

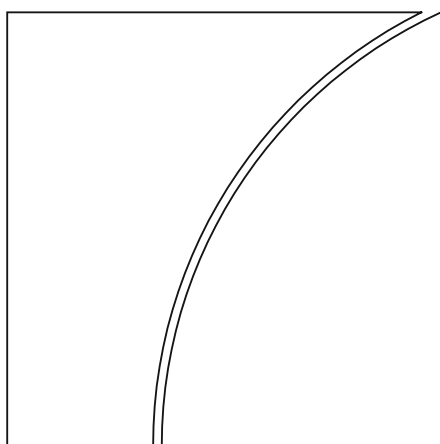
Financial Stability Institute

FSI Insights on policy implementation No 3

Resolution of non- performing loans – policy options

By Patrizia Baudino and Hyuncheol Yun

October 2017



BANK FOR INTERNATIONAL SETTLEMENTS

FSI Insights are written by members of the Financial Stability Institute of the Bank for International Settlements (BIS), often in collaboration with staff from supervisory agencies and central banks. The papers aim to contribute to the international discussions on a range of contemporary regulatory and supervisory policy issues and implementation challenges faced by financial sector authorities. The views expressed in them are solely those of the authors and do not necessarily reflect those of the BIS or the Basel-based Committees.

Authorised by the Chairman of FSI, Fernando Restoy.

This publication is available on the BIS website (www.bis.org). To contact the BIS Media and Public Relations team, please e-mail press@bis.org. You can sign up for e-mail alerts at www.bis.org/emailalerts.htm.

© *Bank for International Settlements 2017. All rights reserved. Brief excerpts may be reproduced or translated provided the source is stated.*

ISSN 2522-2481 (print)

ISBN 978-92-9259-096-3 (print)

ISSN 2522-249X (online)

ISBN 978-92-9259-095-6 (online)

Contents

- Executive summary 1
- Section 1 – Introduction 2
- Section 2 – Key country characteristics and NPL resolution 4
 - The size of the NPL problem, capital and provisions..... 5
 - The macroeconomic context and structural banking sector issues 7
 - The type of underlying assets 7
 - Fiscal space 8
 - Legal and judicial constraints 9
- Section 3 – Policy instruments to resolve NPLs 10
 - Debtor-focused resolution instruments 11
 - Bank-focused resolution instruments 13
- Section 4 – Resolution options: what to consider when an NPL crisis requires a policy response 24
 - Country-specific characteristics and the applicability of NPL resolution tools 24
 - Overcoming limits to the applicability of the NPL resolution toolkit..... 27
 - Other policies interacting with NPL resolution 28
- Section 5 – Main lessons and conclusions 29
- References 32

Resolution of non-performing loans – policy options¹

Executive summary

The resolution of non-performing loans (NPLs) that have reached systemic levels is complex and costly. Bank NPL problems tend to emerge after credit booms or protracted periods of low growth in structurally weak financial systems. NPLs crowd out new lending, eroding both the profitability and solvency of banks. When high NPL levels affect a sufficiently large number of banks, the financial system stops functioning normally, and banks can no longer provide credit to the economy. A prompt recovery can be obstructed by impaired market functioning and coordination failures among banks. In such circumstances, authorities usually step in to lead the crisis response. To this end, they can deploy a variety of resolution instruments, although these typically require a large amount of resources and take time to deliver results.

This paper draws on several country cases and extracts some practical insights about the success factors behind specific NPL resolution strategies. This study suggests that the resolution toolkit used by the authorities has remained broadly unchanged for several decades, based on our review of recent NPL build-ups in Europe and the United States, as well as earlier examples such as the Asian and Nordic financial crises of the 1990s, and the US savings and loan (S&L) crisis in the 1980s. However, the success of resolution policies varies from case to case, and the paper identifies a few factors that determine the feasibility of individual resolution policies. Such characteristics include macroeconomic and structural banking sector conditions, the type of problem assets, the fiscal space for public sector intervention, and legal and judicial frameworks for NPL resolution. These country-specific characteristics determine how far specific resolution options may be applicable and effective in one country but not in another.

The paper matches the instruments in the NPL resolution toolkit to countries' key characteristics, and identifies constraints and possible solutions. The paper discusses the advantages and disadvantages of individual resolution tools, drawing on country cases that shed light on how such tools have been used, and what constraints authorities faced in their application. Next, the paper matches the resolution tools to the key country characteristics, to identify how such characteristics help to define the policy space for NPL resolution. In some cases, country characteristics do not constrain the applicability of the whole NPL resolution toolkit, simplifying the official response, while in others the set of resolution options is more restricted.

Three main lessons can be helpful in designing a response to a crisis or a medium-term strategy for crisis preparedness. First, recognising the constraints that country-specific characteristics impose on resolution policies and the associated trade-offs can help authorities select the most successful policies. Second, with time, authorities can expand their resolution toolkit, by taking stock of any hindrances to specific NPL resolution policies and considering measures to remove them. Third, NPL resolution interacts with other policies during a crisis. Macroeconomic and macroprudential policies can mitigate NPL problems, but do not represent an alternative to dealing with the underlying NPLs. Clear communication helps to pave the way for a successful resolution policy and to establish a reference point for its ex post assessment.

¹ Patrizia Baudino, Bank for International Settlements, and Hyuncheol Yun, Bank of Korea.

The authors are grateful to Stijn Claessens, Ingo Fender, Edward O'Brien, Gregory Sutton and Goetz von Peter for helpful comments. All errors remain the responsibility of the authors, and the views expressed in this paper do not necessarily reflect those of the BIS or the Bank of Korea.

Section 1 – Introduction

1. **NPL build-ups are a recurrent feature of financial crises and financial stress episodes.** Non-performing loans (NPLs)² typically build up as a credit boom³ turns to bust. In other cases, high NPLs can result from protracted low growth and structural imbalances in the banking sector. Recent examples include several European countries, as well as the United States (EBA (2016), IMF (2015) and ECB (2017a)), following the 2007–09 Great Financial Crisis (GFC). Earlier examples include several Asian economies in the late 1990s, (Fung et al (2004)), the Nordic countries in the 1990s (Borio et al (2010)), and the US savings and loan (S&L)⁴ crisis in the 1980s (FDIC (1997)).⁵

2. **The size of the NPL problem can pose a daunting problem for resolution.** Although the scale of NPL problems varies across countries, and definitions of NPLs are not easily comparable across countries, a few examples show how banks' NPL ratios can reach very high levels during a system-wide crisis. For instance, European Banking Authority (EBA) data for end-2016 show NPL ratios of around 45% in Cyprus and Greece, and of around 15% in Italy, Portugal and Slovenia (Council of the European Union (2017)). Looking at the Asian crisis of the 1990s, NPL ratios at the peak of the crisis ranged from over 50% in Thailand to 13% in Korea (Fung et al (2004)). As discussed in this paper, size is only one of the indicators that calls for a system-wide response to an NPL problem, although typically a key one. What matters to set apart systemic crises is that an NPL problem cannot be resolved by a bank-by-bank approach; only a system-wide approach can be effective.⁶

3. **System-wide NPL problems can severely damage a country's growth prospects.** An NPL crisis hinders banks from allocating credit through the economy. First, their profitability suffers, as income from bad assets falls below normal levels; second, provisioning needs to be increased; and, third, funding costs rise as counterparties seek to cover the risks of lending to weakened banks. Meanwhile, write-downs and write-offs deplete capital buffers, and NPLs require higher risk weights. Moreover, NPLs crowd out new lending, as banks saddled with high NPLs have a reduced capacity to extend new credit. Altogether, banking systems with high NPLs experience low profitability and low growth, and this can take a long time to resolve. For instance, the GFC continues to drag down growth prospects in Europe (Constâncio (2017) and Aiyar et al (2015a)).

4. **Once NPL problems become systemic, a coordinated and centralised response becomes necessary, and authorities typically lead it.**⁷ System-wide NPL situations cannot be solved via a bank-

² Bad assets could also be assets other than loans, but given that, in most countries, the majority of bank credit risk comprises actual lending, the paper refers to the bad quality assets as NPLs, which is the convention in the relevant literature. During the GFC, when bad credit took the form of more advanced instruments, ie derivatives rather than loans, much the same NPL resolution options were used as for loans, so that the discussion in this paper can apply generally to credit-based assets beyond loans.

³ An extensive literature analyses the link between excessive credit growth, the financial cycle and banking crises. For a discussion of the issue and references, see for instance Borio (2012) and the Technical Notes supporting Aiyar et al (2015a).

⁴ Even if the S&L crisis did not have sector-wide implications, as it only affected thrifts, it was sufficient to create substantial financial stress in the United States.

⁵ Some Latin American countries also experienced banking crises in the 1990s. Because of the specific solutions adopted there, including the direct involvement of central banks and the fact that solutions relied less on NPL resolution tools and more on bank restructuring and capital injections, this paper does not discuss the Latin American cases. For an overview of banking crises in Latin America in the 1990s, see Jácome (IMF (2008)).

⁶ There is an extensive literature on the definition of systemic banking crises, and criteria for identifying them. See for instance Laeven and Valencia (2012).

⁷ Given the focus of the paper on NPL resolution, the part of the official sector that leads it and is therefore addressed in this paper is the supervisory function. In the paper, authorities are therefore generally identified with either the supervisory agency or the central bank in charge of the supervisory function.

by-bank approach. When the problem reaches systemic levels, a decentralised approach can be difficult to implement or counterproductive, as bank's individual strategies may affect their peers, via fire sales of problem assets, bank runs and contagion. Strategies therefore need to be coordinated at the country level; indeed, the longer the crisis lasts, the more pressing the coordination problem becomes. Typically, the official sector has provided the necessary coordination function. In addition, public funds have sometimes been used to shore up banks, and dispose of bad assets. Coordination typically involves a centralised response, where the choice of the resolution tools and their management is conducted by the authorities. This is because once the NPL build-up is large, bank-level responses, even if coordinated, may not be sufficient, and certain solutions can only be carried out when managed at a central level.

5. **Drawing on several country experiences, this paper shows how authorities in various countries have used a number of resolution tools to address high-NPL situations, often in combination.** The paper reviews resolution tools used in a number of country cases, ranging from the US S&L crisis through the Asian crisis to the NPL problem in the aftermath of the GFC.⁸ Drawing on these experiences with NPL resolution and the extensive literature on NPL crises, the paper finds that the resolution toolkit available to authorities has been broadly stable since at least the late 1980s. Resolution tools range from bank-specific measures such as individual bank restructurings, bank-internal bad-bank units, or bank-specific asset management companies (AMCs), to system-wide solutions, such as the creation of country-wide AMCs, which are managed centrally by the authorities. Generally, countries have used more than one of the available policy tools in response to a crisis. This reflects in part a staggered policy response against the progressive development of the crisis, with the most drastic measures taken as a last resort. It also reflects the need to tackle different types of weakness in the financial system with different tools.

6. **The paper identifies country-specific characteristics that determine the feasibility of various resolution options.** Even if the resolution toolkit has remained broadly stable over several decades, country experiences show that there is no ready-made approach to resolving NPL crises. However, certain key characteristics of a country economic and institutional set-up help to define the chances of success of various resolution policies. In particular, the paper discusses how macroeconomic and structural banking sector conditions, the type of assets that have turned bad, the fiscal space for public sector intervention and the legal and judicial frameworks determine how far specific options may be applicable and effective in one country but not in another.

7. **Matching resolution options to individual country characteristics sheds light on most suitable resolution tools in a country, and highlights priorities in removing obstacles to resolution options over time.** Based on the review of individual country experiences, the paper discusses the suitability of each resolution tool to specific country characteristics. Clearly, country characteristics cannot be directly mapped onto a list of preferred policy tools, so this listing is intended more as a practice-oriented reading of the NPL resolution literature and experience. Nonetheless, the exercise can help to support policymakers in assessing the most suitable policy options at their disposal, as they respond to the crisis. In addition, it also offers guidance on areas for reform that help to extend the resolution toolkit to its full extent, so as to make future NPL build-ups more manageable. Countermeasures against NPL problems by means of adequate recognition, classification, measurement and supervision will be covered in a separate FSI Insight paper (Baudino et al (*forthcoming*)).

8. **NPL resolution tools are only part of the solution, and the restoration of a healthy financial system usually requires additional measures.** Reforms may be required to address structural weakness in the banking sector – for instance, to remedy overbanking. Furthermore, as bank regulation can affect

⁸ In particular, following the GFC, various European countries face a backlog of low-quality legacy assets, combined with a decade of low growth 2017 (EBA (2016)) and (ECB (2017a)). In this light, European Union's authorities have produced a large body of research and policy work on NPLs. This includes work by the European Systemic Risk Board (2017), the European Central Bank (2017), the European Commission (2017), the European Banking Authority (2016) and the Council of the European Union. Ayar et al (2015a) also provide suggestions for resolving the NPL problem in Europe.

the conditions that gave rise to the NPL build-up and the boundaries of bank resolution, it may require a review to identify changes that will reduce the probability of future NPL build-ups and support their disposal. Effective communication on resolution measures are essential to provide clarity to market participants on the resolution tools and their timelines, build public support for the initiatives, and establish a reference point for ex post assessment of the NPL resolution strategy. Finally, macroeconomic policies can also mitigate system-wide NPL problems, by helping to restart credit growth.⁹

9. **The paper is structured as follows.** Section 2 presents the key characteristics that matter when analysing NPL build-ups and deciding on the most suitable resolution tool. Section 3 reviews the policy toolkit to resolve NPLs, while Section 4 discusses the suitability of the policy tools based on a country's key characteristics as presented in Section 2. Section 5 concludes.

