement of NPL standards.

In the past, there have been efforts by some international bodies to establish firmer guidelines in the context of assessing credit risk for regulatory capital purposes. For example, under the Basel II capital framework published by the Basel Committee in 2004, a system of credit risk calibration based on banks’ own internal risk models was introduced. This system was retained under Basel III. For those portfolios where banks elect to develop systems to follow this approach, the IRB methodology requires firms to provide their own estimates of probability of default, loss given default and exposure at default. To do so, a definition of default was established (Basel Committee on Banking Supervision 2004).

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 unlikelihood 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.²⁰

²⁰ 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 (see below). The second is that the first of the indicators listed above makes reference to an accounting concept (non-

Two years later, the Basel Committee issued guidance that specifically mentioned loan classification (Basel Committee on Banking Supervision 2006). It recommended banks have a credit classification system on the basis of credit risk but stopped short of spelling out the classification scheme.²¹ While some bodies, such as the Institute of International Finance have established such systems (Table 2), these lack the force of international law. And the Institute of International Finance’s system, while admirable, does not establish thresholds when loans should fall into the various categories but rather simply proposes a set of universal categories.

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). The scheme is due to be revised by the Institute of International Finance in 2015.

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).

²¹ 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”.

Firm accounting

The absence of common, cross-border accounting standards for judging when loans are impaired makes like-for-like comparisons between banks difficult for users of their financial statements (Laurin and Majnoni 2003). The table in appendix 2 presents extracts from the annual reports of financial institutions identified as G-SIBs.²² As we saw in our review of NPLs as defined by prudential regulators, 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. 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 in the past or at present. 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.

Indeed in the wake of the GFC, one area where the lack of an internationally harmonised accounting concept of NPLs and impairment was suspected of giving an especially incomplete picture of the health of the financial system was with respect to forbearance, that is, the restructuring of troubled loans.²³ While IAS 39 is clear that restructuring is a credit event that

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

²³ 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). 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),

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 cases of restructuring where there is no impairment and there is ambiguity about whether once restructured, an exposure needs to continue being 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 is no means of distinguishing problem loans from the general pool of performing loans if 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, as during the so-called ‘Tequila crisis’ in Mexico (Calomiris and Haber 2014).²⁴

Commercial data sources

To add oil to an already inflamed problem, other publicly available and widely used data sources on bank asset quality can give slightly different representations of balance sheet health.

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.

²⁴ 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, Griffiths, Franklin, Wohlmann, Young and Gregory 2013). 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 (cf. Kane 2015). 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 2009). The accounting treatment of non-performing loans encouraged regulators to effectively delay the recognition of any losses until banks had had the time to build up loan loss reserves (Haben 2015).

Here we compare data for some key NPL-related ratios from Bankscope and *The Banker* magazine. The Bankscope database contains financial statement information on more than 29,000 private and public banks globally over more than 15 years. *The Banker* magazine tracks the top 1,000 bank holding companies on a global basis based on their Tier 1 Capital as defined by the Basel Committee. Here we look at figures for G-SIBs²⁵ in North America, Europe, and Japan from 2005 to 2014. This sample period gives a good idea about data quality in the pre and post crisis periods.

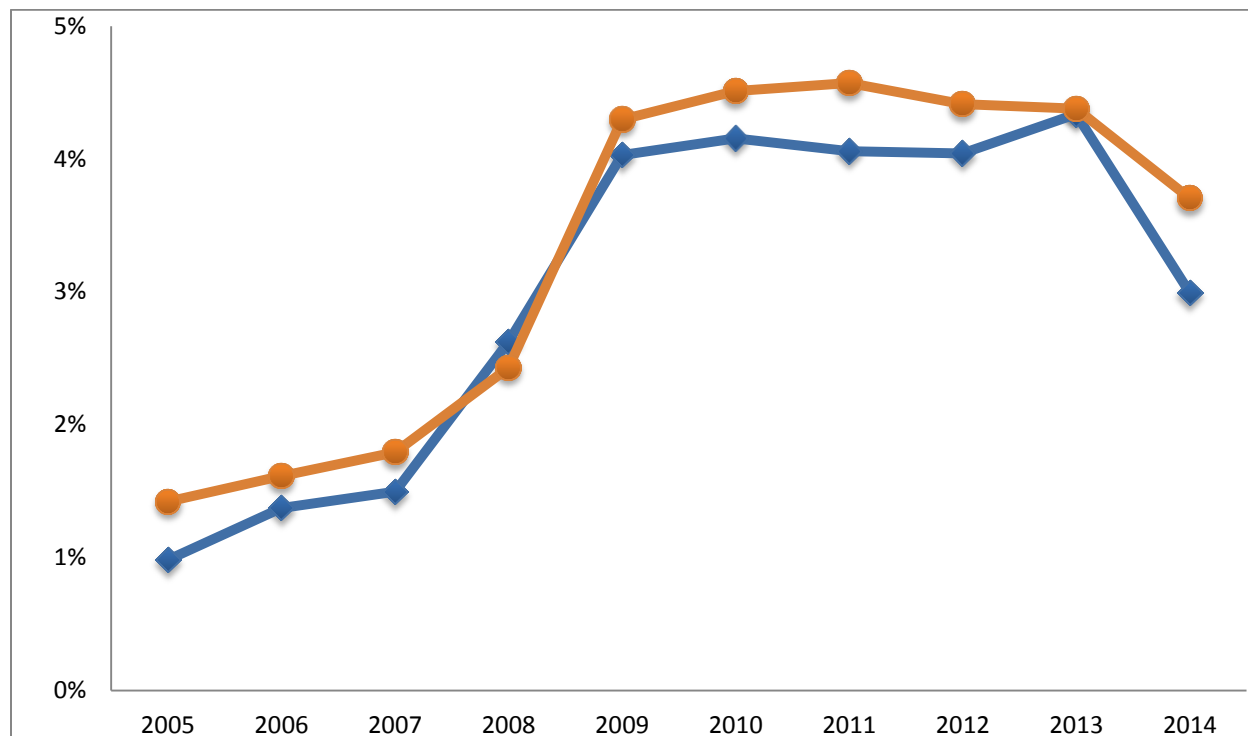
The Banker reports the ratio for NPLs to Gross Total Loans, where NPLs are defined as all loans that are overdue for longer than 90 days. These figures come from a survey sent by *The Banker* to these firms and cross-checked against publicly disclosed data. In contrast, Bankscope does not report NPLs. Instead it reports impaired loans. The source of these figures is mostly banks' annual reports and accounts, and these are all loans that have a specific impairment against them. However, as Bankscope notes, "there is no conformity to defining impaired loans, both across country and intracountry" because all accounting standards "are vague in their definition of when a loan is impaired" and because "management discretion can change from one year to the next within a particular bank."²⁶

Figure 1 plots the respective ratios for NPLs and Total Impaired Loans to gross loans from *The Banker* and Bankscope, respectively. Both sources give similar sized ratios and directionality, increasing from 1% and 1.5% respectively to 4% and 4.5% in 2009, respectively.

²⁵ This includes 28 G-SIBS that are common to both data sets for all of the variables for the sample period: HSBC Holdings, Mitsubishi UFJ Financial Group, Deutsche Bank, Credit Agricole, BNP Paribas, JP Morgan Chase & Co, Bank of America, Barclays, Royal Bank of Scotland, Mizuho Financial Group, Citigroup, Sumitomo Mitsui Financial Group, SocieteGenerale, Groupe BPCE, Lloyds Banking Group, Wells Fargo & Co, UBS, UniCredit, ING Bank, Credit Suisse Group, Goldman Sachs, Nordea Group, Banco Bilbao Vizcaya Argentaria, Commerzbank, Morgan Stanley, Standard Chartered, Dexia, Bank of New York Mellon.

²⁶ From Bankscope user guide > Fitch impaired loans. It is well known among users of Bscope data (see Glen and Mondragon-Vélez 2011) that the Bankscope data reported under the rubric of Total Impaired Loans and Assets has to be dealt with some care as a representation of non-performing loans.

Figure 1 NPL or impaired loans/Gross Loans Ratio from the two data sources: Bankscope (in brown) and Banker Magazine (in blue)



Sources: Bankscope and *The Banker* magazine.
Ratio given by the sum of the respective values in the numerator and the denominator for 28 G-SIBs.

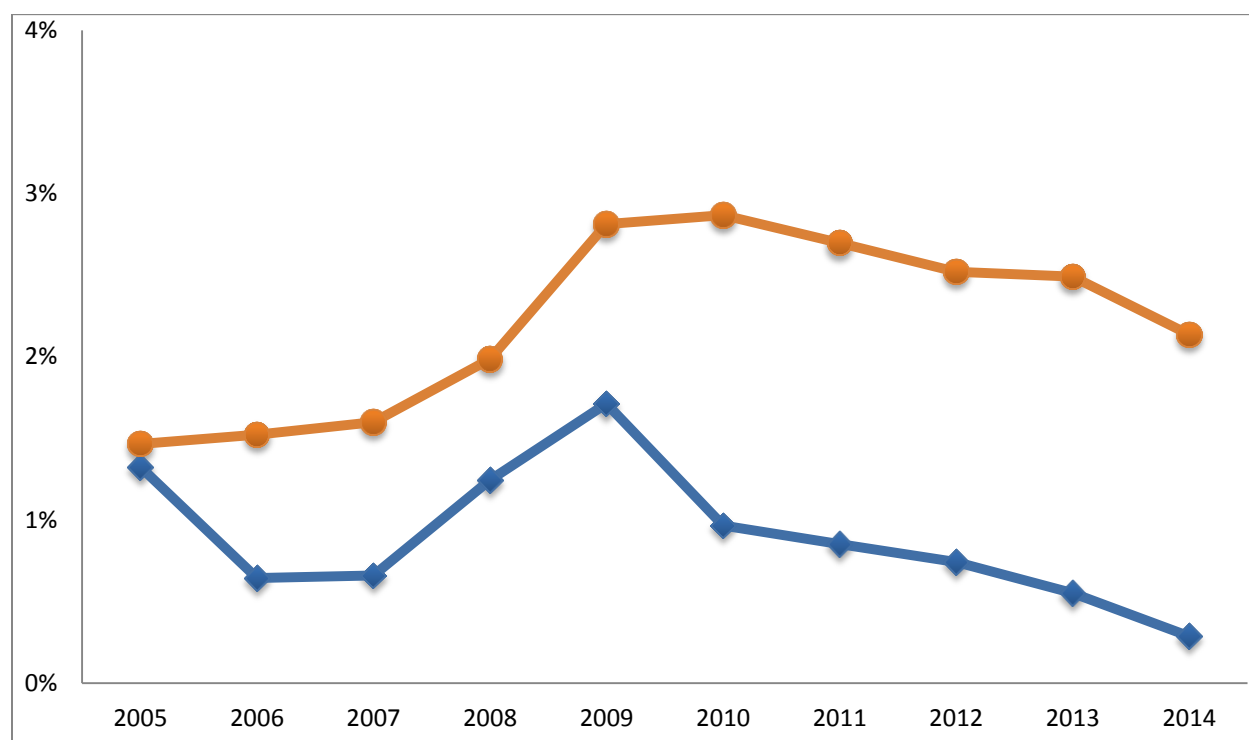
After that, the Bankscope ratio remains about 0.5% higher than the one for *The Banker*. The ratios from both sources coincide at about 4.3% in 2013 and then dip down together in 2014.

Figure 2 compares *The Banker's* figure for Loan Loss Provisions to Gross Loans against the ratio of Loan Loss Reserves to Gross Loans from Bankscope.²⁷ While both show a distinct hump in 2009, indicating increased provisioning for loan losses with the onset of the financial

²⁷ From the BScope user guide on asset quality the loan loss reserve/gross loans ratio is defined as follows. “This ratio indicated how much of the total portfolio has been provided for but not charged off. It is a reserve for losses expressed as percentage of total loans. Given a similar charge-off policy the higher the ratio the poorer the quality of the loan portfolio will be.”

crisis, the Bankscope data is consistently higher for this ratio by at least 1% for the pre-crisis period and by 2% in the post-crisis period.

Figure 2 Loan Loss Reserves/Gross Loan Ratio (Bankscope, in brown), and Loan Loss Provisions/Gross Loans ratio (Banker magazine, in blue)



Sources: Bankscope and *The Banker* magazine data.

Figures 3a and 3b plot ‘over/under-provisioning’ ratios for G-SIBs based in select advanced economies. For Bankscope data this is estimated as the ratio of reserves to total impaired loans. For *The Banker* this is estimated as the ratio of provisions to non-performing loans. When these ratio fall, it may provide a signal of under-provisioning. Thus this ratio is a rough indicator of firms’ credit risk management.²⁸

²⁸ There are other ratios such as called the “Texas ratio” given by the ratio of unprovisioned NPLs to capital and reserves (Jassaud and Kang 2015). The Texas ratio has been used as a measure of a bank’s likelihood of failure as it indicates whether it has enough buffers to deal with its bad assets. A ratio above 100 percent indicates that banks have insufficient buffers to cover unexpected losses.

