Managing non-performing loans in banks: a review of the evidence of the impact of insolvency and creditor rights regimes

Introduction

Scope

I have been asked to prepare a review of the literature on the impact of insolvency and creditor rights regimes (broadly construed) on the incidence/occurrence and management/resolution of non-performing loans in banks. It was agreed that whilst initiatives developed within the context of a crisis for the resolution of bank NPLs (e.g. the establishment of asset management corporations to which NPLs could be transferred) were within scope, the focus of the review would be on the resolution of non-performing bank loans rather than the resolution of distressed banks more generally, such that literature on the effects of special resolution regimes was not to be targeted.

It was agreed that whilst quantitative evidence of impact was most desirable, relevant qualitative evidence would be included where apparently reliable. It was also agreed that literature that reliably showed that some change in insolvency or creditor rights regimes did not have an impact on the incidence or management/resolution of NPLs in banks, or had some adverse impact, would also be included.

Whilst the focus of the review is on the impact of insolvency and creditor rights regimes, it was agreed that reliable evidence of the impact of the legal environment at a more general level (for example, court quality, strength of the rule of law, etc) on NPL levels would also be included.

By “reliable” evidence, I mean evidence that has been obtained in a methodologically sound way. Weaknesses in research design might include, for example, a choice of variable that does not seem well suited to the inquiry at hand (such that there is good reason to be sceptical about whether the results shed any light on the question being asked or the relationship being explored), an unrepresentative sample, or a failure to acknowledge and deal with (e.g. by the use of appropriate robustness tests) the challenges that are inherent in the choice of methodological tool. A paper might also appear unsound because there are obvious errors in the way that the chosen methodology has been deployed, e.g. there are clear errors in the coding of data used to generate the results.

Methodology

My research assistant, Clara Natividade Martins Pereira (also at the University of Oxford), surveyed the literature and produced a very helpful summary document, which I attach as Annex A. The papers surveyed below are almost all drawn from this review. When deciding which papers from Ms Martins Pereira’s review to include, I focused on (i) those which appeared most methodologically sound (see immediately above), (ii) those which were most relevant to our inquiry, (iii) those which offered some new evidence of the impact of the legal framework that was more than merely anecdotal. I rejected some papers because of significant weaknesses in research design or obvious errors in the application of the chosen methodology; some because whilst the paper did touch on one or more aspects of our inquiry, it did so only tangentially, such that the paper did not appear the best source of evidence for our inquiry; and some because they merely restated evidence already uncovered in other literature (such that no new evidence was being offered), or merely reported anecdotal evidence.

The methodology Ms Martins Pereira deployed to identify relevant papers is detailed at the beginning of Annex A.
Overview

The literature is limited: There is not a large amount of literature credibly assessing the impact of insolvency and creditor rights regimes on NPL incidence or resolution.

This is not because impact is not expected: it is clear from the existing academic and policy literature that insolvency and creditor rights regimes are expected to have an impact on the incidence and resolution of NPLs. On the resolution side, for example, there is a large literature reporting concerns that inefficiencies in insolvency and debt enforcement processes have impeded NPL resolution in the recent post-crisis period.¹ This link is fairly intuitive: non-performing loans can be dealt with by being sold (directly to the market, or to an AMC), collected (enforced) or restructured or written-off – technically only collection relies on recourse to formal debt enforcement or insolvency procedures, but as others have emphasised the price of any sale and the parties’ incentives to engage in any restructuring will be informed by collection prospects and the tax treatment received after collection is completed. ² It is also clear from the existing literature that the management of NPLs is economically important: there is a very large body of literature on the adverse macroeconomic consequences of high NPL levels.³

The relative paucity of the literature seems to me to be most likely a reflection of methodological challenges, rather than of the unimportance of the subject matter. At the cross-country level, attempts to draw links between the legal environment and NPL levels are complicated by the fact that the relationship between creditor rights and the incidence of NPLs is ambiguous: one might expect stronger creditor rights to reduce the likelihood of default, but on the other hand such rights might expand the types of borrowers to which banks are prepared to lend, such that the aggregate effect is an increased risk of default.⁴ The kind of coarse variables that tend to be used in cross-country work (to enable comparability) do not seem very well suited to exploring this complexity.⁵ Given that there


² The expected link between creditor rights and the incidence or occurrence of NPLs is more complex. As explained below, text to n 6, the overall expected effect of creditor rights on the incidence of NPLs appears ambiguous, given that stronger creditor rights might at once reduce the likelihood of default but also expand the range of borrowers to whom banks are prepared to lend to encompass ‘riskier’ borrowers.


⁴ ibid 6. On the impact of recovery times on the price at which non-performing loans can be sold in the secondary market, see also L. G. Ciavoliello et al, “What’s the value of NPLs?”, Bank of Italy Notes on Financial Stability and Supervision, No.3, April 2016.


are many determinants of NPL levels (macroeconomic, bank-level, institutional),\(^8\) the usual problem of omitted variables also seems particularly acute.\(^9\) (There are also more basic problems, including that NPLs are measured differently across countries, that data on NPL levels may to varying degrees be unreliable,\(^10\) and that a change in NPL levels does not necessarily imply any change in default levels or the resolution of problem loans, since NPL levels (which are typically reported as the ratio of non-performing to total loans) can be reduced simply by the issue of new loans\(^11\).) Within-country studies, which can exploit much more granular data, appear more promising – particularly where focused on the effect of a change in the legal environment\(^12\) – but creditor rights are often reformed in the context of peaks in NPL levels, and where this occurs the legal change will likely be one of a battery of reforms, such that the effect of the legal change may be difficult to isolate. Perhaps for these reasons, there are relatively few quantitative studies, both at the cross-country and within country level, though there is a considerable amount of qualitative evidence of the impact of the legal environment on NPL resolution.