Section 2 – Key country characteristics and NPL resolution

10. **This section discusses some key characteristics of a country's NPL problem that strongly influence the effectiveness of the available policy tools.** The success of an NPL resolution strategy depends on several factors that can shape the suitability of the various policy instruments, including:

- the size of the NPL problem in relation to banks' loss-absorbing capacity;
- the macroeconomic context and structural banking sector issues;
- the type of assets that underlie the NPLs;
- the fiscal space for providing support to the banking sector, if needed; and
- legal and judicial constraints.

This section reviews how these key characteristics can influence the effectiveness of the policy options for NPL resolution and why. Before doing so, it is also important to consider the common operational constraints on NPL resolution that authorities need to consider.

11. **The scope of NPL resolution measures remains national.** Banking crises do not necessarily affect more than one country at the same time, and even when they do, solutions are typically devised and implemented at the national level.¹⁰ This reflects the fact that public sector support is a national decision and difficult to coordinate across countries. Within highly integrated groups of countries, however, regional solutions could be considered.¹¹ Resolution options also only apply to banks over which

⁹ Although not discussed in the paper as falling within the domain of fiscal policy, tax policies also need to be considered when assessing the feasibility of various resolution options, as the tax treatment can possibly hinder or facilitate certain resolution strategies (eg as it relates to asset transfers to AMCs, debt workouts, profit or losses following sales of NPLs). See for instance Claessens (2005) for a discussion of the impact of taxes on corporate and debt restructuring.

¹⁰ For instance, this was the case of the responses to the Asian financial crises of the late 1990s, when several countries were affected at around the same time (Fung et al (2004)). Similarly, solutions to the Nordic banking crises, affecting Norway, Sweden, Finland and, to a lesser extent, Denmark, which occurred only a few months apart from one another, were designed and implemented at the national level (Honkapohja (2008)). Finally, a basically similar approach was taken in the European Union, during the sovereign and banking crises of the late 2000s, when countries developed different approaches, such as separate AMCs (eg Ireland, Spain, Slovenia), privately funded bank rescue funds (eg Italy), and some countries entered programmes of financial and economic assistance with European and international authorities. No burden-sharing was applied among the EU countries.

¹¹ For instance, in the context of the European Union, a debate is underway on the feasibility of an area-wide AMC, or an EU blueprint for national AMCs. See Council of the European Union (2017), Enria (2017), Fell et al (2017a) and Avgouleas and Goodhart (2017) for more details of this debate.

the domestic authorities have some direct powers of intervention, ie domestic banks, or local subsidiaries of foreign banks.¹²

12. **Delays in tackling the problem add to the costs of resolving it.** Several factors can delay the response to a mounting NPL problem – for instance, banks’ incentives to deal with the NPLs via forbearance, authorities’ lack of sufficient information, or political will, and the temptation to wait for an economic recovery.¹³ In particular, because improved economic conditions can lift the quality of all assets – both new NPLs and at least part of existing NPLs – banks (and possibly authorities) may be tempted to wait until the quality of the NPLs improves. However, delaying the intervention usually comes at the cost of a further deterioration in banks’ balance sheets, and higher resolution costs.¹⁴ Moreover, delays in restructuring or removing NPLs in the hope of an improvement in macroeconomic conditions can have the perverse effect of hampering the recovery itself, as banks’ balance sheets remain clogged with NPLs, and weak banks have an incentive to continue extending credit to zombie borrowers.¹⁵ This slows the recovery and prolongs the NPL problem. On balance, authorities need to be mindful of the various factors that may obscure a looming NPL problem, and be ready to respond early, before indicators point to an unmistakable country-wide problem, to avoid excessive resolution costs.

The size of the NPL problem, capital and provisions

13. **Authorities need two key pieces of information from the start: the size of the NPL problem and the availability of bank capital (and provisions) to absorb losses.** Measuring an NPL problem is not straightforward, as data may be lacking, reporting may have been imprecise, and banks may have an incentive to extend forbearance. However, without precise estimates, the response by banks or the authorities risks being ineffective. In particular, inaccurate estimates of the problem may result in the growing use of public funds, as time goes on, reducing the programme’s credibility.

14. **Several tools are available to gauge the size of the NPL problem, such as on-site inspections, asset quality reviews (AQRs) and stress testing.** In general, authorities can assess the scale of an NPL problem with reasonable accuracy by combining backward-looking assessments, via on-site inspections and AQRs, with forward-looking ones, such as stress testing (see Box 1). However, in the midst of a financial crisis, authorities have only little time to execute these programmes, so they need to balance the time required for a thorough investigation with the pressing need to respond promptly. In the recent experience of AQRs and stress tests since the GFC, official authorities conducted the analysis over a period of several months. This in turn generated high expectations for the exercises, making their credibility crucial (Bholat et al (2016)). This is a matter not only of having a robust stress scenario and loss estimates techniques, or accurate credit risk data, but also of devising and clearly communicating follow-up actions if the stress test identifies a capital shortfall.

¹² Dealing with foreign-owned banks in a crisis presents some additional challenges, even when the banks are locally incorporated subsidiaries, as considerations of fiscal space could differ when the ultimate parent of the local bank is a foreign bank.

¹³ For a general discussion, see IMF (2016a). A good example of the cost of delays is the Japanese experience of the last two decades (see eg IMF (2009)).

¹⁴ In addition, when individual banks decide to respond to the problems on their own balance sheets, they have no incentive to internalise the externalities of their actions. This can lead to a greater reduction in credit supply, or a greater reduction in asset prices, than is socially desirable. The overall credit-constraining impact is larger if many banks act at the same time, for instance by offloading bad assets, or by drastically reducing credit provision. An economic downturn is likely to follow.

¹⁵ For instance, in the case of the crisis in Japan, Caballero et al (2008) show how weak banks had an incentive to avoid recognising losses by continuing to extend credit to bad creditors. Cleaning up bank balance sheets therefore not only helps banks to lend more, but also to lend to better borrowers.

Assessing asset quality

Authorities have used a variety of tools to assess the size of the NPL problem. Over time, they have complemented traditional on-site inspections with specialised asset quality reviews (AQRs), which are less reliant on the banks' own reporting. This arms-length approach is generally preferred at times of crisis, as a third-party assessment may be considered more trustworthy, and whenever a comparable approach needs to be used across banks or countries. This approach was used when the Single Supervisory Mechanism (SSM) was set up in 2014, as the SSM requires clearly comparable approaches across member countries. The AQR was also needed to respond to concerns about the high level of NPLs in some European banking sectors.

A second addition to the authorities' toolkit is stress tests. Although long used by supervisors on a bank-by-bank basis, these exercises started being regularly used on a system-wide basis, in so-called macro stress tests, after the GFC. Their key feature is their forward-looking nature, which allows authorities to assess banks' fragility not only against current NPLs, but also prospectively. In the context of the GFC, stress tests were used to assess the impact of a deterioration in credit risk on banks' balance sheets. The US Supervisory Capital Assessment Program (SCAP) in 2009 was the first example of this use of stress tests in a financial crisis, and it helped define the scale of the public assistance programme.¹⁶ In the European Union, a similar EU-wide stress testing exercise was first completed in 2010, but with somewhat less convincing results, partly because of the absence of an AQR. The combination of AQRs and stress tests was first used in crisis-hit European countries with high levels of NPLs, such as Ireland in 2011. In 2014, for the launch of the SSM, the system-wide stress-testing exercise for the European Union was combined with an AQR.

15. **A reliable definition of NPLs is vital.** Definitions of NPLs for regulatory purposes vary between countries. This complicates cross-country comparisons of the level of NPLs, both for authorities and market participants. The issue is even more immediate during a crisis, when authorities need a reliable metric. Recognising the need for better comparability and informational content of NPL data, the Basel Committee on Banking Supervision (BCBS) recently published a guidance paper (BCBS (2017)). This paper introduces guidelines to promote harmonisation in the measurement and application of non-performing exposures and forbearance, thereby fostering consistency in supervisory reporting. Convergence in regulatory treatment is pressing across the European Union, where countries share common banking regulation. In 2013, the EBA issued the technical standard on NPLs (EBA (2013)), providing guidance to establish harmonised definitions on when to classify an exposure as non-performing. In 2017, the European Central Bank published practical guidance on the treatment of NPLs in the SSM countries, which will also foster a more robust identification, measurement and treatment of these assets (ECB (2017)).

16. **Lack of a reliable NPL measure can weaken the official response.** Experience has shown how lacking a clear picture of the problem hampered a prompt response. A case in point is Japan in the 1990s, with various rounds of asset quality assessments uncovering ever-larger capital gaps in banks' balance sheets, but without coming to a conclusive assessment. Only in 2002, with the implementation of the so-called Takenaka plan, did an accurate estimate of the size of the problem become available, via the requirement of rigorous evaluation of assets, including from a forward-looking perspective (Hoshi and Kashyap (2010)). This at last enabled the authorities to design a suitable policy response. The opposite experience is the one of Sweden: when the bank recapitalisation fund was set up in late 1992, authorities sought to obtain a clear picture of the financial conditions of banks via due diligence, also relying on external experts. Swedish banks seeking access to this fund had to provide full disclosure of their financial position, submitting to additional inspections as needed (Jonung (2009)).

17. **Quantitative measurements of the NPL problem can be incomplete.** In the early phases of a crisis, it can be difficult to ascertain whether NPL problems have reached systemic dimensions. Stress testing can help in gauging whether the problem will escalate, but its reliability is highly dependent on

¹⁶ For an overview of the first round of US and EU macro stress tests in response to the financial crisis, see ECB (2010).

data availability and the model's effectiveness in capturing the network of potential contagion links. This is generally challenging, and a degree of judgment will be called for.

18. **An assessment of banks' loss-absorption capacity is also needed.** Once the size of the NPL stock has been estimated, together with some projections over new NPL flows, this measure is compared with banks' provisions and capital buffers. In the absence of sufficiently large buffers, NPL losses can quickly erode banks' solvency. For instance, in the GFC and its aftermath, banks' capital buffers proved to be inadequate for the associated losses (Ingves (2011)).

The macroeconomic context and structural banking sector issues

19. **In an NPL crisis, both cyclical macroeconomic conditions and structural banking sector issues are relevant for the design of an effective policy response.** Macroeconomic conditions matter as they affect average credit quality and hence bank balance sheets. For instance, an incipient macroeconomic recovery can facilitate NPL resolution,¹⁷ by improving asset recovery prospects. Supportive macroeconomic and macroprudential policies that speed up the economic recovery can make the resolution of systemic NPL problems more manageable. As the cross-country experience has shown, if there is capacity, fiscal policies can help to reboot economic activity after the bursting of a credit bubble (IMF (2016a)).

20. **From a cyclical perspective, either a slow deterioration or a shock to asset quality may trigger an NPL crisis.** NPLs have typically built up in one of two macroeconomic scenarios. The first is a slow deterioration in asset quality due to protracted weak growth. For instance, looking at the recent European experience, Portugal and Italy exemplify this case. The second scenario is a sudden economic shock to asset quality, against a background of a highly leveraged financial sector that has experienced rapid and sustained growth. In this case, banks are vulnerable to a sudden turn in market sentiment if they hold investments with maturity mismatches (eg real estate investments funded with short-term credit) or marked by excessive valuation. In Europe, the real estate busts in Ireland and Spain are examples of this second scenario.

21. **Structural factors can also contribute to the build-up of NPLs.** Structural weaknesses make a financial system more vulnerable, so that when some form of macroeconomic shock materialises, the financial system is less likely to withstand it. Overbanked countries may be especially vulnerable to NPL crises, as intense competition induces excessive lending and risk-taking. Separately, financial innovation can pose new risks, and also be a challenge for supervisors. The securitisation of mortgages in the lead-up to the GFC is a case in point. Also, lenient regulatory treatment of credit risk may induce excessive risk-taking, as seen in the lead-up to the GFC.¹⁸ From the bank's perspective, operational capacity to dispose of NPLs may also be a constraint.¹⁹

The type of underlying assets

22. **A review of bank assets also needs to cover the types of loan on their books.** This is because, while AQRs and stress tests help to shed light on current and future asset quality, different types of asset,

¹⁷ For instance, Mohaddes et al (2017) show how GDP growth of 1.2%, if sustained for a number of years, would be associated with a substantial decline in Italy's NPL ratio.

¹⁸ Following the GFC, global banking standard setters overhauled regulation for bank credit risk, increasing capital requirements and making them more risk sensitive. Such changes, led by the BCBS, aim to reduce the conditions that can induce an understatement of credit risk, and possibly lead to NPL problems.

¹⁹ For an example based on Italian data for banks' operating costs and operational capacity, see Carpinelli et al (2016).

such as small/medium-sized enterprise (SME) lending or household loans (consumer credit or mortgages), may be more or less amenable to different types of resolution strategy.

23. **Collateral strongly affects the feasibility of resolution options, as it can alleviate information gaps as well as mitigate losses.** In an NPL resolution, third parties take over the asset from the originating bank. The information that the originating bank used when issuing the loan is typically not available to these third parties, creating an information asymmetry. Collateral can help to overcome this information gap, especially if easier to appraise, like real estate collateral. Some standardisation in appraisal practices across this collateral class can also help cut the costs of resolving these loans. In this way, collateral not only fulfils its traditional function of reducing loan losses, but it can also help to support a market for NPLs once loan resolution becomes necessary.

Fiscal space

24. **How far the official sector can contribute effectively to NPL resolution depends crucially on its fiscal space.** If NPL losses erode banks' capital buffers, and no privately funded safety net is available or sufficiently large, resolution has typically required support from the official sector. Thus, the resources available to the official sector should be commensurate with the size of the problem. One lesson drawn from various NPL crises, starting with Japan and Sweden, has been that the official resources available must be large enough to put the success of the resolution beyond doubt.²⁰ Official support also needs to be sustainable over time, ie the country can afford to disburse the resources necessary to support the NPL resolution and remain fiscally sound. When this is not the case, the provision of public funds can trigger a self-reinforcing downward spiral between banking and sovereign crises, as seen in Europe after the GFC.