Figure 3A BScope data for G-SIBs in select countries: Reserves to Total Impaired Loans

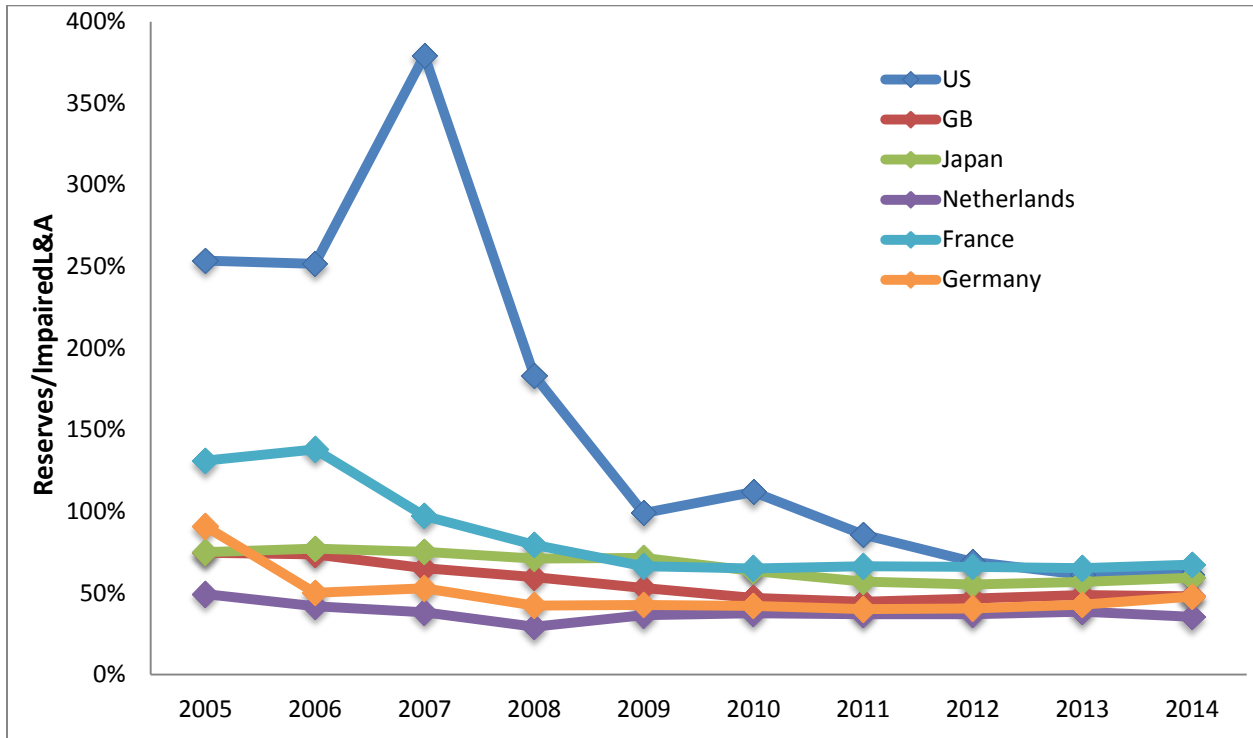
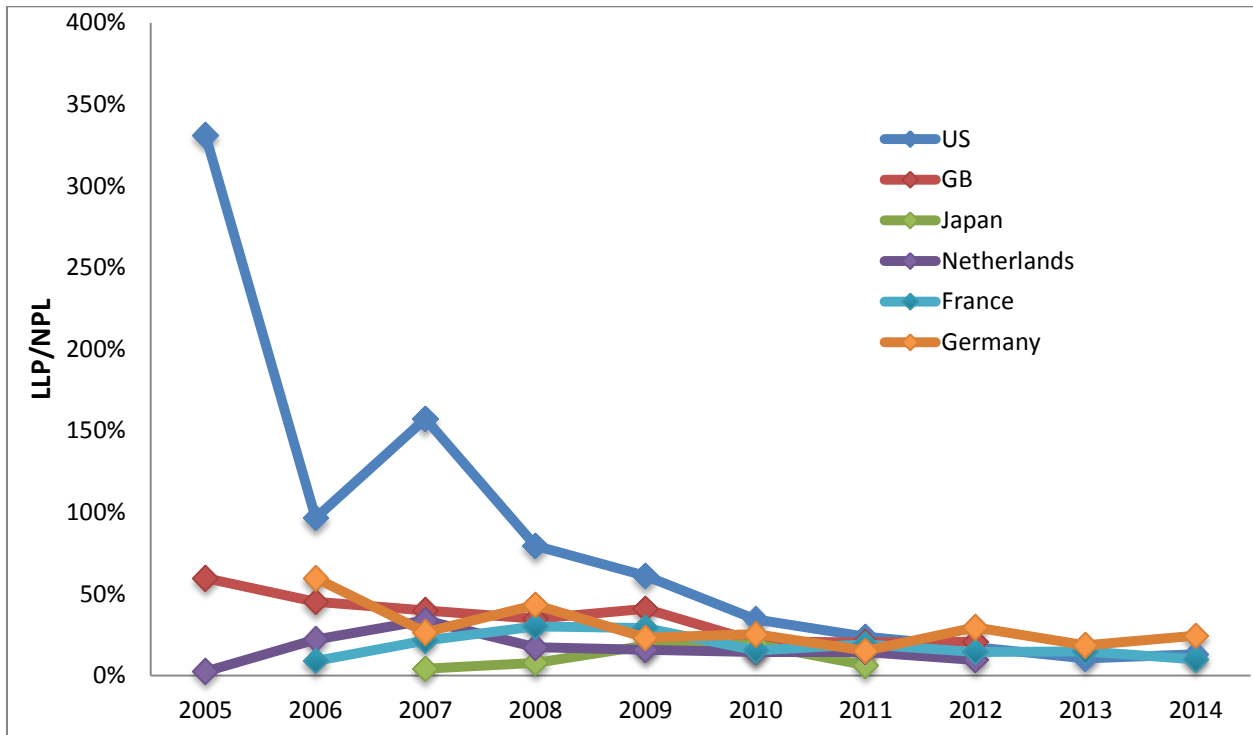


Figure 3B BMag Select Countries' G-SIBs: Ratio of Loan Loss Provisioning to Non-Performing Loans



Sources: Bankscope (Bscope) and *The Banker* magazine (BMag) data. Data on banks in US, UK, Japan, Netherlands, France and Germany.

There are clearly definitional differences that are the source of the discrepancies shown above. The point made here is not that one source is more accurate than the other, but rather that the absence of a common benchmark can cause users of these information sources to come to different conclusions. Both charts show that US G-SIBs were more highly provisioned than those G-SIBs in other countries before the 2007 financial crisis. However, apart from 2005 and 2006, Bankscope data gives lower figures for impairments than *The Banker* does for NPLs. As a result, Bankscope data shows a very high provisioning ratio of about 380% for US G-SIBs in 2007, while *The Banker* counterpart is a more modest 150%. More generally, the Bankscope data shows US G-SIBs provisioned at above 100% up to 2010, while *The Banker* data shows provisioning at under 100% by 2008. Similarly, Bankscope data suggests that Germany, France and UK G-SIBs were close to a 100% provisioning ratio in the period leading up to the GFC, while *The Banker* data shows these banks as being much less well-provisioned. In making policy judgements, such as assessing whether banks were ‘adequately’ provisioned at the onset of the crisis in different jurisdictions, these differences might result in unintended conclusions if the definitions used in sourcing the data are not well understood.

4. *Loan loss accounting*

One area where one might expect the meaning of non-performing loans to be reasonably well defined is in accounting. However, neither International Financial Reporting Standards (IFRS) nor US Generally Accepted Accounting Principles (GAAP) treats the topic of non-performing loans as such. Rather, the focus is on impaired loans and note disclosures on credit risk. However, 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.²⁹ We discuss these and related issues in this section.

The incurred loss model

On the eve of the financial crisis, both the IFRS and the US GAAP accounting standards that governed 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 is specific 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 sometimes interpreted as meaning that actual arrears had to take place before provisioning was allowed. Either a loan was determined to be impaired (either individually or in a portfolio assessment), hence requiring a provision; or, there was no impairment charge for the loan(s) in question. 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 provisions of US banks were sometimes higher than those for banks reporting under IFRS. As well as taking charges for impairment provisions, US banks place certain loans in ‘nonaccrual’ status, and no interest income is recognised for loans designated in this way. This latter practice is not shared by banks in IFRS jurisdictions.³⁰

²⁹ 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.

³⁰ 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 2011). 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.

Additional information on asset quality could be discerned through further analysis of 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 disclosure of non-impaired loans was left up to the reporting firm, as long as certain higher-level disclosure principles were met. For these latter assets, the International Accounting Standards Board (IASB) preferred an approach that gave more discretion to firms in determining credit quality, stating as its basis for this 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 in describing credit quality classifications.

One of the reasons that banks under IFRS had relatively few accounting or disclosure guidelines to follow when it comes 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.

Expected loss model

The period that immediately followed the GFC saw 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. 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 FSB³¹ 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” (FSB 2009). The FSB was thus explicit in preferring an ‘expected loss’ model of provisioning, rather than a retrospective incurred loss model.

In a 2009 exposure draft, the IASB presented a set of proposals intended as the basis for a new provisioning model. As part of this proposal, it 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 day 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 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. At the time of writing, the FASB estimates that it will issue its standard in 2016. Both the IASB and FASB models require provisions to be based on forward-looking expectations and so mark a clean conceptual break from the methodology of incurred loss. The IASB has also jettisoned the classifications based on past due status that

³¹ The FSB took over from the 1999-born Financial Stability Forum, with a broader membership.

previously formed part of the disclosure framework around it. Unlike the 2009 draft, the term ‘non-performing’ does not appear in the accounting standard. One reason for this may be that a definition of a set number of days past due is arguably of less relevance in a standard where provisions are calculated on a forward-looking basis.³²

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.³³ However, where a ‘significant increase in credit risk’ is deemed to have occurred, the amount provided increases such that losses expected from events over the lifetime of a loan are provided against, thus raising, perhaps significantly, the amount of provision required. When the loss is then incurred, the loan moves to ‘stage 3’ and interest income is also recorded on a basis 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.

At the time of writing, the FASB intends to issue a standard that requires provisioning based on expected credit loss over the lifetime of a loan for all loans. 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. Discretion over bank loan loss provisioning

³² 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.

³³ 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). 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.

can have beneficial or negative consequences depending specifically on how managers exploit their discretion to shape loan loss provisions (Basel Commission on Banking Supervision 2006). 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 (Bushman and Williams 2012).

A further consequence of a provisioning model based on ‘expected’ rather than ‘incurred’ loss criteria is that the relationship between NPLs and provisions necessarily changes. As noted above, both NPL criteria and provisioning 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. In an expected loss world, however, every loan carries some level of provision against it, whether or not deterioration in credit quality or a loss event has occurred. In an expected loss world, since provisions are raised earlier, and against all loans, whether or not they are deemed ‘non-performing’, the 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 cover 100% of the carrying value of NPLs. 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 1 and 2.³⁴

³⁴ 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. However, this stylised diagram represents the relationship in theory between incurred loss provisions and NPLs, and is usually the case in practice where provisions are calibrated in this way.