25. **Fiscal space may be limited by national or supranational constraints.** Some additional constraints apply in certain jurisdictions. For instance, in the European Union, according to the Banking Recovery and Resolution Directive (BRRD),²¹ any form of public support to an institution may be considered a sign that the institution is no longer viable and should therefore be subject to a resolution or winding-up procedure. Even when public support does not imply a bank's non-viability – ie in a precautionary recapitalisation – public support must be compatible with state aid rules, which require the adoption of burden-sharing measures prior to any use of public funds.²² These constraints, set up with the aim of keeping the playing field level, may however have the unintended consequence of delaying the implementation of resolution strategies and, in particular, the establishment of AMCs with public sector involvement at the national or regional level.

26. **Combining public and private sector initiatives can be mutually reinforcing.** A mix of private and public sector solutions can work best in resolving NPL problems. At times of crisis, the availability of official sector resources to fund the NPL resolution could be limited, so a joint public-private ownership of the programme helps to achieve a credible level of resources. In addition, this mix helps to combine the relative strengths of the two sectors. On the one hand, public management of NPL resolution entities could be less risk-sensitive than if undertaken by the private sector. But the involvement of private sector participants could increase the efficiency of NPL resolutions. This approach was used, for instance, in various AMCs that were funded by the public sector and private investors jointly (eg in Korea, Ireland and Spain). On the other hand, private sector participants may not be willing to take part in an NPL resolution

²⁰ For instance, the US stress test of 2009 (SCAP) was seen as more successful than similar exercises in the European Union, because the backstop provided by the US authorities via the Troubled Asset Relief Program (TARP) was readily available, and market participants seemed confident of the capacity of the US government to deliver those resources. In the case of the 2010 EU package, it was unclear whether sufficient resources for the recapitalisations of troubled banks were available, and EU-wide procedures for using the backstop were more cumbersome (ECB (2010)).

²¹ The Directive entered into force on 1 January 2015, and its bail-in procedures have been applicable from 1 January 2016.

²² Burden-sharing according to state aid rules entails losses for junior debt holders. Rules on state aid, introduced well before the GFC, were updated in order to reflect the response to the GFC (European Commission (2013)).

at times of high uncertainty, as during a crisis. In this case, the direct involvement of the official sector can be the catalyst for action.

Legal and judicial constraints

27. **The feasibility of various NPL resolution options also depends on the legal and judicial framework.** Generally, loans and their collateral tend to lose value during protracted debt workouts and related judicial proceedings. Long workout periods also result in uncertainty over the eventual outcome, increasing the discount for any disposal of the NPLs and hence deterring potential sellers from disposing of the asset. As a result, net losses are increased. In this respect, it has been argued that the financial crisis in Europe may have been prolonged by structural weaknesses within domestic legal and judicial systems (EBA (2016)). Several countries have reformed their legal frameworks, typically following a financial crisis (see Box 2). Such changes are expected to improve NPL resolution. However, as some reforms apply only to new NPLs, it will take time before the full benefit of these new frameworks is seen.

Box 2

Mitigating legal obstacles to NPL resolution – some examples

Many countries have simplified the insolvency process or introduced complementary instruments such as pre-insolvency procedures and enhanced workout frameworks.²³ In several cases, these reforms were introduced after financial crises involving NPLs.

Japan

Japan's Corporate Reorganisation Law was amended to improve its efficiency. Before 2002, an "Assembly of Related Persons" had to be summoned three times before a loan could be restructured, even if no party requested that it be convened. Since 2002, only courts or selected parties, such as creditors' committees, can summon the "Assembly of Related Persons", in order to speed up the bankruptcy process. In addition, a rehabilitation plan can be granted by a simple majority rather than by two thirds of voters. In 2001, the "Private Rearrangement Guidelines" established general principles for out-of-court debt workout processes, in order to make out-of-court restructuring easier to implement.

United States

In 2005, the United States introduced simplified procedures within insolvency laws for SMEs. A new Chapter 11 was created for SMEs, with special provisions such as standardised forms, simplified procedures, and no requirement for a creditor committee. Subsequently, an initiative to amend the provisions of Chapter 12 (a simplified procedure for family farmers or fishermen) was launched.

Spain

In 2013, a new law created a new out-of-court procedure, establishing a stay on execution of up to three months. Amendments to the insolvency law introduced in 2013–15 let a company reach a pre-insolvency agreement with its creditors. This insolvency law includes a debt exemption procedure for debtors once their assets have been settled for the benefit of creditors. During 2014–15, additional amendments mitigated the restrictions on debt reductions for unsecured debt and rescheduling of terms in settlement. There is now no limit on write-downs, and rescheduling can be up to 10 years. A new system of class voting was also introduced: a simple majority of 50% or 65% of ordinary creditors is sufficient to approve a restructuring plan.

²³ This box draws on Aiyar et al (2015a) for Spain, Italy, Ireland and Greece, as well as Cova et al (2016) for Italy, IMF (2017) for Greece, Bergthaler (2015) for the United States, and Moody's (2004) for Japan.

Italy

Italy introduced various reforms in 2015, which include a new debt-restructuring tool. With it comes the possibility of reaching an agreement between a firm and its financial creditors, when the firm has more than 50% of its outstanding debt with financial institutions. If 75% of the creditors in terms of the amount outstanding agree to the restructuring, the remaining financial creditors will be bound by the agreement. Further reforms in 2016 also added pledge without possession of moveable assets, preliminary transfer agreement as security for new financing and amendments to the code of civil procedure concerning the enforcement of the transfer of securities.

Ireland

Ireland's Personal Insolvency Act of 2012 introduced new procedures, such as (i) a debt settlement arrangement that, if approved by 65% of the creditors, provides for the settlement of unsecured debt over five years; and (ii) an insolvency arrangement for cash-flow insolvent debtors to settle debt if approved by 65% of all creditors. In 2015, a judicial review of creditors' rejection of a personal insolvency arrangement was introduced; this review may overrule creditors' objections.

Greece

A new law, introduced in 2014, allowed temporary out-of-court workouts, including mechanisms for SMEs and prepacks for large companies. A 2015 amendment to the insolvency law simplifies and strengthens the rehabilitation processes by putting limits on the automatic stay of creditors. 2016 saw the revision of the bankruptcy procedure, aiming to reduce the time needed for its completion by removing ancillary proceedings. The personal insolvency regime was established in 2010. It was reformed in 2015 to achieve speedier processes.

Section 3 – Policy instruments to resolve NPLs

28. **This section reviews the main resolution options, and categorises them into debtor-focused solutions and bank-focused solutions.** As high NPL levels are preceded by a decline in credit quality, it may in some cases be appropriate to assess the options for loan restructuring at the level of individual borrowers. But once credit quality has deteriorated on a broader scale, it is necessary to consider resolution tools that work at an aggregate level, focusing on the banks. When an NPL problem becomes systemic, some form of coordination is required that goes beyond the individual bank level. The range of available resolution options, described in this Section, is summarised in Table 1. Table 2, at the end of this Section, summarises selected country experiences in using these resolution options.

Policy instruments to resolve systemic NPLs

Table 1

Debtors (non-financial companies)	
Policy instruments	How it works
Debt restructuring, including out-of-court workouts	Either corporate or loan restructuring, involving the banks that are creditors to the same customer
Banks	
Policy instruments	How it works
Write-off	Loans are written off from banks' balance sheets
Direct sale	Banks or AMCs sell NPLs in dedicated markets
Securitisation	Banks, special purpose vehicles or AMCs pool and tranche loans and sell the securitised products in dedicated markets
Asset protection schemes	State-backed entities offer insurance on loss on NPLs in order to restart banks' credit provision
Centralised asset management company (AMC)	Dedicated companies buy bad assets from the problem bank(s)

Debtor-focused resolution instruments

29. **Debtor-focused resolution mechanisms can help to recover the value of the bank's assets, and can be an important tool in NPL resolution.** When a bank borrower encounters financial difficulties, debt restructuring can help preserve the value of the debtor's business. However, as this requires classifying the exposure as non-performing, with the associated higher provisioning requirements and the stigma effect on banks and their clients, banks may tend to postpone this step as much as possible. A further incentive for delay is the complexity of debt restructuring, especially where lengthy legal processes are expected.

30. **Debtor-focused resolution mechanisms face some limitations.** First, it is important to ensure that debt restructuring is not simply a form of forbearance, which only postpones the problem. Second, debt restructuring is typically used more for corporate loans rather for other types of lending. Finally, fully fledged insolvency proceedings may be harder to implement in crisis times, when banks do not have the capacity to restructure a large volume of NPLs, market pressure is mounting, and courts are dealing with a large number of corporate failures. In those circumstances, out-of-court workouts may be more effective.

Debt restructuring and out-of-court workouts

31. **Debt restructuring is a standard way of restoring a creditor's repayment capacity.** Debt restructuring allows a non-financial company to reduce and renegotiate its non-performing debts. Out-of-court workouts do not involve a judicial process and are therefore cheaper and faster.²⁴ An intermediate approach is a hybrid involving both an out-of-court workout and a formal insolvency process in the judicial system. Creditors prepare a workout plan in advance, so that the court needs only to give its approval, without being involved in the design of the restructuring. This approach, used in the United States and the

²⁴ As explained in the literature, for instance Garrido (2012) and Council of the European Union (2017), out-of-court workouts are not suitable for all cases of debtors' financial difficulties, and there are both advantages and disadvantages to their use in comparison to formal insolvency proceedings. For a discussion of the experience of corporate workouts and an extensive review of case studies, see Claessens (2005).

United Kingdom, is known as a prepackaged workout (or “prepack”) and is faster than a full judicial process. Countries in continental Europe are developing similar approaches (see Box 3).

Box 3

Out-of-court workouts

Out-of-court workouts have been introduced, with variations, in several jurisdictions. Generally, an out-of-court workout is more time-efficient than a full-blown insolvency proceeding. It can be more flexible and therefore better adapted to the needs of the specific business case. It also carries less stigma and it allows the company under restructuring to continue operating (Garrido (2012)). It is therefore a less disruptive approach, although a thorough, ex ante assessment of the debtor firm’s viability is essential. Out-of-court workouts also help to overcome the potential social loss from the liquidation of a viable company (Brierley and Vlieghe (1999)).

Workout empowered by government involvement

The so-called London Approach helped to pioneer the out-of-court workout. In it, participation is voluntary, and the debt restructuring agreement is decided by the unanimous consensus of the steering committee of lenders.²⁵ During the Asian financial crisis, many countries used out-of-court workouts following the London Approach. However, under pressure from the large volume of loans needing restructuring during the crisis, authorities took the initiative to encourage a modification of the approach to expedite resolution (eg in Korea in 1997, and in Thailand in 1998). First, a majority agreement among creditors, rather than unanimity, could be sufficient to ratify the agreement.²⁶ Second, supervisory authorities intensified monitoring of debt restructuring and actively promoted workouts. In addition, they pushed financial institutions to dispose of NPLs arising from non-viable corporates. After the crisis, out-of-court workouts became part of the standard toolkit for corporate restructuring in these countries.²⁷

Hybrid approaches

One intermediate option is a prepackaged workout programme (the so-called prepack). In this case, lenders submit a plan for rehabilitation of a corporate debtor for a court’s approval. For instance, in the United States, Chapter 11 of the bankruptcy law allows for a prepackaged workout programme. In particular, the Bankruptcy Code allows for a plan of reorganisation that will be confirmed by a bankruptcy court as part of a bankruptcy case, but where the negotiation and solicitation of votes to accept the plan are conducted in anticipation of the commencement of the Chapter 11 case. If there is sufficient acceptance among the creditors to confirm the plan, the company will commence a Chapter 11 bankruptcy (Mallon et al (2017)). This provision was used during the recent GFC. For instance, it took only a respective 40 and 42 days for GM and Chrysler to enter and exit bankruptcy respectively (United States Department of the Treasury (2010)).

Other countries are also promoting the use of hybrid approaches between in- and out-of-court restructuring. For example, the European Commission issued a recommendation to simplify and expedite restructuring procedures, via early activation of the restructuring itself and lighter involvement of the courts (European Commission (2014)). With parallel initiatives in various member countries, the EC Recommendation also reflects the need to retain a level playing field within the region, and facilitate cross-border consistency.²⁸ Although it may still be too early to conclude whether such hybrid approaches will work well in the European Union, it is important to recall that SME loans account for a large portion of corporate NPLs in Europe, which may require some specific conditions (Bergthaler et al (2015)).

32. **Out-of-court workouts typically do not bind all creditors, as formal insolvency proceedings do, but conditions can be set to encourage the involvement of multiple creditors.** As part of debt restructuring proceedings, creditors can be required to join a programme of debt restructuring. For

²⁵ For a description of the London Approach, see Kent (1993).

²⁶ See Mako (2003). Such agreements also need to be consistent with the protection of minority interests.

²⁷ Special laws were issued. For instance, in Korea, the Corporate Restructuring Promotion Act was issued in 2001.

²⁸ See Aiyar et al (2015a) and McCormack et al (2016).

instance, some countries have implemented mandatory legal workout processes if some creditors do not voluntarily participate in the workout of certain debtors. This also helps to expedite the process, reducing the risk that the value of the loan will deteriorate further.

33. **As workouts may be insufficient to restore the loan to performing status, credit developments need to be monitored under this resolution tool.** Should a workout fail, it may be necessary to impose more drastic forms of debt restructuring, such as a buyout plan or court receivership. Because the bank retains its credit exposure to the customer, workouts do not completely remove the risk of credit deterioration from the banks' balance sheet.

34. **It is important to ensure that debt restructuring does not become a form of forbearance.** In order to prevent restructurings being used to hide NPLs, they should be evaluated regularly, both when the loan is first considered eligible for the workout and during the workout's lifetime. For instance, some form of enhanced supervisory monitoring following debt restructuring has been introduced in some countries,²⁹ requiring the bank to regularly report NPL resolution statistics. Regular reporting also reduces the risk of moral hazard on the part of the borrower.