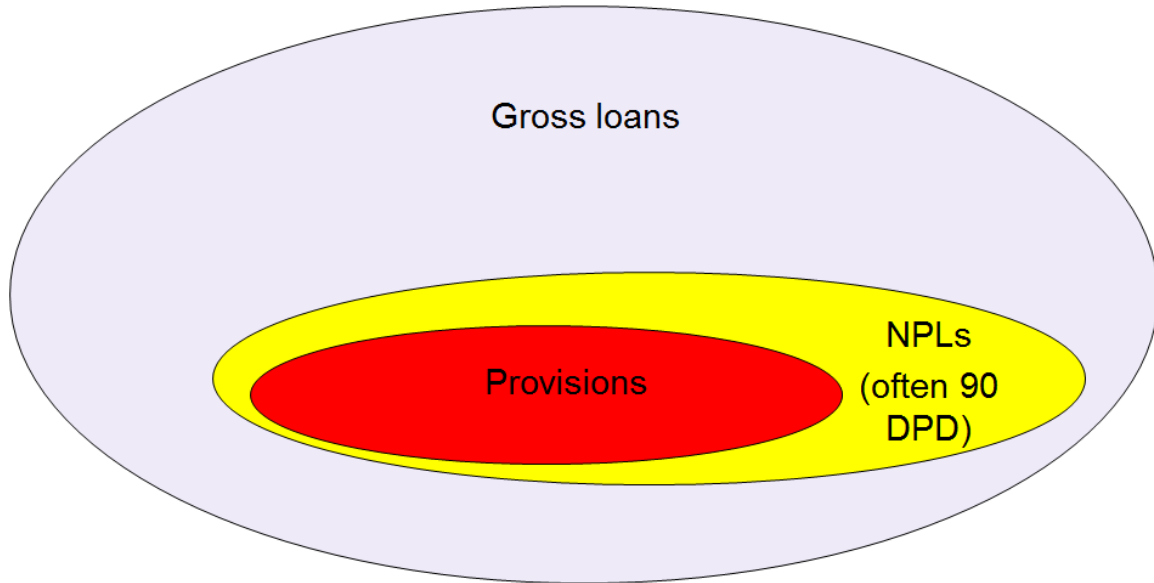


Figure 1 Provisions in an incurred loss approach

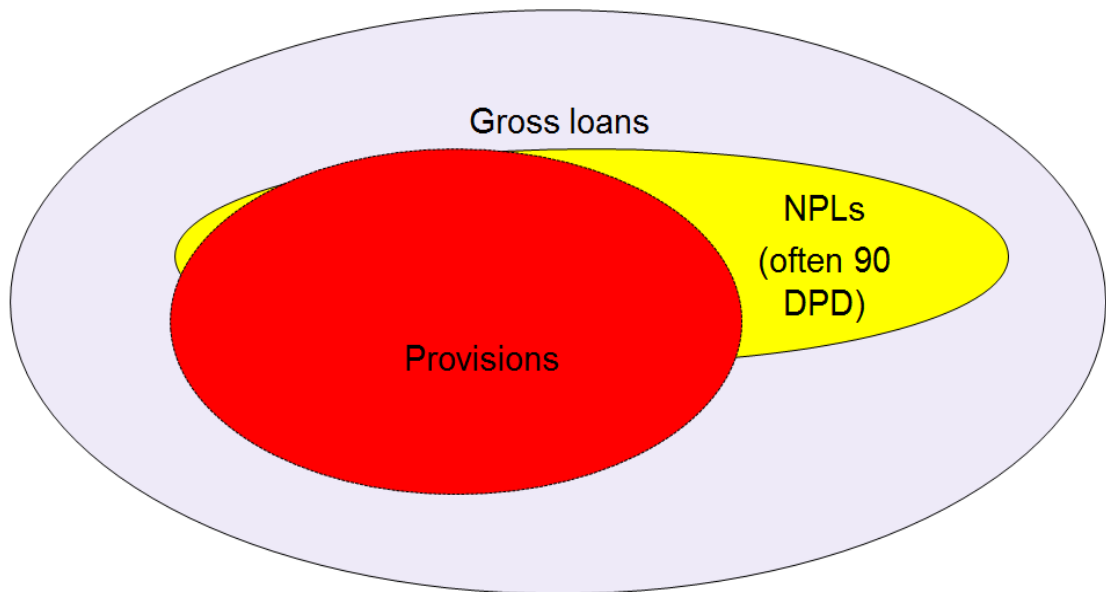


Figure 2 Provisions in an expected loss world

Given the advent of expected loss provisioning, it may be the case that the very concept of ‘non-performing loan’ needs re-definition or re-calibration in some form, in order to provide more useful context in assessing the health of the balance sheet. There is also the question of

how the 3-stage provisioning model of the IASB might pre-suppose a system of loan classification in order to assess more systematically when a ‘significant increase in credit risk’ has occurred. In the guidance material that accompanies the new accounting standards, reference is made to an internal credit downgrade as an indicator of significant credit deterioration, thus assuming that an internal credit classification exists, at least in some cases. 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 the three-stage classification in practice.

Regulatory responses in Europe

Meanwhile, at an EU level, the European Banking Authority in 2014 published technical standards for the reporting of non-performing loans and forbearance.³⁵ The EBA document provides the definition of “exposure”, “non-performing exposures” and “forborne exposures.”³⁶ The EBA standard centres the definition of non-performing on the notion of either 90 days past

³⁵ 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’ (Bank of Ireland 2013).

³⁶ 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.

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.

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 2014).

In sum, and looking across all of these post-crisis developments in the regulatory and accounting treatment of NPLs, a wide variety of approaches continue to be employed (Columba, Chan-Lau and Wezel 2012). Within accounting standards, differences between US and IFRS approaches, as well as discretion allowed to banks in determining many credit quality metrics, means that banks still can diverge significantly from each other in their approach to asset quality classification. Within the regulatory sphere, forward-looking judgment can give rise to quite different estimates. Arguably more than ever, users of financial information are in need of meaningful and comparable information indicators against which to assess the asset quality of banks.

5. Conclusion

The current Eurozone crisis is a stark reminder of the dangers posed to economic and financial stability by over-indebtedness, under-provisioning and NPLs. But as we have documented, the NPL situation facing Europe today is not unprecedented. Indeed it bears more than a passing resemblance to past crises in, *inter alia*, Latin America in the 1980s and Japan in the 1990s where protracted debt crises resulted in ‘lost decades’ (Hoshi and Kashyap 2008; Caballero, Hoshi and Kashyap 2006; and Peek and Rosengren 2005).

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 such that asset positions are well-understood by the market, regulators and others, is critical in assessing how to avert or mitigate crises. As we have seen, banks can be incentivised by accounting, regulatory and tax considerations in various ways when considering how to identify, and provide against, problem loans. This in turn 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.

But even before considerations of provisioning, problem loans need to be identified according to criteria that are transparent, understandable and economically meaningful, and there is currently no universal consensus as to what these criteria should be. The introduction of expected loss provisioning methodologies that require loans to be classified into different categories adds further to the need for more understandable methods of asset quality classification, in order to provide adequate context for these provisions to be understood.

Understanding the nature and quality of bank assets remains the key to assessing the health of the banking system as a whole, and transparency in this area is therefore key to financial stability.

References

Agricultural Bank of China 24 March 2015, *2014 Annual Results Announcement*. Available from: <<http://www.abchina.com/en/about-us/annual-report/201503/P020150326402006728756.pdf>>. [3 December 2015].

Allen, David, Ray Boffey, and Robert Powell, 'The Impact of Contagion on Non-Performing Loans: Evidence from Australia and Canada', *Journal of Business and Policy Research*, vol 7, No. 2 (2012) 13-24.

Angklomkiew, Sarawan, Jason George and Frank Packer, 'Issues and developments in loan loss provisioning: the case of Asia', *BIS Quarterly Review*, December 2009.

Arrowsmith, Martin, Martin Griffiths, Jeremy Franklin, Evan Wohlmann, Garry Young, and David Gregory, 'SME forbearance and its implications for monetary and financial stability', *Bank of England Quarterly Bulletin* Q4 (2013) 6-13.

Australian Prudential Regulation Authority January 2015, *Prudential Standard APS 220 Credit Quality*. Available from: <<http://www.apra.gov.au/CrossIndustry/Documents/141120-APS-220.pdf>>. [14 November 2015].

Autorité de contrôle prudentiel et de résolution 2015, pers. comm., 14 August.

Bank of China Limited 25 March 2015, *2014 Annual Report*. Available from: <<http://pic.bankofchina.com/bocappd/report/201504/P020150428619210434247.pdf>>. [4 December 2015].

Bank of Italy July 2013, *The recent Asset quality review on non-performing loans conducted by the Bank of Italy: Main features and results*. Available from: <http://www.bancaditalia.it/media/appfondimenti/documenti/Asset_quality_review.pdf?language_id=1>. [8 October 2015].

Bank Indonesia 2015, pers. comm., 11 August.

Banco Central de la República Argentina December 2014, *Prudential Regulations*. Available from: <http://www.bcra.gov.ar/Pdfs/Marco_legal_normativo/marco%20normativo_i.pdf>. [9 November 2015].

Banco de México September 2013, *Financial System Report*. Available from: <http://www.banxico.org.mx/publicaciones-y-discursos/publicaciones/informes-periodicos/reporte_sf/%7BCE284A71-335F-95DE-FE82-5C0A8239CF44%7D.pdf>. [25 August 2015].

Banco Central do Brasil 2015, pers. comm., 17 August.

Bank of America Corporation 11 March 2015, *2014 Annual Report*. Available from: <http://media.corporate-ir.net/media_files/IROL/71/71595/AR2014.pdf>. [3 December 2015].

Bank of India, “Master Circular - *Prudential norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances.*” Master Circular (2014).

Bank of New York Mellon 27 February 2015, *2014 Annual Report*. Available from: <https://www.bnymellon.com/_global-assets/pdf/investor-relations/annual-report-2014.pdf>. [3 December 2015].

Barclays PLC 2 March 2015, *Annual Report 2014*. Available from: <https://www.home.barclays/content/dam/barclayspublic/docs/InvestorRelations/AnnualReports/AR2014/Barclays_PLC_Annual_Report_%202014.pdf>. [3 December 2015].

Barisitz, Stephan. "Nonperforming Loans in CESEE—An Even Deeper Definitional Comparison." *Focus on European Economic Integration Q3* (2013) 64-81.

Barisitz, Stephan. "Nonperforming Loans in CESEE—What Do They Comprise." *Focus on European Economic Integration Q4* (2011) 46-68.

Barisitz, Stephan. "Nonperforming Loans in Western Europe—A Selective Comparison of Countries and National Definitions." *Oesterreichische Nationalbank Focus on European Economic Integration Q1* (2013) 28-47.

Basel Committee on Banking Supervision. “*International Convergence of Capital Measurement and Capital Standards.*” Basel Report 1988.

Basel Committee on Banking Supervision. “*International Convergence of Capital Measurement and Capital Standards.*” Revised Framework 2004.

Basel Committee on Banking Supervision. “*Sound credit risk assessment and valuation for loans.*” Basel Committee on Banking Supervision Paper (2006).

Basel Committee on Banking Supervision. “*Basel 3: A global regulatory framework for more resilient banks and banking systems.*” Basel Committee on Banking Supervision Paper (2011).

Bates, Chris. ‘Ending too-big-to-fail in Europe’, Lecture delivered at the Centre for Commercial Law Studies, Queen Mary University of London, London, Nov 25, 2014.

BBVA 4 February 2015, *Consolidated financial statements, management report and auditors’ report 2014*. Available from:

<http://shareholdersandinvestors.bbva.com/TLBB/fbinir/mult/ConsolidatedFinancialStatements_tcm927-508895.pdf>. [3 December 2015].

Beatty, Anne, and Scott Liao. "Do delays in expected loss recognition affect banks' willingness to lend?" *Journal of Accounting and Economics* 52, No. 1 (2011) 1-20.

Beck, Paul J., and Ganapathi S. Narayanamoorthy. "Did the SEC impact banks' loan loss reserve policies and their informativeness?" *Journal of Accounting and Economics* 56, No. 2 (2013) 42-65.

Beck, Roland, Petr Jakubik, and Anamaria PiloIU. "Non-performing loans: What matters in addition to the economic cycle?" *ECB Working Paper Series* (2013).

Berger, Allen N., and Robert DeYoung. "Problem loans and cost efficiency in commercial banks." *Journal of Banking & Finance* 21, No. 6 (1997) 849-870.

Bholat, David. "The future of central bank data." *Journal of Banking Regulation, Macmillan Publishers Ltd* (2013) 1-10.

Bholat, David. "Organizational Form as a Source of Systemic Risk." *Economics* 7. Available from: <http://dx.doi.org/10.5018/economicsejournal.ja.2013-27>.

Billings, Mark, and Forrest Capie. "Transparency and financial reporting in mid-20th century British banking." In *Accounting Forum*, vol. 33, no. 1 Elsevier, (2009) 38-53.

Billings, Mark, and Forrest Capie. "Profitability in English banking in the twentieth century." *European Review of Economic History* 5, No. 3 (2001) 367-401.

Bloem, Mr Adriaan M., and Mr C. Gorter. "*The treatment of nonperforming loans in macroeconomic statistics.*" IMF Working Paper No. 1/209 (2001).

BNP Paribas 6 March 2015, *2014 Registration document and annual financial report*. Available from: <https://invest.bnpparibas.com/sites/default/files/documents/ddr_2014_gb.pdf> [3 December 2015].

Borio Claudio and Philip Lowe. "Assessing the risk of banking crises." *BIS Quarterly Review Q4* (2002) 43-54.

Borio Claudio, Craig Furfine and Philip Lowe. "Procyclicality of the financial system and financial stability: issues and policy options." *BIS papers* 1 (2001) 1-57.

Bundesanstalt für Finanzdienstleistungsaufsicht 2014, *Annual Report*. Available from: <http://www.bafin.de/SharedDocs/Downloads/EN/Jahresbericht/dl_annualreport_2014.pdf?blob=publicationFile>. [11 August 2015].

Bushman, Robert M., and Christopher D. Williams. "Accounting discretion, loan loss provisioning, and discipline of banks' risk-taking." *Journal of Accounting and Economics* 54, no. 1 (2012) 1-18.

Caballero, Ricardo J., Takeo Hoshi, and Anil K. Kashyap. "Zombie lending and depressed restructuring in Japan." *National Bureau of Economic Research* (2006) 1943-1977.

Calomiris, Charles W., and Stephen H. Haber. "Fragile by Design: The Political Origins of Banking Crises and Scarce Credit." *Princeton University Press* (2014).

Camfferman, Kees. "The Emergence of the 'Incurred-Loss' Model for Credit Losses in IAS 39." *Accounting in Europe* ahead-of-print (2015) 1-35.

Cavalier, Delphine. "Non-performing loans in Southern Europe: define, measure, compare." *BNP Paribas Research* (2014).

Central Bank of Ireland. "*Impairment Provisioning and Disclosure Guidelines*." Financial Regulation 2013.

Central Bank of the Republic of Turkey 2015, pers. comm., 11 August.

Central Bank of the Russian Federation 2015, pers. comm., 30 September.

China Banking Regulatory Commission 2014, *Supervision Statistics of Q2*. Available from: <<http://www.cbrc.gov.cn/EngdocView.do?docID=403BCC3E340949998F9A87A3CAA8E023>>. [8 August 2015].