Bank-focused resolution instruments

35. **A large number of policy instruments are applicable to banks, and authorities can promote their usage.** Almost all the instruments presented in this subsection can be activated by the banks themselves, with the exception of asset protection schemes. However, authorities can at times apply these programmes directly, as in the case of public AMCs, or encourage banks to activate specific tools. For instance, while write-offs are conducted by the banks, supervisory authorities can impose tighter requirements, in order to push the banks to clean up their balance sheets faster. Regarding direct sales and securitisation, authorities can support initiatives that are conducive to the creation of a market for these instruments, as explained in Section 4.

Write-offs

36. **Write-offs are one of the simplest ways to dispose of NPLs, but banks usually have an incentive to postpone them.** Write-offs are a routine practice, which helps to ensure that no big backlog of NPLs builds up on banks' balance sheets. It can also be employed in crisis times as an emergency measure, with authorities mandating minimum write-offs on NPLs, recognising that the expected recovery value will be minimal, and that the economic value of attempting some form of resolution for these loans will be low at best.³⁰ Banks normally hesitate to write off NPLs from their balance sheet, due to the implications for profits and capital. They prefer to keep the full value of the loan on their balance sheet, and either count on the passage of time or improving macroeconomic conditions to turn around the loan, or eventually restructure it.

37. **Low provisioning and capital levels represent a major obstacle to writing-off NPLs.** A resolution strategy based on write-offs is contingent on banks' capital buffers and provisions being sufficiently high to be able to absorb these losses. As seen at the outset of the GFC, banks in the United States and Europe entered the crisis with capital buffers that were too thin (Ingves (2011)), hindering write-offs in some jurisdictions. Low provisioning for problem loans can lead banks to write off these assets only in small amounts, as write-offs generate losses that immediately reduce bank capital when provisioning is

²⁹ For instance, in Korea following the Asian crisis, banks need to classify their debtors into one of four credit categories, on an annual basis. Banks are required to undertake mandatory workouts for loans in the next to lowest classification and a court resolution process for debtors in the lowest grade.

³⁰ Various jurisdictions used write-offs after the GFC, although with different intensity (see eg IMF (2015)).

too low.³¹ In addition, when capital buffers are thin, large write-offs make it hard for banks to absorb future credit losses. Stringent provisioning practices are therefore a prerequisite for sizeable write-offs. In this respect, some countries have intensified their regulatory provisioning regime or introduced mandatory writing-off regimes, post-crisis. For instance, banks in the United States, Japan and Brazil are required to write off NPLs and book a loss after a set period.³² From a regulatory perspective, IRB banks are required to deduct from capital the amount by which the accounting provisions are below the expected loss on the assets, where the latter is computed using the expected loss criterion under the Basel capital framework.³³ In some countries, banks using the Standardised Approach are also required to do so.

Direct sales

38. **Direct sales are another basic way of addressing NPL backlogs.** In a direct sale, the bank sells the asset to a counterparty, which is typically another financial institution, possibly a bank, but possibly also various types of investment funds. The selling bank (or AMC) provides prospective buyers with the information they need to conduct due diligence. Recent examples of this approach are direct sales in Ireland, Spain and the United Kingdom (Deloitte (2017), KPMG (2016) and PWC (2016) – see Box 4).³⁴ In some cases, direct sales have covered packages of loans, rather than individual loans, taking advantage of the diversification of risks via asset pooling.

39. **The feasibility of this approach depends on structural characteristics.** First, its applicability depends on the type of NPL. For instance, as discussed in Section 4, this approach is not suitable for individual SME NPLs, due to the high information costs in assessing each loan. Second, transaction costs could also be an obstacle. This is especially the case during a crisis, when large volumes of NPLs are eligible for sale, but each individual direct sale would require a credit assessment. More fundamentally, transactions depend on whether there is a market for NPLs. However, these markets are usually neither deep nor highly liquid. In particular, both direct sales and securitisation can suffer from capacity constraints, given the specialised expertise that buyers need to develop to assess the NPLs and arrive at a buying decision. Even when NPL markets exist in normal times, the required expertise may not be easy to scale up rapidly to meet the demands of a country-wide NPL resolution, especially if more than one country is affected at the same time and volumes are large.

40. **Information asymmetries can create large bid-ask spreads and hamper direct sales.** Buyers and sellers need to agree on a fair price for a sale to take place. During crises, buyers heavily discount asset values, especially for bad assets. On the other hand, sellers aim to keep the sale price as close as possible to the loans' book values. Differences in prices can be justified by several factors. First, loans are particularly opaque credit assets, and the private information that the originating bank relied on when granting the loan is not easily transferrable to prospective buyers. Second, from an accounting perspective, banks following the IFRS accounting principles discount future cash flows with the asset's original effective interest rate. For buyers, however, the relevant reference rate can be the expected return on the investment, which is likely to incorporate a significant risk premium. Moreover, again following IFRS, banks

³¹ This cost is partly offset by the fact that, once NPLs are written off, average risk-weights for the remaining assets fall.

³² According to Jassaud and Kang (2015), US regulatory guidance introduced time limits on NPL write offs that are independent from the time needed to foreclose them. In Japan, the emergency economic measures of 2001 further accelerated the disposal of distressed collateral. A guideline required major banks to remove near-bankruptcy and lower quality loans within three years after their recognition. In Brazil, distressed loans must be written off after six months.

³³ In turn, when a bank with low accounting provisions increases them, the deduction from capital becomes smaller. This can generate an incentive for banks to boost provisioning levels. In 2015, the BCBS published guidance on the credit risk and accounting for expected credit losses, in order address weaknesses of provision accounting that emerged during the GFC (BCBS (2015)).

³⁴ Sometimes direct sales are conducted not by the bank but by a consolidator of NPL exposures, such as an AMC. The description of direct sales provided here applies also broadly to the case where the seller is an AMC.

account for the administrative costs of managing NPLs on an accrual basis, while potential buyers would deduct them in full from their offer price.³⁵ As a result, large bid-ask price gaps emerge.

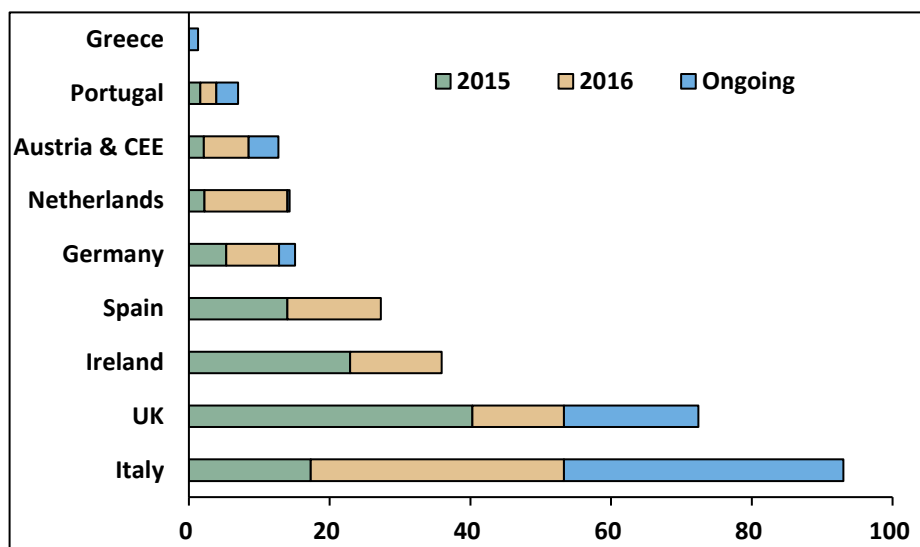
The NPL market in the United States and European Union

Public information about NPL sales volumes is scant, but some data can be gleaned from the reports of private sector companies.

For instance, in the United States, loan portfolio sales from 2009 to 2014 have been estimated at around USD 188 billion (Deloitte (2014)). Of these, NPL transactions account for 40%, and of the NPL transactions, 63% are transactions involving loans collateralised by commercial or residential real estate assets. The major players in the US loan portfolio market are US hedge funds and private equity funds. Over the period 1996 to 2007, hedge funds were involved in close to 90% of the cases of insolvency of Chapter 11 (Jiang et al (2012))¹.

In comparison, EU loan portfolio sales were estimated at about EUR 104 billion in 2015 (Deloitte (2017)). The market grew from EUR 30 billion in 2013, thanks also to the establishment of AMCs in Ireland and Spain. Based on the same data for 2015, around 66% of loan portfolio transactions are loans collateralised by residential and commercial real estate. The major buyers in the EU market are US hedge funds and private equity funds. Regardless of the rapid growth in Europe's NPL market, according to a survey conducted by the EBA (EBA (2016)), the majority of countries still consider the local distressed market to be either too small or not sufficiently effective.

NPL sales by countries in Europe



Source: Deloitte (2017).

41. **Countries have used various approaches to promote direct sales.** In some cases, authorities supported the creation of mixed public-private investment funds that would purchase the NPLs in direct sales. In these cases, the authorities relied on both the availability of buying capacity by the state and its willingness to activate a market for the sale of these assets. An example is the US effort to promote sales of non-agency residential mortgage-backed securities and commercial mortgage-backed securities on banks' balance sheets. To this end, in 2009, the US Treasury launched the Public-Private Investment Program (PPIP). The PPIP facilitated the creation of individual public-private investment funds (PPIFs) to purchase asset pools. The Treasury provided 50% of the equity capital for each fund, but private managers retained control of asset management. Another approach to promote the use of direct sales in resolution is the one followed by countries that opted to rely on more developed NPL markets abroad. There,

³⁵ See Ciavoliello et al (2016) for a discussion and a numerical simulation of the bid-ask spread for NPL pricing.

specialised buyers can help to overcome some of the hurdles posed by information asymmetries. For instance, during the Asian financial crisis of the 1990s, when the local NPL market was underdeveloped and impaired, domestic direct sales were not a viable option. Some countries such as Korea decided to take advantage of international auctions to gain access to foreign NPL markets and their specialised buyers (KAMCO (2011)).

42. **Direct sales can help establish a benchmark and a floor price for NPLs.** One of the consequences of uncertainty over the true quality of NPLs in crisis times, and the preference of market participants for safe assets, is that only very few NPL sales take place at the trough of the crisis. As a result, the market struggles to operate in the absence of some benchmark valuation. When some direct sales start to take place, this provides a reference for additional transactions, as well for internal valuation by banks. Although values are likely to be depressed, this helps to establish a floor for the NPL valuation, giving potential buyers and banks a benchmark for follow-on transactions.³⁶ Because the information and valuation asymmetries may be too large in mid-crisis for banks to agree to sales, it is unlikely that direct sales can help to drive the exit from a crisis. However, once conditions start to recover, direct sales can accompany other measures to help remove NPLs from banks' balances sheets.

Securitisation

43. **Securitisation is a more complex way of disposing of NPLs, but it can enlarge the set of possible buyers.** In a securitisation, the cash flows from a number of NPLs are pooled to create a security with senior, mezzanine and subordinate tranches. Each tranche has a different risk-reward profile. The advantage of securitisation is that there is some diversification of risk away from a single credit name, and with the use of tranches, investors can choose the risk-reward combination that best reflects their preferences. Moreover, securitisation converts NPLs to marketable securities, which could be of interest to a larger set of buyers, including foreign institutional buyers. Securitisation also generally achieves a lower average cost of funding and, if guarantees are provided to the securitised assets, can result in higher NPL prices than direct sales (Fell et al (2017)). Finally, when dealing with small NPLs, to households or SMEs, securitisation also implies some economies of scale versus the high transaction costs of selling such NPLs individually.³⁷ As Box 5 shows, the United States used this approach in the S&L crisis of the 1980s, as did countries in Asia (in the 1990s) and Europe more recently.

³⁶ However, for IRB banks, sales below book value provide a reference to the market's assessment of expected losses that will normally have to be applied to assets remaining on these banks' balance sheets. This will trigger additional losses in regulatory capital. Other banks may also have to use these low valuations to benchmark the valuation of their own NPLs.

³⁷ For a discussion of the challenges of securitising SME loans and proposals to kick-start this market in Europe, see Aiyar et al (2015).

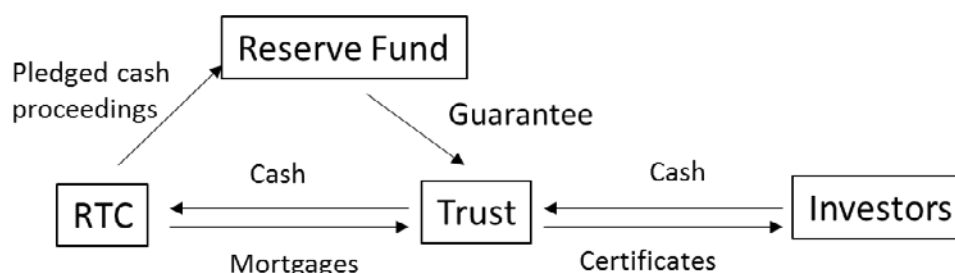
Use of securitisation for NPL disposal – selected examples

United States – Resolution Trust Corporation (RTC)

During the US savings and loan crisis of the late 1980s, the US authorities established the Resolution Trust Corporation (RTC), which was tasked with purchasing NPLs from the savings and loan associations (Congressional Budget Office (1992)). One method that the RTC used to dispose of the assets was securitisation, a novel approach at the time. The RTC securitised both residential and commercial real estate exposures.

The RTC created a pool of mortgages and transferred it to a trustee, which created so-called pass-through certificates via securitisation and sold them to investors. These certificates were divided into different types, based on maturities, interest rates and risk exposures. The trust could offer a guarantee, which it received from a special reserve fund. The reserve fund protected purchasers of the pass-through certificates from losses due to defaults and delinquencies on the underlying loans. Support by this fund was required by the rating agencies as a condition for the securities to receive a triple-A credit rating. The RTC remained liable for credit losses on the underlying mortgages (Congressional Budget Office, 1992).

Illustration of initial financial flows from securitisation



Source: Congressional Budget Office (1992).

Korea – KAMCO

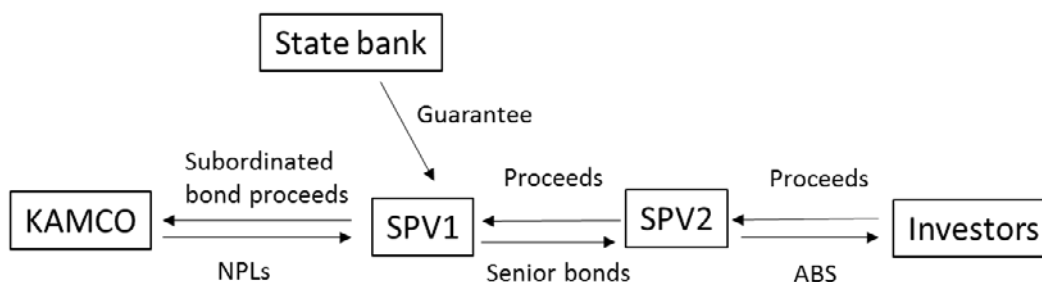
By the time of the Asian crisis in 1997, securitisation had become a more established financial product, and Korea issued asset-backed securities (ABS) from NPLs based on three main formats (KAMCO (2011)). One was a traditional approach, with the issuance of ABS in local currency in the local market. Guarantees were provided by third-party banks that had lower levels of NPLs (eg state banks). An additional level of protection came from the inclusion of a put-back option in the ABS contract (Takatoshi et al (2007)). Buyers of the ABS senior tranches were mainly financial institutions such as local securities companies, while KAMCO bought the subordinated tranches.

However, as Korean banks also held foreign currency NPLs, an additional method was devised. This also helped to make the corresponding ABS more appealing to foreign buyers.³⁸ As shown in the chart below, KAMCO created two special purpose vehicles (SPVs): SPV1 was a domestic SPV that bought NPLs from KAMCO and issued senior and subordinated bonds using NPLs as collateral. SPV2, domiciled in the Cayman Islands, purchased the senior bonds from SPV1, issued ABS and sold them to overseas investors. A Korean state bank provided guarantees for the principal of the bonds. SPV1 hedged foreign exchange and interest rate market risks via swap transactions with foreign banks.

³⁸ At the time of the Asian financial crisis, Asian domestic markets for NPL securities were generally underdeveloped and some companies took advantage of the possibility to sell their NPLs in the more advanced NPL securities market in United States. This included KAMCO, which issued NPL securities in foreign markets, supported by dedicated marketing campaigns abroad. In some other Asian countries, securitisation bonds were issued only domestically due to the absence of a cross-currency swap market, such as in Malaysia's AMC, Danaharta (Fung et al (2004)).

A third method was introduced in order to use the funds and expertise of the private sector. In this case, the SPV buying the NPLs and issuing ABS was a joint venture of KAMCO and private investors.

Structure of foreign currency ABS

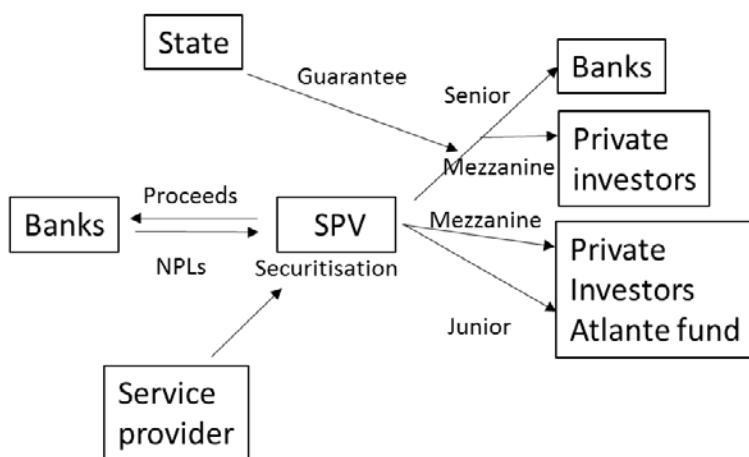


Source: KAMCO (2011).

Italy GACS and Atlante Fund

In early 2016, the Italian authorities launched a guarantee scheme to support the securitisation of NPLs, while the securitisation vehicles were to be set up and run by the private sector. This guarantee, known as GACS (Garanzia Cartolarizzazione Sofferenze), covers only the senior tranches of securitisation notes and is priced at market conditions, using as a starting point the single name CDS of Italian issuers (Ministry of Economy and Finance (2016)). These features made it possible for the GACS programme to avoid breaching state aid rules. As for the securitisation process, Italian banks sell their NPLs to SPVs established by a third-party service provider, which pools the NPLs into senior, mezzanine and junior tranches. Private sector entities (mostly Italian banks and banking foundations) set up two funds, Atlante 1 and Atlante 2,³⁹ which in turn buy the mezzanine and junior tranches of the securitisation notes, while the senior tranches are to be sold to other investors.

Structure of securitisation



Source: Deloitte (2016).

³⁹ Atlante 1 was created in April 2016 and by May that year it had raised EUR 4.25 billion. Its resources, however, were soon used to offer a backstop for capital increases by two Italian banks, Banco Popolare di Vicenza for EUR 1.5 billion, and Banca Veneto for EUR 1 billion. Atlante 2 was set up in August 2016, with a target size of around EUR 3 billion, and was mandated to invest only in NPLs and to support their securitisation (see IMF (2016), European Commission (2016) and Bank of Italy (2016)).

44. **The existence of a market for securitised products is a not a given.** Underdeveloped local capital markets can hinder the use of securitisation to dispose of NPLs. If such markets do not function well in good times, they are unlikely to be of use in resolving NPL problems during a crisis. Furthermore, the disposal of NPLs via securitisation involves the same type of valuation difference between sellers and buyers as direct sales do, and a crisis is likely to exacerbate this problem. An example of how distressed local capital markets can hamper the use of securitisation is the NPL crisis of the last decade. Securitisation was dormant following the US subprime debt crisis that triggered the GFC in 2007, and thus it was of only limited use in the immediate aftermath of the GFC to clean up banks' balance sheets. In response, global standard setters have introduced various regulatory changes to promote simple, transparent and comparable securitisation. Although NPL securitisation may not fall within the limits of this simpler type of securitisation, the global regulatory community's efforts to set conditions to restart the securitisation market in general would also benefit the NPL securitisation market.⁴⁰

45. **The provision of guarantees has been used to kick-start securitisation of NPLs.** When securitising NPLs, guarantees can improve the rating and appeal of some of the tranches, so that they can attract a larger set of investors. Guarantees by the state or publicly owned institutions have been used in the past, and they seem to be a common feature to allow the product to take off. In some special cases, this went as far as including repurchase guarantees in the ABS contract so that, should the debtor fall into arrears and fail to pay principal or interest, the bank would step in and buy back the securitised asset.⁴¹

46. **Disposal via securitisation can be combined with other resolution tools, such as public AMCs.** As AMCs, especially public ones, collect NPLs from various banks, they have the advantage of sitting on a large pool of NPLs, from which the degree of diversification would likely be higher than in the case of securitisation by a single bank. Setup and management costs may also be lower for AMCs due to economies of scale, and they can more easily hire the specialised expertise required to pool and tranche the NPLs they acquire (Klingebiel (2001)).

Asset protection schemes

47. **Asset protection schemes (APS) are typically crisis-related measures put in place to support individual banks with exceptionally high levels of NPLs.** An APS is an insurance scheme to support banks with high NPL levels, where a state agency offers to cover a certain amount of the losses on their legacy loans, against a fee. One of the goals of APS is to support credit provision by banks, as NPLs can crowd out new credit. APS have typically been put in place during the acute phase of a banking crisis, as in other times the risk of a credit crunch is more manageable. Moreover, in order to address the most acute problems, APS tend to target a few large domestic banks rather than the sector as a whole. In some cases, banks that are eligible for APS still prefer to strengthen their balance sheets by raising capital from private sources to avoid the stigma effect of an APS. From a public finances perspective, the benefit of APS is that they do not normally require an upfront disbursement, while banks can start benefiting from the guarantee from the start of the programme, against a charge for the service.⁴² The feasibility of this programme relies on the official sector's capacity to make good on those guarantees, and the confidence of market participants that it will do so.

⁴⁰ For instance, the European Commission recently put forward a consultative paper (European Commission (2017)), which aims to collect feedback on possible options for creating a securitised NPL market.

⁴¹ This was, for instance, the case of Korea at the time of the Asian financial crisis. As an example of the current debate to promote the use of securitisation of NPLs, see Onado (2017), including a discussion of the use of state guarantees for senior tranches of securitised NPLs.

⁴² As APS are targeted on a few selected banks, the calculation of the fee that is charged for the service reflects the specific circumstances of those banks' balance sheets, as well as fiscal considerations. This is different from the case of AMCs, where the cost of the AMC's services (ie the transfer price of the assets) is more closely based on a general evaluation of the credit deterioration in NPLs in the country, and possible implications for banks' capital, as discussed in the relevant subsection.

48. **Some countries used APS in the aftermath of the GFC.** In the United Kingdom, the Treasury launched an APS in early 2009, targeting two banks, although only one eventually joined the scheme. In November 2009, the Treasury agreed that RBS would place GBP 282 billion of assets in the APS.⁴³ The bank agreed to take responsibility for a “first loss” of 6% of the value of the assets if they went bad. Banks joining the scheme had to make legal commitments to increase lending – by GBP 25 billion in the case of RBS (UK National Audit Office (2010)). In the United States in 2009, the Treasury launched the Asset Guarantee Program (AGP), an APS, to support the value of certain assets held by eligible financial institutions by agreeing to absorb a portion of losses on those assets. Eventually, only Citigroup received assistance under the AGP, for USD 301 billion (US Department of the Treasury (2013)).

Asset management companies

49. **Asset management companies (AMCs) have been used extensively in NPL resolution, set up in various ways according to countries’ needs.** AMCs are companies to which problem banks can transfer their bad assets. The AMCs can be privately or publicly owned, centralised or bank-specific, and the scope of banking assets to be treated under AMCs varies. All of these options have been put into practice, with the choice made by each country depending on the nature and extent of the financial crisis at the time their AMCs were set up. Typically, single-bank AMCs are set up when the NPL issues are limited to a few individual banks (eg the first phase of the Swedish banking crisis), while sector-wide or centralised AMCs are more suitable for systemic problems (eg Asian countries in the 1990s). In the latter case, it is also far more likely that the AMCs will be set up with public funds, as the private sector does not have either the financial or coordination capacity to run these system-wide programmes at times of stress.⁴⁴ When AMCs are centralised, they are also better at implementing consistent workout practices across similar types of NPL from different banks and may have stronger powers to promote legal changes that could help expedite loan recovery and bank restructuring. Box 6 briefly describes a few AMC cases. Given the focus of the paper on system-wide NPL problems, the term AMC applies to centralised AMCs here, unless otherwise specified.

Box 6

Examples of NPL disposal via AMCs

AMCs have been used in many crisis-beset countries. This box summarises the main features of AMCs recently established in Europe, as well as older examples from the Nordic and Asian financial crises, and the US S&L crisis.⁴⁵

RTC (United States)

The RTC was established in 1989, assuming responsibility for and resolving 747 thrifts with assets of USD 402.6 billion by 1995. It was reliant on taxpayer funding to cover both permanent losses and working capital. Disposal methods included not only the traditional ones, such as regional and national auctions, and large-scale sealed bid and bulk sales, but also more sophisticated methods, such as securitisation and equity partnership arrangements.

⁴³ The APS was complemented by a capital injection to ensure that RBS could absorb further losses. The Treasury injected GBP 25.5 billion of additional capital, with a promise of up to GBP 8 billion more if needed.

⁴⁴ There is a rich literature on AMCs. For a recent overview of the properties of AMCs and an explanation of some countries’ experiences, see Cerruti and Neyens (2016). Fung et al (2004) and Terada-Hagiwara and Pasadilla (2004) focus on the experience in Asia, following the Asian financial crisis of the 1990s. Medina Cas and Peresa (2016) cover the European AMCs, and Klingebiel (2001) discusses metrics for assessing the success of AMCs.

⁴⁵ The information in this box draws mostly on Cerruti and Neyens (2016), as well as, for the Asian countries, Fung et al (2004), for Sweden, Jonung (2009), and for Korea, KAMCO (2011).

Securum (Sweden)

Securum was established in 1993, as a government-owned company, to work out the NPLs of the state-owned bank Nordbanken. At the start, 20% of Nordbanken's loan portfolio was transferred to Securum. By 1996, the AMC had disposed of 98% of its assets. Properties were sold on an individual basis, grouped together in packages, or as whole property companies. The preferred disposal method was sale by private contract through negotiations with selected buyers. Entire property companies were sold through IPOs. Although the lifetime of Securum was initially expected to be 10 to 15 years, it was closed down as soon as 1997.

KAMCO (Korea)

KAMCO was initially established in 1962 (and expanded in 1997) with a mandate focused on the acquisition, management, and disposal of NPLs. It is government-funded, via government-guaranteed bonds, but it has also funded itself by retaining USD 15 billion of recovered funds. During the Asian crisis, it purchased NPLs for a face value of over USD 90 billion, representing 9% of Korea's financial sector assets. It used the following methods of asset disposal: debtor's repayment (36.1%), ABS (11.8%), direct sale (11.1%), court process for insolvency process (7.3%), auction abroad (3.3%), put-back⁴⁶ (26.3%).