Citigroup Inc. 25 February 2015, *2014 Annual Report*. Available from: <http://www.citigroup.com/citi/investor/quarterly/2015/ar14c_en.pdf?ieNocache=511>. [4 December 2015].

Columba, Francesco, Jorge A. Chan-Lau, and Torsten Wezel. "Dynamic loan loss provisioning: simulations on effectiveness and guide to implementation." *IMF Working Paper WP/12/110* (2012).

Cortavarria, Luis, Claudia Dziobek, Akihiro Kanaya, and Inwon Song. "Loan review, provisioning, and macroeconomic linkages." *IMF Working Paper No. 00/195* (2000).

Credit Suisse Group AG March 2015, *Annual Report 2014*. Available from: <<https://www.credit-suisse.com/media/cc/docs/publications/annualreporting/2014/csg-ar-2014-en.pdf>>. [4 December 2015].

Davis, E. Philip, and Dilruba Karim. "Comparing early warning systems for banking crises." *Journal of Financial stability* 4, No. 2 (2008) 89-120.

Demirgüç-Kunt, Asli, and Enrica Detragiache. "Cross-country empirical studies of systemic bank distress: a survey." *National Institute Economic Review* 192, No. 1 (2005) 68-83.

Demirguc-Kunt, Asli. "Cross-Country Empirical Studies of Systemic Bank Distress." *IMF Working Paper no. WP/05/96* (2005).

Demirgüç-Kunt, Asli. "Deposit-institution failures: a review of empirical literature." *Economic Review* 25, No. 4 (1989) 2-19.

Desmet, Klaus. "Accounting for the Mexican banking crisis." *Emerging Markets Review* 1, No. 2 (2000) 165-181.

Deutsche Bank March 2015, *Annual Review 2014*. Available from: <https://www.db.com/ir/en/download/Deutsche_Bank_Annual_Report_2014_entire.pdf>. [4 December 2015].

Dhal, Sarat C. and Rajiv Rajan. "Non-performing loans and terms of credit of public sector banks in India: An empirical assessment." *Occasional Papers* 24, No. 3 (2003) 81-121.

Division of Corporation Finance Securities and Exchange Commission. "Staff Observations Regarding Disclosures of Smaller Financial Institutions." *CF Disclosure Guidance: Topic No. 5* (2012).

Dong, He. "The Role of KAMCO in Resolving Nonperforming Loans in the Republic of Korea." *IMF Working Paper no. WP/04/172* (2004).

Dowd, K. *Measuring Market Risk*, John Wiley and Sons (2002).

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*. Available from: <<http://www.eba.europa.eu/documents/10180/449824/EBA-ITS-2013-03+Final+draft+ITS+on+Forbearance+and+Non-performing+exposures.pdf/a55b9933-be43-4cae-b872-9184c90135b9>>. [5 July 2015].

Eichengreen, Barry, Andrew K. Rose, Charles Wyplosz, Bernard Dumas, and Axel Weber. "Exchange market mayhem: the antecedents and aftermath of speculative attacks." *Economic policy* (1995) 249-312.

ESMA, "Treatment of Forbearance Practices in IFRS Financial Statements of Financial Institutions", ESMA No. 2012/853 (2012).

Espinoza, Raphael A. and Ananthakrishnan Prasad. "Nonperforming loans in the GCC banking system and their macroeconomic effects." *IMF Working Papers no. WP/10/224* (2010) 1-24.

European Banking Authority, "Final implementing technical standards (ITS) on supervisory reporting on forbearance and non performing exposures under Article 99(4) of Regulation (EU)." *Official Journal of the European Union Volume 58*, 2015.

European Banking Authority, "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" (2014).

European Banking Authority. "Draft Regulatory Technical Standards on valuation under Directive 2014/59/EU." *Consultation Paper 38* (2014).

European Bank Coordination Vienna Initiative, "The 'Vienna Initiative pushes for action plan to deal with NPLs in central and south-eastern Europe', 26 September 2014, available at <http://vienna-initiative.com/npl-initiative/news-on-the-initiative/>.

European Central Bank. "*Financial Stability Review*." ECB Review 2013.

European Commission, ECB and IMF. Statement by the European Commission, ECB and IMF on Cyprus. 16 November 2014, available at <http://www.ecb.europa.eu/press/pr/date/2015/html/pr151116.en.html>

European Mortgage Federation, "Study on Non-Performing Loans in the EU." *ECB Working Paper Series* (2011).

European Union. 2014a. "*Establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC*." Bank Recovery and Resolution Directive (BRRD) of 2014 (Directive 2014/59/EU 2014).

European Union. 2014b. "*Establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation*." The Single Resolution Mechanism (SRM) Regulation (Regulation (EU) No 806/2014 2014).

Federal Financial Supervisory Authority. “*Annual Report 2014.*” BaFin Annual Reports (2014).

Federal Financial Supervisory Authority. “*Regulation governing the auditing of the annual accounts of credit institutions and financial services institutions as well as the reports to be drawn up on these.*” BaFin Report (2009).

Federal Reserve Bank of New York. “*Quarterly Trends for Consolidated U.S. Banking Organizations First quarter.*” Research and Statistics Group (2015).

Federal Reserve. Division of Banking Supervision and Regulation, “*Commercial Bank Examination Manual.*” Division of Banking Supervision and Regulation (2014).

Federal Reserve, “*Charge-Off and Delinquency Rates on Loans and Leases at Commercial Banks.* Economic Research and Data” (2009).

Financial Conduct Authority (FCA). “FCA Handbook General Prudential Sourcebook (GENPRU) GENPRU 2.2.261/2.2.262.” (2014).

Financial Services Agency June 2014, *Inspection Manual for Deposit-Taking Institutions.* Available from: <http://www.fsa.go.jp/en/refer/manual/yokin_e/y-all.pdf>. [5 August 2015].

Financial Services Authority, “Forbearance and Impairment Provisions – Mortgages.” *FSA Finalised guidance* (2011).

Financial Services Authority. “*Forbearance and Impairment Provisions – Mortgages.*” Finalised guidance 2011.

Financial Stability Board. “*Improving Financial Regulation.*” Report of the Financial Stability Board to G20 Leaders 2009.

Fofack, Hippolyte. “Nonperforming loans in Sub-Saharan Africa: causal analysis and macroeconomic implications.” *World Bank Policy Research Working Paper 3769* (2005).

Furlong, Fred, and Zena Knight. “Loss provisions and bank charge-offs in the financial crisis: lesson learned.” *FRBSF Economic Letter* 2010 (2010) 16.

G20 Research Group. “*Declaration on Strengthening the Financial System.*” Global Plan Annex 2009.

Glen, J. and C. Mondragón-Vélez. “Business Cycle Effects on Commercial Bank Loan Portfolio Performance in Developing Economies.” *International Finance Corporation, World Bank Group* (2011).

Goldman Sachs 20 February 2015, *2014 Annual Report*. Available from: <<http://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2014-annual-report-files/annual-report-2014.pdf>>. [4 December 2015].

Grieser, Simon Gottlieb, and Jorg Wulfken. "Performing and non-performing loan transactions across the world: a practical guide" *Euromoney Books* (2009).

Group Crédit Agricole 20 March 2015, *Annual Financial Report 2014*. Available from: <<http://www.credit-agricole.com/en/Investor-and-shareholder/Financial-reporting/Credit-Agricole-S.A.-financial-results>>. [4 December 2015].

Groupe BPCE 18 March 2015, *2014 Registration document and full-year financial report*. Available from: <<http://www.bpce.fr/en/Investors/Results/Registration-documents>>. [4 December 2015].

Hasan, Iftexhar, and Larry D. Wall. "Determinants of the Loan Loss Allowance: Some Cross-Country Comparisons." *Financial review* 39, No. 1 (2004) 129-152.

Havrylchyk, Olena. "A macroeconomic credit risk model for stress testing the South African banking sector." *MPRA Paper No. 21639* (2010).

Higson, Chris. "Financial Statements: Economic analysis and interpretation." *Rivington* (2012).

Hoshi, Takeo and Anil Kashyap, Anil, and Takeo Hoshi. "Will the US Bank Recapitalization Succeed? Lessons from Japan." *NBER Working Paper* 14401 (2008).

Hoshino, Yuta. "Economic Perspectives and Accounting Issues of Japanese Banks' Non-performing Loans." *SOAS Working Paper* (2002).

HSBC Bank plc 23 February 2015, *Annual Report and Accounts 2014*. Available from: <http://www.hsbc.co.uk/1/PA_esf-ca-app-content/content/pws/content/personal/pdfs/hbeu-2014-ara-final-online.pdf>. [4 December 2015].

IASB Staff Paper, "Non-accrual principle", joint IASB/FASB meeting, week beginning 11 April 2011 (2011).

IFRS Foundation, "Basis for Conclusions, Exposure Draft ED 2009/12: Amortised Cost and Impairment" (2009).

Inaba, Nobuo, Takashi Kozu, Toshitaka Sekine, and Takashi Nagahata. "Non-performing loans and the real economy: Japan's experience." *Press & Communications CH-4002 Basel, Switzerland* (2005) 106.

Industrial and Commercial Bank of China Limited 26 March 2015, *Annual Report 2014*. Available from: http://v.icbc.com.cn/userfiles/Resources/ICBCLTD/download/2015/22014AnnualReport_20150421.pdf. [4 December 2015].

ING Group March 2015, *Annual Report 2014*. Available from: <http://www.ing.com/Investor-relations/Annual-Reports.htm>. [4 December 2015].

International Monetary Fund. "Global Financial Stability Report: Responding to the Financial Crisis and Measuring Systemic Risks." April 2009.

Jakubík, Petr, and Thomas Reininger. "Determinants of Nonperforming Loans in Central, Eastern and Southeastern Europe." *Focus on European Economic Integration* 3 (2013) 48-66.

Jassaud, Nadège, and Mr Kenneth Kang. "A Strategy for Developing a Market for Nonperforming Loans in Italy." *IMF Working Paper No. 15-24*. (2015).

Jeon, Bang Nam. "From the 1997-97 Asian Financial Crisis to the 2008-09 Global Economic Crisis: Lessons from Korea's Experience." *E. Asia Law Review* 5 (2010) 103.

JP Morgan Chase & Co. 8 April 2015, *Annual Report 2014*. Available from: <http://files.shareholder.com/downloads/ONE/1116454541x0x820066/f831cad9-f0d8-4efc-9b68-f18ea184a1e8/JPMC-2014-AnnualReport.pdf>. [4 December 2015].

Kaminsky, Graciela L., and Carmen M. Reinhart. "The twin crises: the causes of banking and balance-of-payments problems." *American Economic Review* (1999) 473-500.

Kane, Ed. "Unpacking and Reorienting the Executive Subcultures of Megabanks and their Regulators." Available at: <https://www2.bc.edu/edward-kane/UNPACKING.pdf>.

Kawashima, Toshiki, and Masaki Nakabayashi. "Structural Disposal and Cyclical Adjustment: Non-performing Loans, Structural Transition, and Regulatory Reform in Japan, 1997-2011." *Institute of Social Science, The University of Tokyo No. f167* (2014).

Keeton, William R., and Charles S. Morris. "Why Do Banks Loan Losses Differ?." *Economic Review* (1987) 3-21.

King, Lawrence, Michael Kitson, Sue Konzelmann, and Frank Wilkinson, "Making the same mistake again—or is this time different?" *Cambridge journal of economics* 36, No. 1 (2012): 1-15.

Klein, Nir. "Non-performing loans in CESEE: Determinants and impact on macroeconomic performance." *IMF Working Paper no. 13/72* (2013).

Knott, Samuel, Richardson, Peter, Rismanchi, Katie and Sen, Kallol, “Understanding the fair value of banks’ loans” *Bank of England Financial Stability Paper 31* (2014).

Krueger, Russell. "International standards for impairment and provisions and their implications for financial soundness indicators (FSIs)." *Manuscript, International Monetary Fund* (2002).

Laeven, Luc, and Giovanni Majnoni. "Loan loss provisioning and economic slowdowns: too much, too late?." *Journal of Financial Intermediation* 12, No. 2 (2003) 178-197.

Laurin, Alain, and Giovanni Majnoni. “Bank loan classification and provisioning practices in selected developed and emerging countries.” *World Bank Publications* (2003).

Lohr, Steve. “Large U.S. banks on brink of insolvency, experts say” NYTimes, Feb 13 2009. Accessed Sep 7 2015. http://www.nytimes.com/2009/02/13/business/worldbusiness/13iht-13insolvent.20163493.html?pagewanted=2&_r=1.

Louzis, Dimitrios P., Angelos T. Vouldis, and Vasilios L. Metaxas. "Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios." *Journal of Banking & Finance* 36, no. 4 (2012): 1012-1027.

Lucy Fitzgeorge-Parker, “Non-performing loans: Bad debts still rising in southeastern Europe, six years on” *Euromoney* (2014).

Markose, Sheri, Simone Giansante, and Ali Rais Shaghghi. "Too interconnected to fail, financial network of US CDS market: Topological fragility and systemic risk." *Journal of Economic Behavior & Organization* 83, No. 3 (2012) 627-646.