Danaharta (Malaysia)

Danaharta was established in 1998 to address rapidly growing NPLs on contagion from the Asian crisis in 1997. Danaharta was a state-owned company and it purchased USD 15 billion of NPLs. Danaharta was granted special powers to allow crucial activities to be conducted outside the court process. It succeeded in halting the increase in NPLs, and it repaid all the bonds it issued by 2005. The main method of asset disposal, counting for 54% of the total, was corporate (33%) and debt (21%) restructuring.⁴⁷

NAMA (Ireland)

NAMA was set up in 2009 by the government. NAMA created special purpose vehicles controlled by NAMA but with a majority of the shares held by private investors, so NAMA's ownership is a private/public hybrid.⁴⁸ NAMA's objectives are, among others, acquiring impaired assets from financial institutions, and dealing expeditiously with the assets. NAMA acquired EUR 31.8 billion of NPLs from the banks. Based on data up to 2014, disposal via property sales account for about 58% of NAMA's portfolio.

SAREB (Spain)

SAREB was established in 2012 as a private for-profit company with a public mandate. The majority of the shares are privately owned (55%), while 45% are owned by the public Fund for Orderly Bank Restructuring (FROB), which was established in 2009 to manage the restructuring and resolution of credit institutions. SAREB's mandate is to acquire, manage and dispose of the assets that are transferred by credit institutions. SAREB acquired EUR 106 billion of NPLs from the banks.

50. **As AMCs can serve many purposes, their objectives need to be clearly defined.** Generally, AMCs are tasked with recovering the value of the assets under their management, which could be defined as either profit maximisation or loss minimisation (Ingves et al (2004)). A commercial approach to their activities helps to define their goals, and measure their success. It is also important to recognise that some hard-to-quantify benefits derive from AMCs, such as restarting the provision of credit (by viable banks) and preserving financial stability. AMCs can also help build a liquid market for NPLs.

⁴⁶ KAMCO has the right to exercise put-back options against the selling financial institutions in the case of default by the borrowers (IMF (2000)). For instance, the loan can be put back to the relevant bank when KAMCO determines that any related loan obligor is not, or may not be, able to make a payment of principal or interest.

⁴⁷ Corporate restructuring often encompassed debt-to-equity swaps (Fung et al (2004)).

⁴⁸ National Asset Management Agency (2011).

51. **AMCs can either manage or warehouse assets, with evidence indicating that AMCs perform better when assets are promptly disposed of.** A key component of AMC mandates is whether the AMC should actively manage the assets it buys, or should instead try to sell them as soon as possible. This choice should be clarified as early as possible. This also matters when assessing the success of AMCs. Although it is difficult to make comparisons between AMCs, and success needs to be assessed against their own mandates, there are indications that AMCs do better if they aim to dispose of the assets as soon as possible rather than actively managing them (Klingebiel (2001)). This suggests that AMCs with narrowly defined mandates can be more successful, although even then the outcome depends on the AMC's setup (eg operational independence, adequacy of resources, technical competence) and the type of assets it is tasked to dispose of.

52. **An AMC's success depends on its capacity to recover value from the NPLs it acquires.** AMCs receive low-quality assets that the originating banks had failed to keep at performing levels. AMCs may be better at extracting value from these assets if they have some comparative advantage in terms of their management skills. For example, they could benefit from economies of scale or be better at rapidly acquiring specialised skills from new employees. Even when these conditions are satisfied, they do not necessarily guarantee that the particular AMCs will be better than the originating banks at managing these assets. Nonetheless, the goal of cleaning up the banking sector's balance sheet, and restarting credit provision, may still justify shifting the assets out of the banking sector and into the AMC.

53. **A major operational hurdle for AMCs is setting the transfer price.** AMCs require a transfer of the ownership of the assets from the bank that initially owned them. For this, they need to ensure that there are no legal hindrances to this transfer. After that, a transfer price must be set. As the transfer of the assets does not take place in the marketplace, the AMC must set a transfer price, which must also be acceptable to the selling bank. Based on best practice, AMCs could accept transfer prices corresponding to the real economic value of the assets, typically defined as the expected discounted cash flows. The real economic value should therefore reflect the intrinsic value of the assets, rather than their book value, which is normally higher during an NPL crisis. The real economic value is also likely to be above the market price, given depressed prices in stressed market conditions.⁴⁹

54. **Setting a transfer price for NPLs requires the recognition of the implicit trade-offs.** A transfer at market prices during a financial crisis implies an upfront recognition of losses by the bank; when capital buffers are thin, this may push otherwise viable banks towards insolvency. However, a transfer price above the real economic value could mask the weakness of the beneficiary banks, and generate excessive costs for the AMC. This can lead to losses when the AMC eventually disposes of the NPLs. Authorities therefore face a dilemma: either allow for a purely private AMC, accept a transfer price close to the market value of the NPLs, and then directly provide capital to the banks, to fill up any capital shortfall. Or alternatively set up a public AMC, allow for higher transfer prices (ie at the real economic value), but accept the risk that the transfer price may end up higher than the final sale price, and accept losses in the AMCs.⁵⁰

55. **A second operational hurdle for AMCs is defining the range of assets that are eligible for transfer.** A decision needs to be made as to whether the transfer should be voluntary or mandatory. The latter approach, for instance, is more likely to produce a successful outcome when dealing with a systemic NPL problem and countering the reluctance of banks to recognise losses upfront, as discussed in previous sections. A mandatory transfer also helps to overcome adverse selection problems. For instance, this

⁴⁹ A related issue is at what price the AMC should value the assets once they are on its books. If the AMC accounts for them at fair value, mark-to-market price variations can affect its value. This could reduce one of the benefits of putting bad assets in AMCs and insulating them from the market fluctuations, until market conditions normalise. However, keeping the assets at book value can affect the AMC's incentive to dispose of them, possibly unduly prolonging the life of the company.

⁵⁰ The same trade-offs would apply to intermediate solutions, with AMCs that have a mixed public-private ownership. The transfer price would be set at some level between the market price and real economic value and only some limited capital would be provided by the official sector to the AMC.

approach was used in the case of the Spanish AMC (SAREB). If the transfer is not mandatory, or if not all banks are affected, a second priority is to keep a level playing field across banks in the same country. In particular, it is important that banks transferring bad assets to the AMC do not gain an unfair advantage over the others, by strengthening their balance sheets more than their peers.⁵¹

56. **Sunset clauses set a closure time for AMCs, reducing moral hazard, but there must also be the right incentives for staff.** One metric of an AMC’s success is how fast it can accomplish its mandate and be wound down. But, because of the expectation that NPL sale prices may recover once economic conditions improve, AMCs may tend to postpone their disposals of bad assets. However, the comparative advantage of AMCs in managing these assets is not a given in comparison to what the originating banks, or some specialised financial sector companies, might achieve. Once the market returns to normal, and market failures are overcome, market participants can extract just as much value as AMCs do, and possibly more, and would be willing to pay the net present value of the bad loans to the AMC. Although it is usually hard to tell when market conditions have sufficiently normalised, sunset clauses help to avoid the risk that AMCs will continue operating for too long. At the same time, the AMC’s staff may have an incentive to delay the completion of its activities in order to keep their jobs. Employment contracts can be designed in order to align employee incentives with the AMC’s goals, for instance, with bonuses based on progress in completing NPL resolution.

NPL resolutions in selected jurisdictions (main resolution instruments)

Table 2

	Crisis episode	Main NPL resolution instruments ¹					AMCs
		Debt restructuring & out-of-court workouts ⁴	Write-offs	Direct sales ²	Securitisation ³	Asset protection scheme	
United States	S&L crisis	√	√	√	√		√
	GFC	√	√	√	√	√	
Sweden	Nordic crisis		√	√			√
United Kingdom	GFC		√	√		√	√
Ireland	GFC		√	√			√
Italy	GFC		√	√	√		
Spain	GFC		√	√			√
Japan	Japan. crisis	√	√		√		√
Korea	Asian crisis	√	√	√	√		√
Malaysia	Asian crisis	√	√		√		√

1) Some measures are a common bank response, and not all are documented in the international literature. For instance, write-offs are likely in all NPL crises, as documented by the IMF in several country reports. To keep the references manageable, ticks are applied only when the measures listed in the literature are included in the bibliography.

2) United States (Department of the Treasury (2010)), Italy and Spain (Deloitte (2016)); KAMCO (2011).

3) By AMC (United States, Korea, Malaysia and Japan) or by special fund (Italy in 2016).

4) Examples are: United States (GM and Chrysler cases), Japan (JAL case), Korea and Malaysia (Fung et al (2004)).

⁵¹ For instance, in the European Union, rules on state aid aim to ensure that banks receiving public sector support do not unduly benefit from the support, thus becoming more competitive than their peers. When a bank receives public funds, it is required to submit its restructuring plans to the European Commission, which can impose a scale-down of the bank’s business. This also triggers restrictions on management remuneration. State aid rules also address moral hazard by requiring the bail-in of bank creditors before public funds can be used.

Section 4 – Resolution options: what to consider when an NPL crisis requires a policy response

57. **Resolution options need to be tailored to the characteristics of a country’s NPL problem, as these will strongly affect the feasibility of the resolution strategy.** To guide this process, this section compares resolution tools, as discussed in Section 3, with a country’s key characteristics presented in Section 2. By matching the two, this section seeks to provide some considerations on assessing the feasibility of individual policy options in specific countries. Table 3 summarises the intersection between NPL and country characteristics on the one hand and various resolution policies on the other.

58. **Potential reforms can also be introduced to facilitate future NPL resolution.** The comparison of resolution options with a country’s characteristics highlights the constraints on authorities when selecting the most suitable resolution tools, as not all tools may be viable in their jurisdiction. The section therefore also discusses measures to relieve constraints on the use of possible resolution tools in the medium term.

59. **Resolution policies need to be placed in the context of other relevant policies.** Resolution policies are activated in a context of other policies that are relevant for a country’s economic conditions. In particular, consistency in the policy stance across resolution and macroeconomic and macroprudential policies is important if they are to be effective. At the same time, accommodative macroprudential and macroeconomic policies do not represent an alternative to resolving the underlying bad credit risk that triggered the NPL crisis. Separately, effective communication about the NPL strategy helps to build market confidence and public support.

Country-specific characteristics and the applicability of NPL resolution tools

The macroeconomic context

60. **If the NPL problem is driven by protracted slow growth, some NPL resolution options will be more difficult to apply.** In this environment, fiscal space is likely to be constrained and the build-up of NPLs may continue – at least until macroeconomic conditions improve substantially. Moreover, protracted low growth erodes asset quality across sectors and banks, making it hard to resolve the NPL problem with the one-off activation of a resolution policy. Therefore, the resolution of NPLs is more likely to require some actions on NPLs that can be repeated over time, until macroeconomic conditions improve. For instance, debt restructuring such as out-of-court workouts might provide a solution. In this context, the creation of a blueprint for out-of-court workouts can greatly facilitate their applicability to more cases as they emerge. Write-offs (if banks have sufficient buffers), direct sale and securitisation of NPLs could also be options, as they can generally be administered without the use of public funds, and can be repeated until banks’ balance sheets are cleaned of the NPL stock. A major challenge for AMCs is that protracted slow growth makes it very difficult to set a cut-off date for assets that are eligible for the transfer to the AMC. Moreover, an AMC’s continued availability could generate moral hazard incentives for banks, as originating risky loans may continue to be profitable for them. Finally, APS are also less likely to be suitable in this scenario, as APS usually target a few large banks, which may have been especially exposed to the drivers of the NPL crisis. In a scenario of protracted low economic growth, however, all banks are likely to be affected.

61. **If the deterioration in asset quality is abrupt, a swift response may favour creating AMCs.** If a sudden economic shock rapidly undermines asset quality, as when a devaluation of the domestic currency pushes up the value of foreign currency-denominated debt, there is no time to undertake judicial/legal changes, or sufficient market confidence to support an orderly disposal of NPLs via securitisation or direct sales. Large write-offs could also set off negative market price dynamics, and wipe out economic value. Debt restructuring might also be too slow if used in isolation from other policies. In

such circumstances, state-sponsored AMCs are likely to be the most effective approach. Moreover, with an abrupt and isolated deterioration in asset quality, setting a cut-off point for selecting assets eligible for transfer to the AMC is likely to be easier.

62. **The policy response also needs to reflect the development of the crisis.** Addressing the crisis at an early phase, when only a few banks may be affected, may allow for solutions that are more tailored to individual firms. Individual bank's solutions, such as direct sales or out-of-court workouts, could also play a role. Such bank-level solutions assume that the banks remain otherwise viable and can continue operating while the restructuring is under way. Prior to the crisis peak, certain solutions that take more time, such as the development of an NPL market, are also more feasible. Authorities may take advantage of such quieter times to build up this market. When the number of NPLs grows, as well as the number of affected institutions, bank-specific approaches become less effective. Coordinated and centralised responses, as via public AMCs, covering the majority of affected assets across the banking sector, become necessary.

Matching country characteristics to resolution policies⁽¹⁾

Table 3

NPL and country characteristics		Resolution policies					
		Debt workout	Write-offs	Direct sales	Securitisation	Asset protection schemes	Public AMCs
Macroeconomic conditions	Slow growth	√	√	√	√		
	Shock to asset quality	√	√	√	√	√	√
Asset types	Mortgages		√	√	√	√	√
	SME loans	√	√		√	√	
	Large corporate loans	√	√	√		√	
	Unsecured loans		√	√	√		√
Fiscal space	Limited (but can be credible backstop)	√	√	√	√	√	
Legal and judicial constraints	Strong constraints		√			√	

1) This table matches resolution policies to country characteristics on the basis of the relative degrees of complexity of each pairing.