Mehrling, Perry. “The new Lombard Street: How the Fed Became the dealer of last resort.” *Princeton University Press* (2010).

Minsky H.P., “Stabilizing the Unstable Economy. New Haven” *Yale University Press*. (1986).

Mizuho Financial Group, Inc. 23 July 2015, Annual Report 2014 on Form 20-F. Available from: <<http://www.mizuho-fg.co.jp/english/investors/library.html>>. [4 December 2015].

Monetary Authority of Singapore. “*Credit Files, Grading and Provisioning.*” MAS Notice 612 (2005).

Morgan Stanley 2 March 2015, *2014 Annual Report on Form 10-K*. Available from: <http://www.morganstanley.com/about-us-ir/pdf/2014_MS_10-K_Final_Clean_Bannerless.pdf>. [4 December 2015].

Ng, Jeffrey and Sugata Roychowdhury, 'Do Loan Loss Reserves Behave like Capital? Evidence from Recent Bank Failures', SSRN (2014).

Nkusu, Mwanza. "Nonperforming loans and macrofinancial vulnerabilities in advanced economies." *IMF Working Papers no. 1-27* (2011).

O'Keefe, John P. "The effects of underwriting practices on loan losses: evidence from the FDIC survey of bank lending practices." *22nd Australasian Finance and Banking Conference*, 2009.

Office of the Comptroller of the Currency, "Bank Accounting Advisory Series", *Washington* (2014).

Office of the Superintendent of Financial Institutions December 2014, *Financial Statements*. Available from: <<http://www.osfi-bsif.gc.ca/eng/docs/2014q3fs.pdf>>. [21 September 2015].

Office of the Superintendent of Financial Institutions, "Deposit-Taking Institutions - Reporting Manual Office of the Superintendent of Financial Institutions. Glossary of Terms." (2005).

Office of the Superintendent of Financial Institutions, "Manual of Reporting Forms and Instructions for Deposit-Taking Institutions" (2011).

Nordea Bank 5 February 2015, *Annual Report 2014*. Available from: <http://www.nordea.com/Images/33-36843/2014-01-01_Annual-Report-2014-Nordea-Bank-AB_EN.pdf>. [4 December 2015].

Peek, Joe, and Eric Rosengren. "Bank regulation and the credit crunch." *Journal of Banking & Finance* 19, No. 3 (1995) 679-692.

Piers, Haben, "Standardizing the definition of non-performing loans." *EBA Case Study* (2015).

Podpiera, Jiří, and Laurent Weill. "Bad luck or bad management? Emerging banking market experience." *Journal of Financial Stability* 4, No. 2 (2008) 135-148.

Prudential Regulation Authority January 2015, *Retail Credit Risk Non-UK Portfolio Quality Return*. Available from: <<http://www.bankofengland.co.uk/publications/Documents/foi/2015stresstests/st1.pdf>> [30 November 2015].

Ratings, Fitch. "A universal spreadsheet for bank analysis." *Global Special Report* (2009).

Rauh, Joshua D., and Amir Sufi. "Capital structure and debt structure." *Review of Financial Studies No. 095* (2010).

Reserve Bank of India 2015, pers. comm., 24 August.

Roaf, James “Non-Performing Loans in CESEE.” *IMF Working Paper no. WP/13/72* (2014).

Rogoff, Kenneth. “A New Deal for Debt Overhangs?” *Project Syndicate*, Aug 4 2015. Accessed Aug 25, 2015. <http://www.project-syndicate.org/commentary/greece-debt-overhang-by-kenneth-rogoff-2015-08>.

Rossi, Stefania PS, Markus Schwaiger, and Gerhard Winkler. “Managerial behavior and cost/profit efficiency in the banking sectors of Central and Eastern European countries.” *Österreichische Nationalbank No. 96* (2005).

Royal Bank of Scotland 25 February 2015, *Annual Report and Accounts 2014*. Available from: <http://investors.rbs.com/~media/Files/R/RBS-IR/2014-reports/annual-report-2014.pdf>. [4 December 2015].

Salas, Vicente, and Jesus Saurina. "Credit risk in two institutional regimes: Spanish commercial and savings banks." *Journal of Financial Services Research* 22, No. 3 (2002) 203-224.

Santander March 2015, *Annual Report 2014*. Available from: <http://www.santander.com/csgs/StaticBS?blobcol=urldata&blobheadername1=content-type&blobheadername2=Content-Disposition&blobheadername3=appID&blobheadervalue1=application%2Fpdf&blobheadervalue2=inline%3Bfilename%3D213%5C823%5CAnnual+Report+ENG+ACCE.pdf&blobheadervalue3=santander.wc.CFWCSancomQP01&blobkey=id&blobtable=MungoBlobs&blobwhere=1278707205507&ssbinary=true>. [4 December 2015].

Saudi Arabian Monetary Agency April 2008, *Guidance On Application Procedures for Adoption of the IRB Approach by Banks Licensed in Saudi Arabia*. Available from: <http://www.sama.gov.sa/en-US/Laws/Documents/Section%20B/Guidelines%20on%20Application%20Procedures%20for%20the%20Adoption%20of%20IRB%20Approaches%20by%20Bank%20licensed%20in%20Saudi.pdf#search=Guidance%20On%20Application%20Procedures>. [20 August 2015].

SAMAs Final Guidance document Concerning Implementation of Basel III Pillar 3 Component, December 2012. Available from: [http://www.sama.gov.sa/en-US/Laws/Documents/SectionB/1.SAMAs Final Guidance document.zip](http://www.sama.gov.sa/en-US/Laws/Documents/SectionB/1.SAMAs%20Final%20Guidance%20document.zip). [25 September 2015].

SAMA’s Guidance Document Concerning Basel III: the Net Stable Funding Ratio (NSFR) Based on BCBS Document of October 2014. Available from: <http://www.sama.gov.sa/en-US/Laws/Documents/Section%20B/5.%20SAMAs%20Guidance%20Document%20concerning%20Basel%20III%20NSFR.pdf#search=SAMA%E2%80%99s%20Guidance%20Document%20Concerning%20Basel%20III:%20the%20Net%20Stable%20Funding%20Ratio>. [25 September 2015].

Schoenmaker, Dirk. "Stabilising and Healing the Irish Banking System: Policy Lessons." CBI-CEPR-IMF Conference, 2015.

Securities and Exchange Commission, Division of Corporation Finance 20 April 2012, *CF Disclosure Guidance: Topic No. 5. Staff Observations Regarding Disclosures of Smaller Financial Institutions*. Available from: <<https://www.sec.gov/divisions/corpfin/guidance/cfguidance-topic5.htm>>. [1 December 2015].

Shih, Victor. "Dealing with non-performing loans: Political constraints and financial policies in China." *The China Quarterly* 180 (2004): 922-944.

Škarica, Bruna. "Determinants of non-performing loans in Central and Eastern European countries." *financial theory and practice* 38, no. 1 (2014): 37-59.

South African Reserve Bank 2014, Directive 9/2014 issued in terms of section 6(6) of the Banks Act (Act No. 94 of 1990). Available from:

<<https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/6538/D9%20of%202014.pdf>>. [25 August 2015].

South African Reserve Bank 12 June 2014, *Annual Report 2013/14*. Available from: <<https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/6292/Annual%20Report%202014.pdf>>. [5 December 2015].

Société Générale 4 March 2015, *Annual Financial Report 2014*. Available from: <http://www.societegenerale.com/sites/default/files/ddr2015_amf_13_03_2015_uk.pdf>. [5 December 2015].

Standard Chartered 4 March 2015, *Annual Report 2014*. Available from: <https://www.sc.com/annual-report/2014/documents/SCB_ARA_2014_full_report.pdf>. [5 December 2015].

Sumitomo Mitsui Financial Group, Inc. August 2015, *Annual Report 2015*. Available from: <http://www.smfg.co.jp/english/investor/library/annual/h2703form20f_pdf/h2703_e_00.pdf>. [5 December 2015].

Swiss Financial Market Supervisory Authority, "Circular 08/2 Accounting-banks. *Guidelines on accounting standards under Art. 23 to Art. 27 of the Banking Ordinance*. Circular 2008/2 Accounting-banks" (2008).

Tabak, Benjamin M., Marcela T. Laiz, and Daniel O. Cajueiro, "Financial stability and monetary policy-The case of Brazil." *Revista Brasileira de Economia* 67, No. 4 (2013) 431-441.

The Bank of Korea 2015, pers. comm., 21 August.

The Economist, "Retail banks and big data: Big data as the key to better risk management." *Economist Insights* (2014).

Trinka, Gaby. "Performance and regulatory effects of non-compliant loans in German synthetic mortgage-backed securities transactions." *Discussion Paper Series 2: Banking and Financial Studies No. 06* (2010).

UBS 13 March 2015, *Annual Report 2014*. Available from: <https://www.ubs.com/global/en/about_ubs/investor_relations/annualreporting/2014.html>. [5 December 2015].

Unicredit Group 12 March 2015, *2014 Consolidated Reports and Accounts*. Available from: <<https://www.unicreditgroup.eu/content/dam/unicreditgroup/documents/en/investors/financial-reports/2014/2014-Consolidated-Reports-and-Accounts.pdf>>. [5 December 2015].

USAID, "High Levels of Problem Loans in Southeast Europe and Eurasia: The Silent Killer of Economic Growth." *United States Agency for International Development* (2011).

Weil, Roman, Katherine Schipper and Jennifer Francis. 2014. "Financial Accounting: An Introduction to concepts, methods and uses." *Southwestern CENGAGE Learning* (2014).

Wells Fargo 1 February 2015, *2014 Annual Report*. Available from: <<https://www08.wellsfargomedia.com/assets/pdf/about/investor-relations/annual-reports/2014-annual-report.pdf>>. [5 December 2015].

Williams, Jonathan. "Determining management behaviour in European banking." *Journal of Banking & Finance* 28, No. 10 (2004) 2427-2460.

World Bank. World Development Indicators: Financial access, stability and efficiency Accessed Aug 25, 2015, <http://wdi.worldbank.org/table/5.5>.

Wray, Randall, "Minsky Crisis." *Levy Economics Institute of Bard College Working Paper No. 659* (2011).

Appendix 1

Loan and credit classifications across G20 countries

Country	NPLs/Impaired loans definition	Source
Argentina	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. Loan provisioning must be performed on the basis of the classification assigned to the debtor.	Banco Central de la República Argentina ³⁷
Australia	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; and also to large money market transactions where doubt about collectability arises immediately in the event that settlement does not eventuate.	Australian Prudential Regulation Authority ³⁸

³⁷ Banco Central de la República Argentina December 2014, *Prudential Regulations*. Available from: <http://www.bcra.gov.ar/Pdfs/Marco_legal_normativo/marco%20normativo_i.pdf>. [9 November 2015].

³⁸ Australian Prudential Regulation Authority January 2015, *Prudential Standard APS 220 Credit Quality*. Available from: <<http://www.apra.gov.au/CrossIndustry/Documents/141120-APS-220.pdf>>. [14 November 2015].

<p>Brazil</p>	<p>The Brazilian Central Bank (BCB) does not provide a formal definition of non-performing loans. There is a tasking force working on that, including through participation on an international study group coordinated by the Bank for International Settlements (BIS). So far the group is about to propose a definition which 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). Such regulation follows BCB’s Resolution 2.682. Basically, Resolution 2.682 defines the 9-level classification scale and determines that financial institutions credit ratings must take into account a number of factors, including borrower’s financial economic situation and credit history. And 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.</p>	<p>Banco Central do Brasil³⁹</p>
<p>Canada</p>	<p>The IAS 39 definition of impairment is quoted by the Office of the Superintendent of Financial Institutions (OSFI). A financial asset or a group of financial assets is deemed to be impaired if, and only if, there is objective evidence of impairment as a result of one or more events that has occurred after the initial recognition of the asset (an incurred ‘loss event’) and that loss event has an impact on the estimated future cash flows of the financial asset or the group of financial assets that can be reliably estimated.</p> <p>Given the loss events described in IFRS (IAS 39.59a-f), and in particular the impact of significant financial difficulty of the issuer or obligor, a breach of contract, such as a default or delinquency in interest or principal payments, and adverse changes in the payment status of borrower, OSFI considers the below listed conditions to be indicative of non performing status. OSFI further recognizes that the below listed conditions should not limit the earlier recognition of impairment losses incurred in accordance with IAS 39:</p> <p>(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. Any credit card loan that has a payment 180 days in arrears should be written off.</p>	<p>Office of the Superintendent of Financial Institutions⁴⁰</p>

³⁹ Banco Central do Brasil 2015, pers. comm., 17 August.

⁴⁰ Office of the Superintendent of Financial Institutions December 2014, *Financial Statements*. Available from: <<http://www.osfi-bsif.gc.ca/eng/docs/2014q3fs.pdf>>. [21 September 2015].

China	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 are referred to as NPLs.	China Banking Regulatory Commission ⁴¹
France	Under the national accounting framework the concept of 'non-performing' is not used. Instead it is referred to 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).	Autorité de contrôle prudentiel et de résolution ⁴²
Germany	There is no formal definition of NPLs under German legislation. BaFin and the Deutsche Bundesbank therefore used impaired loans reported in accordance with the German Audit Report Regulation (Prüfungsberichtsverordnung) as an approximation for the purpose of determining the volume of NPLs. In particular, Section 25(2) of the German Audit Report Regulation regulates 'noteworthy loans' as loans in respect of which there is good reason to assume that they involve a risk of major parts of the institution's total lending business becoming non-	Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) ⁴³
India	A non performing asset (NPA) is a loan or an advance where: (i) interest and/or instalment of principal remain overdue for a period of more than 90 days in respect of a term loan; (ii) the account remains 'out of order' (...) in respect of an overdraft/cash credit (OD/CC); (iii) the bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted; (iv) the instalment of principal or interest thereon remains overdue for two crop seasons for short duration crops; (v) the instalment of principal or interest thereon remains overdue for one crop season for long duration crops; (vi) the amount of liquidity facility remains outstanding for more than 90 days, in respect of a securitization transaction undertaken in terms of guidelines on securitization dated February 1, 2006; (vii) in respect of derivative transactions, the overdue receivables representing positive mark-to-market value of a derivative contract, if these remain unpaid for a period of 90 days from the specified due date for payment. In case of interest payments, banks should classify an account as NPA only if the interest due and charged during any quarter is not serviced fully within 90 days from the end of the quarter.	Reserve Bank of India ⁴⁴

⁴¹ China Banking Regulatory Commission 2014, *Supervision Statistics of Q2*. Available from: <<http://www.cbrc.gov.cn/EngdocView.do?docID=403BCC3E340949998F9A87A3CAA8E023>>. [8 August 2015].

⁴² Autorité de contrôle prudentiel et de résolution 2015, pers. comm., 14 August.

⁴³ Bundesanstalt für Finanzdienstleistungsaufsicht 2014, *Annual Report*. Available from: <http://www.bafin.de/SharedDocs/Downloads/EN/Jahresbericht/dl_annualreport_2014.pdf?blob=publicationFile>. [11 August 2015].

⁴⁴ Reserve Bank of India 2015, pers. comm., 24 August.

Indonesia	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, off balance sheet items and any other equivalent forms of fund provisions) 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.	Bank Indonesia ⁴⁵
Italy	The Italian classification of NPL includes four sub-categories: (1) Bad loans: exposures to an insolvent counterparty (even if insolvency is not legally ascertained) or in equivalent situations, regardless of any loss estimate made by the bank and irrespective of any possible collateral or guarantee; (2) Substandard loans: exposures to counterparty facing temporary difficulties – defined on the basis of objective factors - that is expected to be overcome within a reasonable period of time; (3) Restructured loans: exposures in which a pool of banks or an individual bank, as a result of the deterioration of the borrower’s financial situation, agree to change the original conditions (rescheduling deadlines; reduction of interest rate), giving rise to a loss; and (4) Past due: exposures other than those classified as bad loans, substandard or restructured exposure that are past due for more than 90 days on a continuous basis.	Bank of Italy ⁴⁶
Japan	Loans are classified into four categories: (i) bankrupt or de facto bankrupt (“bankrupt or quasi-bankrupt”), (ii) doubtful, (iii) special attention (“needs attention” or “substandard”) and (iv) 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.” “Bankrupt or de facto bankrupt” is the most risky category of assets.	Financial Services Agency ⁴⁷

⁴⁵ Bank Indonesia 2015, pers. comm., 11 August.

⁴⁶ Bank of Italy July 2013, *The recent Asset quality review on non-performing loans conducted by the Bank of Italy: Main features and results*. Available from: http://www.bancaditalia.it/media/approfondimenti/documenti/Asset_quality_review.pdf?language_id=1. [8 October 2015].

⁴⁷ Financial Services Agency June 2014, *Inspection Manual for Deposit-Taking Institutions*. Available from: http://www.fsa.go.jp/en/refer/manual/yokin_e/y-all.pdf. [5 August 2015].

<p>Republic of Korea</p>	<p>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; this would be the case even if the borrower's debt-serving ability has significantly deteriorated and the risk of default has heightened.</p>	<p>The Bank of Korea⁴⁸</p>
<p>Mexico</p>	<p>In order to reclassify the loan as non-performing, 90 days must go by after the end of the extension period. The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.</p>	<p>Banco de México⁴⁹</p>

⁴⁸ The Bank of Korea 2015, pers. comm., 21 August.

⁴⁹ Banco de México September 2013, *Financial System Report*. Available from: <<http://www.banxico.org.mx/publicaciones-y-discursos/publicaciones/informes-periodicos/reporte-sf/%7BCE284A71-335F-95DE-FE82-5C0A8239CF44%7D.pdf>>. [25 August 2015].

<p>Russia</p>	<p>There is no exact definition of “non-performing loan” under the Russian legal framework. (Bank of Russia Regulation No. 254-P, dated 26 March 2004, ‘On the Procedure for Making Loss Provisions by Credit Institutions for Loans, Loan and Similar Debts’). The Bank of Russia shares an approach used in international practice, considering non-performing loans as loans with overdue debt over 90 days. The Bank of Russia widely uses this term for assessment of credit risk in homogeneous loans portfolios, for example, of unsecured consumer loans. Simultaneously, such indicators of credit risk as a share of arrears in total volume of outstanding loans and a share of problem and loss loans in total debt are also used to analyse banks credit portfolios quality. Arrears include debts not paid back on time, as stipulated by loan agreement. 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). Collateral is not considered as a factor that influences the quality category of loans. 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. The impairment loss is defined as the difference between the book value of a loan, i.e., the outstanding debt registered in accounting as of the time of its assessment and its fair value as of the time of assessment (the current value of a loan).</p>	<p>Central Bank of the Russian Federation⁵⁰</p>
---------------	---	--

⁵⁰ Central Bank of the Russian Federation 2015, pers. comm., 30 September.

<p>Saudi Arabia</p>	<p>Banks should be able to identify/differentiate defaulted exposures that fall within different categories of classified assets (i.e. Substandard, Doubtful and Loss). A default is considered to have occurred with regard to a particular obligor when either or both of the two following events have taken place: (1) a bank considers that the obligor is unlikely to pay in full its credit obligations to the bank (or the banking group of which it is a part), without recourse by the bank to actions such as realizing security (if held); (2) the obligor is past due for more than 90 days on any material portion of its credit obligations to the bank (or the banking group of which it is a part). Past due credit obligations are regarded as material if they represent 5% or more of the obligor’s outstanding credit obligations. 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). Impairment is an accounting term which is calculated by calculating the present value of future cash flows related to a particular loan and then comparing it to the carrying amount of the loan. 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). Performing loans are considered to be those that are not past due for more than 90 days in accordance with paragraph 75 of the Basel II framework. Conversely, non-performing loans are considered to be loans that are more than 90 days past due.</p>	<p>Saudi Arabian Monetary Agency⁵¹</p>
---------------------	---	---

⁵¹ Saudi Arabian Monetary Agency April 2008, *Guidance On Application Procedures for Adoption of the IRB Approach by Banks Licensed in Saudi Arabia*. Available from: <<http://www.sama.gov.sa/en-US/Laws/Documents/Section%20B/Guidelines%20on%20Application%20Procedures%20for%20the%20Adoption%20of%20IRB%20Approaches%20by%20Bank%20licensed%20in%20Saudi.pdf#search=Guidance%20On%20Application%20Procedures>>. [20 August 2015].

SAMAs Final Guidance document Concerning Implementation of Basel III Pillar 3 Component, December 2012. Available from: <[http://www.sama.gov.sa/en-US/Laws/Documents/Section B/1. SAMAs Final Guidance document.zip](http://www.sama.gov.sa/en-US/Laws/Documents/Section%20B/1.%20SAMAs%20Final%20Guidance%20document.zip)>. [25 September 2015].

SAMA’s Guidance Document Concerning Basel III: the Net Stable Funding Ratio (NSFR) Based on BCBS Document of October 2014. Available from: <<http://www.sama.gov.sa/en-US/Laws/Documents/Section%20B/5.%20SAMAs%20Guidance%20Document%20concerning%20Basel%20III%20NSFR.pdf#search=SAMA%20E2%80%99s%20Guidance%20Document%20Concerning%20Basel%20III:%20the%20Net%20Stable%20Funding%20Ratio>>. [25 September 2015].

South Africa	<p>When an arrears loan remains on the books of the bank after the original maturity and the bank continues to collect outstanding amounts this will not be considered a restructure and should not be reported as such. 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. A financial asset is impaired and impairment losses are incurred only if there is objective evidence of impairment as a result of one or more events that have occurred after the initial recognition of the asset (a loss event) and that loss event has an impact on the estimated future cash flows of the financial asset, that can be estimated reliably. If there is objective evidence that an impairment loss has been incurred on loans and receivables the amount of the loss is measured as the difference between the asset’s carrying amount and the present value of estimated future cash flows discounted at the original effective interest rate of the financial</p>	South African Reserve Bank ⁵²
Turkey	<p>Loans extended to households and firms, which are currently less than 90-days past due or do not have any repayment problem but for which there are estimations for a weakening repayment capability in the future, are classified as “loans under close monitoring”. If the delay in the repayment of loans under close monitoring exceeds 90 days or the belief that their collection will be problematic strengthens, these loans start being monitored under the NPL class. 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 5 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.</p>	Central Bank of the Republic of Turkey ⁵³

⁵² South African Reserve Bank 2014, Directive 9/2014 issued in terms of section 6(6) of the Banks Act (Act No. 94 of 1990). Available from: <<https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/6538/D9%20of%202014.pdf>>. [25 August 2015].

South African Reserve Bank 12 June 2014, *Annual Report 2013/14*. Available from: <<https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/6292/Annual%20Report%202014.pdf>>. [5 December 2015].

⁵³ Central Bank of the Republic of Turkey 2015, pers. comm., 11 August.

United Kingdom	The definition for forbearance should be taken from either: (1) the EBA consultation paper on Implementing Technical Standards on Supervisory Standards; (2) the FSA definition of forbearance as detailed in the published guidance. The PRA defines impairment charge as amount of impairment taken in the time period specified. Impairment charge is typically expressed as a positive number (i.e. a loss is represented by a positive figure).	Prudential Regulation Authority (PRA) ⁵⁴
United States	Generally accepted accounting principles (GAAP) requires creditors to measure a loan for impairment based on the fair value of the collateral when the creditor determines that foreclosure is probable. In addition, GAAP allows a creditor to measure an impaired loan on which the repayment of the loan is expected to be provided solely by the underlying collateral (i.e., a collateral-dependent loan) based on the fair value of the collateral.	Securities and Exchange Commission ⁵⁵
European Union	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, Italy and UK).	European Banking Authority (EBA) ⁵⁶

Sources: The regulatory bodies' websites (See References).

⁵⁴ Prudential Regulation Authority January 2015, *Retail Credit Risk Non-UK Portfolio Quality Return*. Available from: <<http://www.bankofengland.co.uk/publications/Documents/foi/2015stresstests/st1.pdf>> [30 November 2015].

⁵⁵ Securities and Exchange Commission, Division of Corporation Finance 20 April 2012, *CF Disclosure Guidance: Topic No. 5. Staff Observations Regarding Disclosures of Smaller Financial Institutions*. Available from: <<https://www.sec.gov/divisions/corpfin/guidance/cfguidance-topic5.htm>>. [1 December 2015].

⁵⁶ 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*. Available from: <<http://www.eba.europa.eu/documents/10180/449824/EBA-ITS-2013-03+Final+draft+ITS+on+Forbearance+and+Non-performing+exposures.pdf/a55b9933-be43-4cae-b872-9184c90135b9>>. [5 July 2015].

Appendix 2

Extracts from annual reports of NPL and impaired loans across G-SIBS

Bank	NPLs/Impaired loans definition	Source
Agricultural Bank of China	Loans classified as substandard, doubtful and loss are regarded as non-performing loans. Substandard loans: the borrowers' ability to service their loans is in question and they cannot rely entirely on normal operating revenues to repay principal and interest. Losses may ensue even when collateral or guarantees are invoked. Doubtful loans: borrowers cannot repay principal and interest in full and significant losses will need to be recognized even when collateral or guarantees are invoked. Loss loans: only a small portion or none of the principal and interest can be recovered after taking all possible measures and exhausting all legal remedies.	2014 Annual Report ⁵⁷
Bank of America	NPLs do not include past due consumer credit card loans, other unsecured loans and in general, consumer non-real estate-secured loans (loans discharged in Chapter 7 bankruptcy are included) as these loans are typically charged off no later than the end of the month in which the loan becomes 180 days past due. NPLs and accruing balances past due 90 days or more do not include the Purchased Credit-impaired loan portfolio or loans accounted for under the fair value option even though the customer may be contractually past due. In addition, the Bank classifies junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. A loan is considered impaired when, based on current information and events, it is probable that the Corporation will be unable to collect all amounts due, including principal and interest, in accordance with the contractual terms of the agreement, or the loan has been modified in a troubled debt restructuring.	2014 Annual Report ⁵⁸
Bank of China	Identified impaired loans and advances are loans for which objective evidence of impairment exists and which have been identified as bearing an impairment loss and assessed either: (1) individually (including mainly significant corporate loans and advances over a certain amount which are impaired); or (2) collectively (portfolios of individually insignificant homogenous loans which share similar credit risk characteristics, including insignificant corporate loans and advances and personal loans which are impaired).	2014 Annual Report ⁵⁹

⁵⁷ Agricultural Bank of China 24 March 2015, *2014 Annual Results Announcement*. Available from: <<http://www.abchina.com/en/about-us/annual-report/201503/P020150326402006728756.pdf>>. [3 December 2015].