The type of underlying assets

63. **In the case of homogeneous NPLs, or NPLs backed by easier-to-evaluate collateral, such as real estate, resolution methods such as direct sales, AMCs or securitisation are applicable.** For this type of loan, considerable economies of scale can be realised. Such loans can be managed with standard resolution tools such as securitisation, direct sales or sales to AMCs.⁵² The challenge here is that the investor base needs to be willing to acquire loans with the long maturities typical of real estate lending. In

⁵² For instance, in 2015 in the European Union, the commercial and residential real estate market accounted for around 66% of total loan market transactions (Deloitte (2017)). In the United States, considering US loan sales for non-strategic and underperforming assets, commercial and residential real estate loans sales accounted for 63% of the total over 2009–14 (Deloitte (2014)).

a crisis, market participants shy away from longer-dated exposures, thus possibly pushing the sale of real estate-backed assets towards public AMCs. At the same time, when disposing of the NPLs at the end, as AMCs are under strict time mandates, they may be more willing to accept selling prices that are lower than the real economic value of those assets in the eyes of the originating banks.

64. **For individual loans to large corporates, or highly specialised assets, more targeted resolution options may be more appropriate than AMCs.** The unique features of each loan make it difficult to pool such assets; moreover, loans to large corporates are typically big, and the overall economic impact of their restructuring can be substantial. As a result, ad hoc solutions, such as individual direct sales, workouts for single-name corporate debt, or debt-to-equity swaps may be the preferred methods for their disposal (Jassaud and Kang (2015)).⁵³

65. **As standardised, aggregated solutions are difficult to apply to SME lending, ad hoc treatment may be most suitable.** Loans to SMEs are as complex as other types of corporate lending, but they are smaller in amount, thus lacking the economies of scale typical of pools of household NPLs or large corporate NPLs. As a result, dealing with SME loans in bulk is generally not feasible or, if feasible, more costly for AMCs. The resolution options that are more likely to succeed are debt securitisation, write-offs and, if the legal system allows, debt restructuring. Some form of standardised debt restructuring would help to expedite resolution (Bergthaler et al (2015)).

66. **Unsecured NPLs typically have a less complex structure, so that resolution can generally be more straightforward.** Unsecured loans typically have shorter maturities and are smaller. This is the reason why collateral is not required. Their simple pricing and structure, as well as their non-systemic character, can make the resolution of unsecured loans less complicated. In practice, the viability of a market-based solution to resolving this type of loan depends on the NPL market's depth, as for all NPLs, but in certain cases, the unsecured NPL market is more active than secured NPL market (Fell et al (2016)). For these assets, direct sales and securitisation are available options. While APS can in general cover any type of assets, they may be less suitable for unsecured loans, given these loans' non-systemic nature and the goal of APS of supporting critical credit flows.

Fiscal space

67. **Resolution tools that do not require upfront public sector expenditure are most suitable when fiscal space is limited.** Countries with stretched fiscal balances may opt for resolution tools that limit the size of the programme envelope, even if these tools may give authorities less control over the resolution strategy. For this reason, tools such as APS or public guarantees for some securitisation tranches may be suitable. At the same time, guarantees are only credible if the authorities have the fiscal capacity to back them. Other resolution tools such as write-offs, private AMCs, direct sales or securitisation may not rely on the use of public resources. However, the capital deficiency that is likely to appear on bank balance sheets may eventually call for official intervention. Thus, in these cases too, authorities need to be aware of the implications for fiscal balances when these resolution tools are activated.

68. **When public funds are used, it is important to mitigate their impact on the competitive landscape, while preserving the effectiveness of the resolution measures.** In particular, banks benefiting from some sort of support either directly – eg through injections of new capital – or indirectly – eg by facilitating transfers to an AMC at above-market prices – should be subject to conditions in order to prevent them gaining undue advantage over their competitors. These conditions – which could include some form of burden-sharing – should be tailored so as not to jeopardise the feasibility or benefits of NPL resolution strategies that have the potential to restore financial stability.

⁵³ For a recent example, see the corporate restructuring of Daewoo Shipbuilding in March 2017.

Legal and judicial constraints

69. **Legal and judicial frameworks strongly affect whether debtor-focused resolution tools can be applied.** Debt restructuring that is costly, lengthy and subject to complex procedures reduces the use of this option by banks and their corporate clients. Out-of-court workouts can help overcome this problem, but if the legal framework does not support the use of these lighter procedures, then debtor-focused resolution strategies are severely hindered.

70. **Legal provisions and frameworks also affect the viability of bank-focused resolution measures.** In the case of AMCs, their effectiveness depends crucially on the finality of the transfer of the assets from the bank to the AMCs, and the impossibility of legal challenges by the underlying corporate or household debtor. In the case of direct sales and securitisation, securitisation laws and the absence of legal challenges to the asset sale are equally important. When the legal framework does not fully support these initiatives, authorities' capacity to use them may be impaired. In the extreme, this will limit the resolution toolkit to very few instruments, such as write-offs and APS, for which legal issues related to asset transfer or market functioning do not apply.

Overcoming limits to the applicability of the NPL resolution toolkit

71. **Over time, authorities can change some of the key country characteristics affecting future NPL resolutions – this makes the full NPL resolution toolkit available.** As every NPL crisis is different, it is not possible to know in advance which resolution tools will be most suitable to address it. Nonetheless, authorities can take action to remove obstacles to the availability of certain resolution tools, so that they have at their disposal the full resolution toolkit. In the event of a future NPL crisis, these changes allow them to have more options in the design of the policy response, and to use resolution tools in combination, also involving the private sector. In normal times, these changes can also increase market efficiency and produce a legal and judicial framework that is conducive to debt restructuring. However, all of these actions by the authorities need time to be implemented, and will affect mostly the stock of new NPLs. As a result, their contribution will be mainly to the resolution of future crises.

72. **Stringent provisioning and capital requirements will help in all cases.** Although accounting and regulatory requirements are clear as to provisioning requirements, it is important that standards remain prudent for restructured loans, to avoid making debt restructuring a means of avoiding loss recognition. Looking ahead, the shift from IAS 39 to IFRS 9 is expected to make provisioning more reflective of expected NPLs, via a forward-looking approach. In this way, early recognition of NPLs may be encouraged, reducing the need for system-wide intervention, or at least providing a larger buffer to absorb losses before authorities need to be involved.

73. **Greater transparency on NPLs can improve the viability of all resolution options, as well as market functioning in normal times.** In cases where the ownership of the NPL passes from the originating bank to an external party, information limitations play an important role. To help overcome this problem, some standardisation of asset quality data, as well as completeness of legal documentation on the ownership of these loans, would help buyers and sellers agree on pricing. In addition, co-investment strategies in securities originated from a pool of NPLs may reduce information asymmetries between buyers and sellers. This could increase transaction volumes, or facilitate sales at higher prices (Fell et al (2017)). A third option is the establishment of databases for realised prices of real estate transactions, given that real estate is the most widely used form of collateral. A transparent and sufficiently large database on real estate sale prices would therefore enhance the stability and reliability of NPL valuations,

ultimately facilitating the NPL disposal process and leading to smaller price discounts. This would encourage market-based solutions for NPL disposal.⁵⁴

74. **Shorter judicial proceedings can support loan restructuring and preserve value.** Speedier judicial proceedings can help preserve more of the underlying value of NPLs, and reduce bid-ask spreads in NPL pricing. Uncertainty over the length of the judicial proceedings can hamper loan restructuring and value recovery. In this respect, more standardised approaches to loan restructuring can be helpful.

75. **A robust NPL resolution framework also needs to take into account structural factors.** As discussed in Section 2, NPL problems rarely happen only because of cyclical conditions. Rather, they arise from a combination of factors, including structural features of the financial system. In response, supervisory and financial stability authorities may need to provide incentives for banking sector consolidation, if overbanking has been one of the drivers of the NPL problem. When lenient or easily evadable regulatory requirements could be an issue, regulatory and supervisory changes may be in order. For instance, following the GFC, global banking standard setters have introduced more stringent credit risk requirements, to be followed by their proper implementation at the local level. All along, supervision also needs to keep up with changes in banking practices and business models, in order to be able to spot possible NPL triggers, and adjust supervisory intensity accordingly.⁵⁵

76. **A precondition is to ensure that the private sector can absorb losses in the event of an NPL resolution, as the first line of defence.** The experience of the GFC has generated strong concerns about the use of taxpayers' money to support the banking sector. In this light, burden-sharing with banks' private sector creditors can reduce the public cost of NPL resolutions. This is, for instance, a core requirement of EU legislation. The implementation of these provisions requires the build-up of appropriate loss-bearing liabilities on banks' balance sheets.

Other policies interacting with NPL resolution

77. **Growth-oriented macroeconomic policies can facilitate NPL resolution.** Expansionary macroeconomic and macroprudential policies can help to alleviate an ongoing NPL problem if they can kick-start the economic recovery, improving the quality of at least some part of the NPL stock – especially where the NPL problem has emerged in the context of protracted low growth.

78. **However, macroeconomic policies cannot solve the underlying drivers of the NPL problem and cannot provide a rationale for delays in tackling it.** Weak macroeconomic conditions and high NPLs feed off each other. Adverse macroeconomic conditions can lead to high NPLs. Burdened by high NPLs, banks are reluctant to lend, so that growth takes longer to recover. While cleaning up banks' balance sheets can support the economic recovery, complementary macroeconomic policies can help to kick-start that growth. The lesson from the GFC is that waiting until macroeconomic conditions improve before tackling NPL problems can be risky, as the NPL burden prevents the recovery from gaining traction.

79. **Clear communication helps keep market participants informed, build confidence in the resolution strategy and maintain public support.** Authorities gather a large amount of information in the process of assessing the NPL problem and play a strong coordination role in the resolution strategy. They are therefore best placed to explain to market participants how the NPL crisis is developing, and to propose and implement solutions. Communication is essential to build public support, given that public

⁵⁴ The Council of the European Union (2017) describes a similar initiative that was launched in Europe for asset-backed securities (ABS). Under the ECB's initial sponsorship, a private electronic database was set up in 2012 in a standardised format on the loans underlying ABS and their performance. This initiative is an example of the type of data platform that could be created for NPL collateral, especially for collateral that is easier to appraise, and in a standardised format, such as real estate.

⁵⁵ For instance, the official community did not immediately grasp the impact of the financial sector liberalisation of the 1990s on the complexity of the financial system. This had implications for the effectiveness of the authorities' response in the early stages of the financial crisis in the Nordic countries (Jonung (2009)).

sector intervention will have fiscal and tax implications, as well as an impact on debtor companies and households. Finally, communication of the resolution strategy creates a basis for a subsequent policy review, thus keeping the authorities accountable.

Section 5 – Main lessons and conclusions

80. **When an NPL problem reaches systemic levels, matching potential resolution tools against the characteristics of a country and its NPL problem helps to select the best policy response.** This paper reviews the experience of several countries facing high NPL values. On this basis, it discusses the advantages and constraints around the main NPL resolution tools, and identifies key country characteristics that affect the feasibility of these resolution options in each country. It highlights how different resolution options may have better chances of success depending on, among other factors, the macroeconomic context and structural banking sector conditions, the types of assets in the NPL stock, fiscal capacity and the legal and judicial systems. All of these factors help determine how resolution options may be used and combined. Although mapping the resolution tools onto each country's characteristics can be only indicative, the paper offers some practical considerations that authorities can review when formulating a resolution policy. In all cases, complementing the review of available policy tools with an accurate assessment of the scale of the NPL problem helps authorities' design of the most suitable resolution strategy. Furthermore, the activation of the policy response as early as possible helps to avoid further worsening of the NPL problem.

81. **Certain country characteristics restrict the availability of some resolution tools:**

81.1. **Some resolution tools are best suited to either one of the two types of cyclical macroeconomic conditions that have led to the NPL crisis.** When it comes to cyclical macroeconomic conditions triggering an NPL crisis, two scenarios apply. One is an asset quality shock, following a credit boom, with asset overvaluation and high leverage in banks. Another is a protracted low-growth situation. In the first case, AMCs are a suitable solution, because it is easier to draw a line between crisis-driven NPLs, eligible for the AMCs, and the rest. In the second scenario, applying AMCs is more challenging, and policies such as write-offs, direct sales, securitisation and debt restructuring may be more suitable. These actions would need to be activated in several rounds in the second scenario, until bank balance sheets have been cleaned up. Generally, addressing an NPL problem in this scenario is harder, as protracted low growth tends to erode asset quality across many sectors. In both scenarios, system-wide responses become increasingly necessary as the crisis deepens;

81.2. **Some resolution tools are harder to use for certain types of NPLs.** Homogeneous assets, or assets backed by easier-to-appraise collateral (or unsecured loans), are best suited for aggregate, country-wide resolution tools, such as AMCs. When the core of the NPL problem comprises harder-to-assess, non-standardised assets, authorities need to create more tailored solutions, where ad hoc resolution policies could include corporate restructuring or direct sales. If SME loans predominate, options are further restricted, given the limited economies of scale for such granular assets, but the most suitable options include debt securitisation, write-offs and, where the legal framework is supportive, debt restructuring;

81.3. **Some resolution tools have a lower impact on fiscal capacity, at least at first.** Fiscal capacity is a major constraint on all resolution options, but some do not require public funds upfront. These resolution options may be most suitable when countries' fiscal balances are weak. Asset protection schemes or guarantees on securitisation tranches, for instance, would have the lowest fiscal impact, at least until they are called up. Combining private and public sector resources also helps to reduce the fiscal scope of NPL resolutions.

81.4. **When public funds are used, conditions are needed to mitigate the impact on the competitive landscape, while retaining the resolution's effectiveness.** In particular, it is important that authorities aim to preserve a level playing field between banks benefiting from support during the NPL resolution and their competitors. At the same time, efforts to maintain competition should also ensure that the resolution policies remain effective.

81.5. **Legal and judicial constraints can undermine the feasibility of almost all resolution tools.** Legal and judicial constraints strongly affect debt restructuring options, whether in or out of court. In addition, transfers of assets to AMCs could be challenged if the legal framework does not support them. Legal difficulties can also arise with direct sales and securitisation.