⁵⁸ Bank of America Corporation 11 March 2015, *2014 Annual Report*. Available from: <http://media.corporate-ir.net/media_files/IROL/71/71595/AR2014.pdf>. [3 December 2015].

⁵⁹ Bank of China Limited 25 March 2015, *2014 Annual Report*. Available from: <<http://pic.bankofchina.com/bocappd/report/201504/P020150428619210434247.pdf>>. [4 December 2015].

Bank of New York Mellon	Commercial loans are placed on nonaccrual status when principal or interest is past due 90 days or more, or when there is reasonable doubt that interest or principal will be collected. When a first lien residential mortgage loan reaches 90 days delinquent, it is subject to an impairment test and may be placed on nonaccrual status. At 180 days delinquent, the loan is subject to further impairment testing. The loan will remain on accrual status if the realizable value of the collateral exceeds the unpaid principal balance plus accrued interest. If the loan is impaired, a charge-off is taken and the loan is placed on nonaccrual status. At 270 days delinquent, all first lien mortgages are placed on nonaccrual status. Second lien mortgages are automatically placed on nonaccrual status when they reach 90 days delinquent.	2014 Annual Report ⁶⁰
Barclays	A loan is considered past due when the borrower has failed to make a payment when due under the terms of the loan contract. The impairment allowance includes allowances against financial assets that have been individually impaired and those subject to collective impairment. Loans that are past due but not impaired consist predominantly of wholesale loans that are past due but individually assessed as not being impaired. These loans, although unimpaired, may carry an unidentified impairment. Impaired loans that are individually assessed consist predominantly of wholesale loans that are past due and for which an individual allowance has been raised.	Annual Report 2014 ⁶¹
BBVA	The classification of financial assets impaired due to customer default is individualized to the following criteria: (1) the total amount of financial assets, whoever the holder and collateral, which have principal, interest or fees amounts past due for more than 90 days as contractually agreed following objective criteria through aging calculation systems, unless already charged off; and, (2) contingent risks where the third party collateral individual becomes impaired. The classification of financial assets impaired by reasons other than customer default is performed individually for all risks whose individual amount is material where there is reasonable doubt about their full repayment on contractually agreed terms as they show objective evidence of impairment adversely affected by the expected cash flows of the financial instrument. Impaired/doubtful/nonperforming portfolio are financial assets whose carrying amount is higher than their recoverable value, prompting the entity to recognize the corresponding impairment loss. NPLs are defined as the balance of non performing risks, whether for reasons of default by customers or for other reasons as detailed in section II of Annex IX of Bank of Spain Circular 04/2004, for exposures on balance loans to customers.	Consolidated financial statements, management report and auditors' report 2014 ⁶²

⁶⁰ Bank of New York Mellon 27 February 2015, *2014 Annual Report*. Available from:

<https://www.bnymellon.com/_global-assets/pdf/investor-relations/annual-report-2014.pdf>. [3 December 2015].

⁶¹ Barclays PLC 2 March 2015, *Annual Report 2014*. Available from: <https://www.home.barclays/content/dam/barclayspublic/docs/InvestorRelations/AnnualReports/AR2014/Barclays_PLC_Annual_Report_%202014.pdf>. [3 December 2015].

⁶² BBVA 4 February 2015, *Consolidated financial statements, management report and auditors' report 2014*. Available from:

BNP Paribas	Doubtful loans are defined as loans where the bank considers that there is a risk that the borrowers will be unable to honour all or part of their commitments. This is the case for all loans on which one or more instalments are more than three months overdue (six months in the case of real estate loans or loans to local governments), as well as loans for which legal procedures have been launched. When a loan is classified as doubtful, all other loans and commitments to the debtor are automatically assigned the same classification.	2014 Registration document and annual financial report ⁶³
Citigroup Inc.	As a general policy, residential first mortgages, home equity loans and installment loans are classified as non-accrual when loan payments are 90 days contractually past due. Credit cards and unsecured revolving loans generally accrue interest until payments are 180 days past due. Home equity loans in regulated bank entities are classified as non-accrual if the related residential first mortgage is 90 days or more past due.	2014 Annual Report ⁶⁴
Credit Suisse	A loan is classified as non-performing no later than when the contractual payments of principal and/or interest are more than 90 days past due except for subprime residential loans which are classified as non-performing no later than when the contractual payments of principal and/or interest are more than 120 days past due. The additional 30 days ensure that these loans are not incorrectly assessed as non-performing during the time when servicing of them typically is being transferred.	Annual Report 2014 ⁶⁵
Deutsche Bank	A loan or group of loans is impaired and impairment losses are incurred if: (1) there is objective evidence of impairment as a result of a loss event that occurred after the initial recognition of the asset and up to the balance sheet date (“a loss event”); (2) the loss event had an impact on the estimated future cash flows of the financial asset or the group of financial assets; and, (3) a reliable estimate of the loss amount can be made.	Annual Review 2014 ⁶⁶

<http://shareholdersandinvestors.bbva.com/TLBB/fbinir/mult/ConsolidatedFinancialStatements_tcm927-508895.pdf>. [3 December 2015].

⁶³ BNP Paribas 6 March 2015, *2014 Registration document and annual financial report*. Available from: <https://invest.bnpparibas.com/sites/default/files/documents/ddr_2014_gb.pdf>. [3 December 2015].

⁶⁴ Citigroup Inc. 25 February 2015, *2014 Annual Report*. Available from: <http://www.citigroup.com/citi/investor/quarterly/2015/ar14c_en.pdf?ieNocache=511>. [4 December 2015].

⁶⁵ Credit Suisse Group AG March 2015, *Annual Report 2014*. Available from: <<https://www.credit-suisse.com/media/cc/docs/publications/annualreporting/2014/csg-ar-2014-en.pdf>>. [4 December 2015].

⁶⁶ Deutsche Bank March 2015, *Annual Review 2014*. Available from: <https://www.db.com/ir/en/download/Deutsche_Bank_Annual_Report_2014_entire.pdf>. [4 December 2015].

Goldman Sachs	The Bank provides a definition of impaired loans and loans on non-accrual status. A loan is determined to be impaired when it is probable that the firm will not be able to collect all principal and interest due under the contractual terms of the loan. At that time, loans are placed on non-accrual status and all accrued but uncollected interest is reversed against interest income and interest subsequently collected is recognized on a cash basis to the extent the loan balance is deemed collectible.	2014 Annual Report ⁶⁷
Groupe BPCE	Loans for which recovery is uncertain result in the recognition of an impairment loss on the asset to cover the risk of loss. Impairment losses are calculated on a case-by-case basis, taking into account the present value of guarantees received. Impairment losses are determined on at least a quarterly basis and are calculated in reference to available guarantees and a risk analysis. Impairment losses cover at a minimum the interest not received on doubtful loans. Doubtful loans are identified in compliance with French Accounting Standards Authority (ANC) regulation No. 2014-07, particularly in the case of loans past due for over three months, over six months for real estate loans, and over nine months for loans to local authorities. Article 2221-1 para 1 of the regulation No. 2014-07 provides that ‘Sont des encours douteux, les encours porteurs d’un risque de crédit avéré au sens de l’article 2211-2c) du présent règlement, correspondant à l’une des situations suivantes: lorsqu’il existe un ou plusieurs impayés depuis trois mois au moins (six mois pour les créances sur des acquéreurs de logement et sur des preneurs de crédit-bail immobilier, neuf mois pour les créances sur des collectivités locales, compte tenu des caractéristiques particulières de ces crédits). Il ne peut être dérogé à cette règle que lorsque des circonstances particulières démontrent que les impayés sont dus à des causes non liées à la situation du débiteur’.	2014 Registration document and full-year financial report ⁶⁸

⁶⁷ Goldman Sachs 20 February 2015, *2014 Annual Report*. Available from: <<http://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2014-annual-report-files/annual-report-2014.pdf>>. [4 December 2015].

⁶⁸ Groupe BPCE 18 March 2015, *2014 Registration document and full-year financial report*. Available from: <<http://www.bpce.fr/en/Investors/Results/Registration-documents>>. [4 December 2015].

Group Crédit Agricole	There is no identified credit risk on loans and receivables that are less than 90 days past due, accounting for 89.4% of past due but not impaired loans. In accordance with IAS 39, loans classified under Loans and receivables are impaired whenever there is objective indication of impairment as a result of one or more loss events occurring after the initial recognition of these loans, such as: (1) borrower in serious financial difficulties; (2) a breach of contract such as a default on the payment of interest or principal; (3) the granting by the lender to the borrower, for economic or legal reasons connected with the borrower's financial difficulties, of a facility that the lender would not have envisaged under other circumstances (loan restructuring); and (4) increasing probability of bankruptcy or other financial restructuring of the borrower.	Annual Financial Report 2014 ⁶⁹
-----------------------	---	--

⁶⁹ Group Crédit Agricole 20 March 2015, *Annual Financial Report 2014*. Available from: <<http://www.credit-agricole.com/en/Investor-and-shareholder/Financial-reporting/Credit-Agricole-S.A.-financial-results>>. [4 December 2015].

<p>HSBC</p>	<p>Impaired loans and advances are those that meet any of the following criteria: (1) wholesale loans and advances classified as Customer Risk Rating ('CRR') 9 or CRR 10. These grades are assigned when the bank considers that either the customer is unlikely to pay its credit obligations in full, without recourse to security, or when the customer is more than 90 days on any material credit obligation to HSBC; (2) retail loans and advances classified as Expected Loss ('EL') 9 or EL 10. These grades are assigned to retail loans and advances greater than 90 days past due unless individually they have been assessed as not impaired; and, (3) renegotiated loans and advances that have been subject to a change in contractual cash flows as a result of a concession which the lender would not otherwise consider, and where it is probable that without the concession the borrower would be unable to meet the contractual payment obligations in full, unless the concession is insignificant and there are no other indicators of impairment. Renegotiated loans remain classified as impaired until there is sufficient evidence to demonstrate a significant reduction in the risk of non-payment of future cash flows, and there are no other indicators of impairment.</p>	<p>Annual Report and Accounts 2014⁷⁰</p>
-------------	---	---

⁷⁰ HSBC Bank plc 23 February 2015, *Annual Report and Accounts 2014*. Available from: <http://www.hsbc.co.uk/1/PA_esf-ca-app-content/content/pws/content/personal/pdfs/hbeu-2014-ara-final-online.pdf>. [4 December 2015].

<p>Industrial and Commercial Bank of China Limited</p>	<p>According to the regulatory requirement on loan risk classification, the Bank implemented five-category classification management in relation to loan quality and classified loans into five categories: (1) pass; (2) special mention; (3) substandard; (4) doubtful; and (5) loss, based on the possibility of collecting the principal and interest of loans. In order to implement sophisticated management of credit asset quality and improve risk management, the Bank implemented the 12-category internal classification system for corporate loans. The Bank applied five-category classification management to personal credit assets and ascertained the category of the loans based on the number of months for which the lender is in default, anticipated loss rate, credit rating, collaterals and other quantitative and qualitative factors. Impaired loans and advances are defined as those loans and advances having objective evidence of impairment as a result of one or more events that occurred after initial recognition and that event has an impact on the estimated future cash flows of loans and advances that can be reliably estimated. These loans and advances include corporate loans and personal loans which are graded as “Substandard”, “Doubtful” or “Loss”.</p>	<p>2014 Annual Report⁷¹</p>
<p>ING Group</p>	<p>A financial asset or a group of financial assets is impaired and impairment losses are incurred if, and only if, there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset, but before the balance sheet date, (a ‘loss event’) and that loss event (or events) has an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated. All loans with past due financial obligations of more than 90 days are automatically reclassified as non-performing. For the commercial lending portfolios there are generally reasons for declaring a loan non-performing prior to being 90 days past due. These include, but are not limited to, ING Bank’s assessment of the customer’s perceived inability to meet its financial obligations, or the customer filing for bankruptcy or bankruptcy protection. ING Bank identifies as non-performing loans those loans for which it is probable, based on current information and events that the principal and interest amounts contractually due will not be collected in accordance with the contractual terms of the loan agreements. In line with the regulatory definition (CRR/CRDIV), ING Bank considers all business loans as non-performing if they are 90 days past due. In line with the IFRS, after a payment default of an obligor of more than 90 days, or the likelihood of a payment default of the customer, the particular loan and all other positions will be regarded as problem or non-performing loans.</p>	<p>ING Group Annual Report 2014⁷²</p>

⁷¹ Industrial and Commercial Bank of China Limited 26 March 2015, *Annual Report 2014*. Available from: <http://v.icbc.com.cn/userfiles/Resources/ICBCLTD/download/2015/22014AnnualReport_20150421.pdf>. [4 December 2015].

⁷² ING Group March 2015, *Annual Report 2014*. Available from: <<http://www.ing.com/Investor-relations/Annual-Reports.htm>>. [4 December 2015].

JP Morgan Chase & Co.	Loans (other than credit card loans and certain consumer loans insured by U.S. government agencies) are placed on nonaccrual status and considered nonperforming when full payment of principal and interest is in doubt, or when principal and interest has been in default for a period of 90 days or more, unless the loan is both well-secured and in the process of collection. A loan is determined to be past due when the minimum payment is not received from the borrower by the contractually specified due date or for certain loans (e.g., residential real estate loans), when a monthly payment is due and unpaid for 30 days or more. Impaired loans are loans measured at amortized cost, for which it is probable that the Firm will be unable to collect all amounts due, including principal and interest, according to the contractual terms of the agreement.	Annual Report 2014 ⁷³
Mitsubishi UFJ FG	Impaired loans primarily include nonaccrual loans and troubled debt restructurings. A loan is considered impaired when, based on current information and events, it is probable that we will be unable to collect all of the scheduled payments of interest on, and repayment of, the principal of the loan when due according to the contractual terms of the loan agreement. A loan is considered a nonaccrual loan when substantial doubt exists as to the full and timely payment of interest on or repayment of the principal of the loan. Substantially all nonaccrual loans are also impaired loans.	Annual Report 2014 ⁷⁴
Mizuho FG	The Mizuho FG Group considers loans to be impaired when it is probable that the Group will be unable to collect all the scheduled payments of principal and interest when due according to the contractual terms of the loan. The Group classifies loans to special attention, intensive control, substantially bankrupt and bankrupt obligors as impaired loans. Impaired loans include loans past due for 90 days or more and restructured loans that meet the definition of troubled debt restructuring in accordance with ASC 310 “Receivables” of the FASB Accounting Standards Codification. ASC 310-10 provides general guidance for receivables and notes that receivables arise from credit sales, loans, or other transactions. All of the Group’s impaired loans are designated as nonaccrual loans.	Annual Report 2014 ⁷⁵

⁷³ JP Morgan Chase & Co. 8 April 2015, *Annual Report 2014*. Available from: <<http://files.shareholder.com/downloads/ONE/1116454541x0x820066/f831cad9-f0d8-4efc-9b68-f18ea184a1e8/JPMC-2014-AnnualReport.pdf>>. [4 December 2015].

⁷⁴ Mitsubishi UFJ Financial Group, Inc. 18 July 2014, *Annual Report 2014*. Available from: <<http://www.mufg.jp/english/ir/annualreport/2014mufg/pdf/mar/ar2014.pdf>>. [4 December 2015].

⁷⁵ Mizuho Financial Group, Inc. 23 July 2015, *Annual Report 2014 on Form 20-F*. Available from: <<http://www.mizuho-fg.co.jp/english/investors/library.html>>. [4 December 2015].

Morgan Stanley	Loans classified as Doubtful or Loss are considered impaired. When a loan is impaired the impairment is measured based on the present value of expected future cash flows discounted at the loan's effective interest rate or, as a practical expedient, the observable market price of the loan or the fair value of the collateral if the loan is collateral dependent. The Company places loans on nonaccrual status if principal or interest is past due for a period of 90 days or more or payment of principal or interest is in doubt unless the obligation is well-secured and in the process of collection. Loans classified as Doubtful or Loss are categorized as nonaccrual.	2014 Annual Report on Form 10-K ⁷⁶
Nordea	A provision is recognized if there is objective evidence based on loss events and observable data that the customer's future cash flow is weakened to the extent that full repayment is unlikely, collateral included. Exposures with provisions are considered as impaired. Exposures that have been past due more than 90 days are by definition regarded as non-performing, and reported as impaired or not impaired depending on the deemed loss potential.	Annual Report 2014 ⁷⁷
Royal Bank of Scotland	Loans are all loans (including loans subject to forbearance) for which an impairment provision has been established; for collectively assessed loans, impairment loss provisions are not allocated to individual loans and the entire portfolio is included in impaired loans. Accruing loans past due 90 days or more comprise loans past due 90 days where no impairment loss is expected. Non-performing loans are loans classified as Risk elements in lending and potential problem loans. They have a 100% probability of default.	Annual Report and Accounts 2014 ⁷⁸

⁷⁶ Morgan Stanley 2 March 2015, *2014 Annual Report on Form 10-K*. Available from: <http://www.morganstanley.com/about-us-ir/pdf/2014_MS_10-K_Final_Clean_Bannerless.pdf>. [4 December 2015].

⁷⁷ Nordea Bank 5 February 2015, *Annual Report 2014*. Available from: <http://www.nordea.com/Images/33-36843/2014-01-01_Annual-Report-2014-Nordea-Bank-AB_EN.pdf>. [4 December 2015].

⁷⁸ Royal Bank of Scotland 25 February 2015, *Annual Report and Accounts 2014*. Available from: <<http://investors.rbs.com/~media/Files/R/RBS-IR/2014-reports/annual-report-2014.pdf>>. [4 December 2015].

Santander	Loans and advances are classified as non-performing typically when the counterparty fails to make payments when contractually due for three months or longer, although there can be additional qualifying criteria depending upon the business segment and product. Under Santander UK's definition of a NPL, in line with the criteria set by the Bank of Spain and Grupo Santander, NPL is classified as doubtful when: (1) clients with payment delays of between 30 and 90 days and who have been declared publically insolvent (via bankruptcy process) in the previous two years; (2) operations in which once the maturity date is reached there is still capital of the loan pending payment with a maturity of more than 90 days, although the client remains up to date with the monthly payments; and (3) forbearance operations which, in accordance with the corporate policy, are considered as "payment agreements" and thus classified as doubtful. Forbearance refers for the purposes of the Group's risk management to operations which the client has presented, or financial difficulties are envisaged for meeting payment obligations in the prevailing contractual terms and, for this reason, steps were taken to modify, cancel or even formalise a new transaction.	Annual Report 2014 ⁷⁹
Société Générale	When a borrower's solvency is such that after the loan has been classified as doubtful for a reasonable period, it is not foreseeable that it will be reclassified as a performing loan, the loan is identified as a non-performing loan. A loan is classified as non-performing once the bank asks for an early termination, when the contract is terminated and in any case one year after it was classified as doubtful, except where the original terms of the contract have been respected or where the loan is covered by guarantees which ensure its recovery. Loans which have been restructured and for which the borrower has not respected the new conditions are also classified as non-performing. Any loan is classified as doubtful if one or more repayments are more than three months overdue (six months for mortgage loans and nine months for loans to local authorities), or, regardless of whether any payments have been missed, if it can be assumed that there is an identified risk, or if legal proceedings have been started.	Annual Financial Report 2014 ⁸⁰

⁷⁹ Santander March 2015, *Annual Report 2014*. Available from:

<<http://www.santander.com/cs/cs/StaticBS?blobcol=urldata&blobheadername1=content-type&blobheadername2=Content->

Disposition&blobheadername3=appID&blobheadervalue1=application%2Fpdf&blobheadervalue2=inline%3Bfilena me%3D213%5C823%5CAnnual+Report+ENG+ACCE.pdf&blobheadervalue3=santander.wc.CFWCSancomQP01 &blobkey=id&blobtable=MungoBlobs&blobwhere=1278707205507&ssbinary=true>. [4 December 2015].

⁸⁰ Société Générale 4 March 2015, *Annual Financial Report 2014*. Available from:

<http://www.societegenerale.com/sites/default/files/ddr2015_amf_13_03_2015_uk.pdf>. [5 December 2015].

Standard Chartered	An NPL is any loan that is more than 90 days past due or is otherwise individually impaired. This excludes loans renegotiated at or after 90 days past due, but on which there has been no default in interest or principal payments for more than 180 days since renegotiation, and against which no loss of principal is expected. These loans may have a provision reflecting the time value of money, and, if so, are reported as part of forborne loans. Loans are classified as impaired where individual identified impairment provisions have been raised and also include loans that are collateralised or where indebtedness has already been written down to the expected realisable value. The impaired loan category may include loans that, while impaired, are still performing.	Annual Report 2014 ⁸¹
State Street	Loans are placed on non-accrual status once principal or interest payments are 60 days contractually past due, or earlier if management determines that full collection is not probable. Loans 60 days past due, but considered both well-secured and in the process of collection, may be excluded from non-accrual status.	2014 Annual Report to Shareholders ⁸²
Sumitomo Mitsui FG	Impaired loans and advances are comprised of “potentially bankrupt, effectively bankrupt and bankrupt (loans and advances),” “past due three months or more (loans),” “restructured (loans)” and “other impaired (loans and advances).” “Potentially bankrupt, effectively bankrupt and bankrupt (loans and advances)” comprises loans and advances to the borrowers that are perceived to have a high risk of falling into bankruptcy, may not have been legally or formally declared bankrupt but are essentially bankrupt, or have been legally or formally declared bankrupt. Loans classified as “past due three months or more (loans)” represent those loans that are three months or more past due as to principal or interest, other than those loans to borrowers who are potentially bankrupt, effectively bankrupt and bankrupt. In particular, “Bankrupt loans” are loans, after write-off, to legally bankrupt borrowers as defined in Article 96-1-3 and 96-1-4 of “Order for Enforcement of the Corporation Tax Act” (Cabinet Order No. 97 of 1965) and on which accrued interest income is not recognized as there is substantial doubt about the ultimate collectability of either principal or interest because they are past due for a considerable period of time or for other reasons. “Non-accrual loans” are loans on which accrued interest income is not recognized, excluding “Bankrupt loans” and loans on which interest payments are deferred in order to support the borrowers’ recovery from financial difficulties.	2015 Annual Report ⁸³

⁸¹ Standard Chartered 4 March 2015, *Annual Report 2014*. Available from: <https://www.sc.com/annual-report/2014/documents/SCB_ARA_2014_full_report.pdf>. [5 December 2015].

⁸² State Street 23 March 2015, *2014 Annual Report to Shareholders*. Available from: <<http://investors.statestreet.com/Cache/28828283.PDF?O=PDF&T=&Y=&D=&FID=28828283&iid=100447>>. [5 December 2015].

⁸³ Sumitomo Mitsui Financial Group, Inc. August 2015, *Annual Report 2015*. Available from: <http://www.smfg.co.jp/english/investor/library/annual/h2703form20f_pdf/h2703_e_00.pdf>. [5 December 2015].

UBS	A loan is classified as non-performing when the payment of interest, principal or fees is overdue by more than 90 days, when insolvency proceedings have commenced, or when obligations have been restructured on preferential terms. Loans are evaluated individually for impairment when amounts have been overdue by more than 90 days, or if other objective evidence indicates that a loan may be impaired.	Annual Report 2014 ⁸⁴
Unicredit Group	Non-performing loans are formally impaired loans, being exposure to insolvent borrowers, even if the insolvency has not been recognized in a court of law, or borrowers in a similar situation. Measurement is generally on a loan-by-loan basis (coverage ratios statistically and automatically determined for some loan portfolios below a predefined threshold are also checked), for loans singularly not significant, on a portfolio basis for homogeneous categories of loans. Past-due impaired loans are defined as total exposure to any borrower not included in the other categories, which at the balance sheet date has expired facilities or unauthorized overdrafts that are more than 90 days past due and meet the requirements set out by supervisory regulations for their classification under the “past due exposures” category (TSA banks) or under the “defaulted exposures” category (IRB banks).	2014 Consolidated Reports and Accounts ⁸⁵

⁸⁴ UBS 13 March 2015, *Annual Report 2014*. Available from: <https://www.ubs.com/global/en/about_ubs/investor_relations/annualreporting/2014.html>. [5 December 2015].

⁸⁵ Unicredit Group 12 March 2015, *2014 Consolidated Reports and Accounts*. Available from: <<https://www.unicreditgroup.eu/content/dam/unicreditgroup/documents/en/investors/financial-reports/2014/2014-Consolidated-Reports-and-Accounts.pdf>>. [5 December 2015].

Wells Fargo	<p>Loans are placed on nonaccrual status when: (1) the full and timely collection of interest or principal becomes uncertain (generally based on an assessment of the borrower’s financial condition and the adequacy of collateral, if any); (2) they are 90 days (120 days with respect to real estate 1-4 family first and junior lien mortgages which are not mortgage loans or consumer loans exempt under regulatory rules from being classified as nonaccrual until later delinquency) past due for interest or principal, unless both well-secured and in the process of collection; (3) part of the principal balance has been charged off (including loans discharged in bankruptcy); (4) for junior lien mortgages, there is evidence that the related first lien mortgage may be 120 days past due or in the process of foreclosure regardless of the junior lien delinquency status; and (5) performing consumer loans are discharged in bankruptcy, regardless of their delinquency status. For real estate 1-4 family first and junior lien mortgages, the Bank calculates fair value by discounting contractual cash flows, adjusted for prepayment and credit loss estimates, using discount rates based on current industry pricing (where readily available) or its own estimate of an appropriate discount rate for loans of similar size, type, remaining maturity and repricing characteristics.</p>	2014 Annual Report ⁸⁶
-------------	--	----------------------------------

Source: Various bank annual reports, bank websites and existing databases (e.g. Bankscope).

⁸⁶ Wells Fargo 1 February 2015, *2014 Annual Report*. Available from: <<https://www08.wellsfargomedia.com/assets/pdf/about/investor-relations/annual-reports/2014-annual-report.pdf>>. [5 December 2015].