82. **Over time, authorities can address some of the key characteristics of a country's NPL problem, expanding the range of available tools.** If some resolution tools are not already available, authorities may consider taking the following steps:

82.1. **Create buffers for NPL absorption.** An NPL crisis can occur if banks postpone the recognition of loan losses. Reasons for this include low provisioning levels and inadequate capital buffers. Adequate provisions and capital levels can therefore allow for a prompt response when the problem starts to emerge and prevent problems from becoming systemic. Adequate provisioning and capital levels are therefore a key prerequisite.

82.2 **Improve information-gathering and -sharing on NPLs and related collateral.** Lack of transparency on the volume and underlying quality of NPLs helps to widen bid-ask spreads in NPL prices, making their disposal more difficult. Standardisation in classification and evaluation practices, as well as the creation of common information platforms on sales of NPLs or their collateral, and co-investment strategies for NPL-derived securities, can all help to reduce information asymmetries and support asset disposal.

82.3. **Address weaknesses in the legal and judicial frameworks for NPL resolution.** Legislation to support streamlined court proceedings or out-of-court workouts for corporate debt can help to make debt restructuring more efficient. For instance, some standardisation of debt restructuring for NPLs would be beneficial, especially in countries that experienced crises with a high level of non-performing SME lending.

82.4. **Strengthen structural characteristics of the banking sector, as well as applicable regulation and supervision.** Overbanking, lax regulatory requirements or insufficiently intrusive supervision can lead to underestimation of credit risk on bank balance sheets, and even when they do not lead to systemic crisis, this may cause economic resources to be inefficiently allocated. Addressing these structural weaknesses can therefore benefit the overall financial system.

82.5. **Take into account the loss-absorption capacity of the private sector.** One of the lessons of the GFC is the need to reduce the impact of NPL resolution on the public purse. However, relying on private sector resources requires these resources to be built up in good times. To this end, authorities' close monitoring of funding, currency and maturity mismatches on bank balance sheets, and the build-up of adequate loss-absorption buffers is essential.

83. **During the crisis, resolution policies can be combined with other measures.** The interaction between NPL resolution and other policy areas can enhance its effectiveness. In particular:

83.1. **Expansionary macroeconomic and macroprudential policies can mitigate the NPL problem, but this does not justify delays in tackling NPLs directly.** Accommodative macroeconomic or macroprudential policies can support the economic recovery and facilitate NPL resolution, because they can help improve the quality of at least part of the existing NPL stock. But it is important that these policies are not used to postpone dealing with the NPL problem, as their effectiveness depends on bank balance sheets being cleared of excessive NPLs. Moreover, these policies do not address the underlying drivers of the NPL problem.

83.2. **Clear communication is needed on the NPL resolution strategy.** Market participants and bank customers need clarity about the resolution strategy. By communicating clearly, authorities can shore up market confidence, comply with any accountability requirements and build public support. Once the crisis is over, the communicated objectives form the basis of an ex post assessment of the success of the resolution policies.

References

- Aiyar, S, A Al-Eyd, B Barkbu and A Jobst (2015): "Revitalizing securitization for small and medium-sized enterprises in Europe", *IMF staff discussion note*, SDN/15/07, May.
- Aiyar, S, W Bergthaler, J Garrido, A Ilyina, A Jobst, K Kang, D Kovtun, Y Liu, D Monaghan and M Moretti (2015a): "A strategy for resolving Europe's problem loans", *IMF staff discussion note*, SDN/15/19, September.
- Avgouleas, E and C Goodhart (2017): "Utilizing AMCs to tackle Eurozone's legacy non-performing loans", in *European Economy – Banks, Regulation, and the Real Sector*, no 1, 2017.
- Bank of Italy, (2016): *Financial Stability Report*, no 1, April.
- Basel Committee on Banking Supervision (2015): "Guidance on credit risk and accounting for expected credit losses", December
- (2017): "Prudential treatment of problem assets – definitions of non-performing exposures and forbearance", April.
- Baudino, P, J Orlandi and R Zamil (forthcoming): "NPL Identification and Measurement: A cross-country comparison", Bank for International Settlements, Financial Stability Institute, FSI Insights.
- Bergthaler, W, K Kang, Y Liu and D Monaghan (2015): "Tackling small and medium sized enterprise problem loans in Europe", *IMF Staff Discussion Note*, SDN/15/04, March.
- Bholat, D, R Lastra, S Markose, A Miglionico and K Sen (2016): "Non-performing loans: regulatory and accounting treatments of assets", Bank of England, *Staff Working Paper*, no 594, April.
- Borio, C (2012): "The financial cycle and macroeconomics: what have we learnt?", *BIS Working Papers*, no 395.
- Borio, C, B Vale and G von Peter (2010): "Resolving the financial crisis: are we heeding the lessons from the Nordics?", *BIS Working Papers*, No 311, June.
- Brierley, P and G Vlieghe (1999): "Corporate workouts, the London approach and financial stability", Bank of England, *Financial Stability Review*, November.
- Caballero, R, T Hoshi and A Kashyap (2008): "Zombie lending and depressed restructuring in Japan", *American Economic Review*, vol 98, no 5, December, pp 1943–77.
- Carpinelli, L, G Cascarino, S Giacomelli and V Vacca (2016): "The management of non-performing loans: a survey among the main Italian banks", *Questioni di Economia e Finanza (Occasional Paper)*, Bank of Italy, February.
- Cerruti, C and R Neyens (2016): "Public asset management companies – a toolkit", *World Bank Study*, World Bank, May.
- Ciavoliello, L, F Ciocchetta and F Conti (2016): "What's the value of NPLs?", *Notes on Financial Stability and Supervision*, no 3, Bank of Italy, April.
- Claessens, S (2005): "Policy approaches to corporate restructuring around the world: what worked, what failed?", in M Pomerleano and W Shaw (eds), *Corporate restructuring, lessons from experience*, World Bank.
- Congressional Budget Office (1992): "The RTC's loan securitization process", *CBO Staff Memorandum*, July.
- Constâncio, V (2017): "Resolving Europe's NPL burden: challenges and benefits", keynote speech, ECB, February.

Council of the European Union (2017): "Report of the FSC subgroup on non-performing loans", General Secretariat of the Council, EF 113, ECOFIN 481, May.

Cova, B, P Manganelli, M Courtejoie and F Falco (2016): "Italy introduces new tools for securing financings and strengthens enforcement procedures", Paul Hastings, May.

Deloitte (2014): The US loan sale market, executing strategy monetizing non-strategic and underperforming assets, October.

——— (2016): "Italian non-performing loans: state guarantee and securitization scheme: unlocking the NPL log-jam?", February.

——— (2017): "Uncovering opportunities in 2017: Deleveraging Europe 2016–2017", March.

Enria, A (2017): "The EU banking sector – risks and recovery; a single market perspective", ESM Seminar, slides accompanying speech, 30 January.

European Banking Authority (2013): "Final draft technical standards on non-performing exposures and forbearance", London.

European Banking Authority (2016): "The dynamics and drivers of non-performing exposures in the EU banking sector", London, July.

European Central Bank (2010): "Stress testing banks in a crisis", Special Feature A, *Financial Stability Review*, December, pp 117–24.

——— (2017): "Guidance to banks on non-performing loans", Banking Supervision, March.

——— (2017a): *Financial Stability Review*, May.

European Commission (2013): "Communication from the commission on the application, from 1 August 2013, of state aid rules to support measures in favour of banks in the context of the financial crisis ('banking communication')", 2013/C 216/01, *Official Journal of the European Union*, July.

——— (2014): "Commission recommendation on a new approach to business failure and insolvency", Commission Recommendation of 12.03.2014, C (2014) 1500 final.

——— (2016): "Italy – review of progress on policy measures relevant for the correction of macroeconomic imbalances", December.

——— (2017): "Consultation document on the development of secondary markets for non-performing loans and distressed assets and protection of secured creditors from borrowers' default", July.

European Systemic Risk Board (2017): "Resolving non-performing loans in Europe", July.

Federal Deposit Insurance Corporation (1997): "History of the 80s", in *Lessons for the Future*, vol 1, Washington DC, December.

Fell, J, M Grodzicki, R Martin and E O'Brien. (2016): "Addressing market failures in the resolution of nonperforming loans in the Euro area", Special Feature B, ECB, *Financial Stability Review*, November.

——— (2017a): "A role for systemic asset management companies in solving Europe's non-performing loan problems", in *European Economy – Banks, Regulation, and the Real Sector*, July.

Fell, J, C Moldovan and E O'Brien (2017): "Resolving non-performing loans: a role for securitisation and other financial structures?", Special Feature C, ECB, *Financial Stability Review*, May.

Fung, B, J George, S Hohl and G Ma (2004): "Public asset management companies in East Asia – a comparative study", Bank for International Settlements, Financial Stability Institute, *Occasional Paper*, no 3, Basel, February.

Garrido, J (2012): "Out of court debt restructuring", *World Bank Study*, World Bank, Washington DC, January.

- Honkapohja, S (2008): "The 1990's financial crises in Nordic countries", speech at the Global Interdependence Center, Philadelphia, 28 September, Bank of Finland.
- Hoshi, T and A Kashyap (2010): "Will the US bank recapitalization succeed? Eight lessons from Japan", *Journal of Financial Economics*, vol 97, pp 398–417.
- Ingves, S (2011): "Basel III – much-needed regulations for a safer banking sector", speech at the Swedish Society of Financial Analysts, February, Sveriges Riksbank.
- Ingves, S, S Steven and H Dong (2004): "Issues in the establishment of asset management companies", *IMF Policy Discussion Paper*, PDP/04/03, Washington DC.
- International Monetary Fund (2000): "Republic of Korea: Economic and Policy Developments", *IMF Staff country report*, no 00/11, Washington DC, February.
- (2009): "Revisiting Japan's lost decade", *Regional Economic Outlook: Asia and Pacific, Global Crisis: The Asian Context, World Economic and Financial Surveys*, pp 59–80, Washington DC, May.
- (2015): *Global Financial Stability Report*, Chapter 1: "Enhancing policy traction and reducing risks", April.
- (2016): "Italy – staff report for the 2016 Article IV consultation", *Staff country Report*, no 16/222, July.
- (2016a): "Debt: use it wisely", *World Economic and Financial Surveys, Fiscal Monitor*, October.
- (2017): "Greece selected issues", *IMF Staff country report*, no 17/41, February.
- Jácome, L (2008): "Central bank involvement in banking crises in Latin America", *IMF Working Paper*, no 08/135, May.
- Jassaud, N and K Kang (2015): "A strategy for developing a market for nonperforming loans in Italy", *IMF Working Paper*, no 15/24, February.
- Jiang, W, K Li and W Wang (2012): "Hedge funds and Chapter 11", *Journal of Finance*, no 67, pp 513–59.
- Jonung, L (2009): "The Swedish model for resolving the banking crisis of 1991–93. Seven reasons why it was successful", *European Economy, Economic paper*, no 360, European Commission.
- Kent, P (1993): "The London approach", Bank of England, *Quarterly Bulletin*, February.
- Klingebiel, D (2001): "The use of asset management companies in the resolution of banking crises – cross-country experiences", *Policy Research Working Paper*, no 2284, World Bank, Washington DC.
- Korea Asset Management Corporation (2011): *The success story of KAMCO*, Seoul, September.
- KPMG (2016): "European debt sales", Loan portfolio advisory, Portfolio Solutions Group, KPMG International.
- Laeven, L and F Valencia (2012): "Systemic banking crises database: an update", *IMF Working Paper*, WP/12/163, Washington DC, June.
- Mako, W (2003): "Maximising value of nonperforming assets, facilitating out-of-court workouts in a crisis: lessons from East Asia, 1998–2001", Forum for Asian Insolvency Reform, Seoul, 10–11 November.
- Mallon, C, R Schrock and S Waisman (2017): *The Law and Practice of Restructuring in the UK and US*, Second Edition, Oxford University Press.
- McCormack, G, A Keay, Brown and J Dahlgreen (2016): "Study on a new approach to business failure and insolvency: comparative legal analysis of the member states' relevant provisions and practices", European Commission, January.

Medina Cas, S and I Peresa (2016): "What makes a good 'bad bank'? The Irish, Spanish and German experience", *Discussion Paper*, no 036, European Commission, September.

Ministry of Economy and Finance, Italy (2016): "Scheme introduced to facilitate the disposal of banks' bad loans", Press Release, no 20, Rome, 27 January.

Mohaddes, K, M Raissi and A Weber (2017): "Can Italy grow out of its NPL overhang? A panel threshold analysis", *IMF Working Paper*, WP/17/66, Washington DC, March.

Moody's (2004): "Assessing the corporate insolvency regime in Japan", Product of the Insolvency & Bankruptcy Committee, Moody's Investors Service, Global Credit Research, February.

National Asset Management Agency (2011): Annual report and financial statements 2010, Dublin, June.

Onado, M (2017): "In search of a European solution for banks' non-performing loans", Voxeu.org, February.

PWC (2016): "The Italian NPL market – positive vibes", December.

Takatoshi, I and H Yuko (2007): "Bank restructuring in Asia: crisis management in the aftermath of the Asian financial crisis and prospects for crisis prevention – Korea", *RIETI Discussion Paper Series*, 07-E-038, February.

Terada-Hagiwara, A and G Pasadilla (2004): "Experience of Asian asset management companies: Do they increase moral hazard? Evidence from Thailand", *ERD Working Paper*, no 55, Asian Development Bank, September.

UK National Audit Office (2010): HM Treasury, "The asset protection scheme", Report by the Comptroller and Auditor General, December.

US Department of the Treasury (2010): "Troubled asset relief program: two year retrospective", Office of Financial Stability, October.

——— (2013): "Asset guarantee program", November.