Nevertheless, there is some relevant quantitative evidence of impact. These are the key findings (each of which are discussed and analysed in the detailed review that follows this summary):

- Countries that adopt policies for the active reduction of NPLs (including by facilitating transfers to asset management companies, or reforming insolvency or debt enforcement regimes, or changing rules on write-offs) did no better, in terms of growth outcomes, than countries who responded to high NPL levels by encouraging growth in new loans, but both groups did better than countries that took no action to address a high NPL ratio (Balgova et al)*;
- In a cross-country study of banks in the MENA region, stronger legal rights, as measured by a “legal rights index” that appears to have been derived from an earlier version of the Doing Business “Getting Credit” report, were found to be associated with lower NPL levels (Boudriga et al);
- Slower contract enforcement, as measured by the WB Doing Business “Enforcing Contracts”, is associated with an increase in NPL levels in European banks (Chiorazzo et al);
- European banks in jurisdictions with higher insolvency process effectiveness, as measured by the recovery rate reported in the Doing Business Resolving Insolvency indicator, experienced lower increases in NPLs in the post-crisis period (Cucinelli et al);
- The better the “pre-insolvency efficiency” of an EU Member States’ laws, i.e. the extent to which the law facilitates restructuring outside a manager-displacing insolvency procedure, the faster the rate of NPL adjustment, i.e. the speed at which NPLs returned to normal levels, in the post-crisis period (Carcea et al)*;
- Increasing judicial efficiency, measured by length and backlog of civil suits, increases mortgage default rates (Jappelli et al)* - this is however found to be in line with the authors’ theoretical model, which demonstrates that where judicial efficiency increases,


\(^9\) Consistently with this, see Report of the FSC Subgroup on Non-Performing Loans, fn 1 above at [34].

\(^10\) “Vienna Initiative” fn 5 above at 13.

\(^11\) See Balgova et al above fn 5 at 3; “Vienna Initiative” above fn 5 at [28].

\(^12\) John Y. Campbell, Tarun Ramadorai and Benjamin Ranish, “Impact of Regulation on Mortgage Risk: Evidence from India”, working paper, September 2014 at 13.
such that credit rationing is relaxed, riskier borrowers will be permitted to borrow –
leading to an increase in interest rates and default rates;

- While an improvement in out-of-court enforcement rights for banks had some positive
impact on the cumulative losses associated with delinquent loans in India, a far larger
impact was caused by a change in the regulatory classification of loans as non-
performing, bringing forward the classification of NPLs from 180 days delinquent to
90 days delinquent (Campbell et al)*; and

- The establishment of Debt Recovery Tribunals designed to reduce delays associated
with loan enforcement in the Indian courts reduced loan delinquency by 3-11%
(Visaria)*.

In the above list I have starred those studies that seem to me to be the most reliable of those
reviewed. Some of the un-starred studies are limited by some of the methodological
challenges I identify above. I have noted the limitations of each study after reporting its
findings.

The way forward: if the objective of the project is to produce a Viewpoint-style overview
document, a promising way to proceed may be to select some of the literature below, and
report this in a document alongside some of the evidence focused on in the previous
Viewpoint on the impact of insolvency and creditor rights regimes more generally. The
latter body of literature is obviously directly relevant to our NPL inquiry, given the
expected impact of the insolvency and creditor rights regime on NPL resolution. Thus, for
example, literature showing how some improvement in the design or operation of an
insolvency procedure increased returns to creditors might helpfully be discussed in the NPL
context.

In drawing on this literature, it may be helpful to make the following points:

- the general insolvency/creditor rights framework may not be equipped to handle
an enormous influx of cases in a crisis-context13, such that where NPLs have
risen rapidly the general framework may have to be complemented by other
measures (such as an asset management corporation that can take loans but delay
enforcement14);

- more generally, strengthening the rights of banks or any other creditor
constituency on borrower default may not lead to a value maximising outcome,
and the possibility of this will have ex ante effects that must be borne in mind
when evaluating the merits of a particular reform.15

Other literature

In the below I have focused on literature that offers some new evidence of the impact of
insolvency and creditor rights regimes, or the legal environment more generally, on bank
NPLs. I have not included literature that merely asserts a relationship between creditor
rights or the broader legal environment and NPLs, without producing evidence, nor have I
included literature that offers an overview of the literature on the determinants of NPLs or

13 L. Laeven and T. Laryea, “Principles of Household Debt Restructuring”, IMF Staff Position Note,
SPN/09/2015, June 26, 2009 3; see also as an illustration Jassaud and Kang above fn 1 at 15.
14 ibid, noting also the possible disadvantages with government intervention; on AMCs, see also C.
Of course, if the enforcement/creditor rights framework remain weak, mere transfers to AMCs will be
insufficient to achieve resolution: Vítor Constâncio, “Resolving Europe’s NPL burden: challenges and
benefits” 3 February 2017.
15 Vikrant Vig, “Access to Collateral and Corporate Debt Structure: Evidence from a Natural
on the range of strategies that can be used to manage high NPL levels. This overview literature is however very helpful as an introduction to the subject. I found the following particularly helpful:


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Oxford, September 2017
EVIDENCE OF IMPACT

A. CROSS-COUNTRY EVIDENCE

Quantitative cross-country evidence


Takeaway: stronger legal rights, as measured by a “legal rights index” (apparently derived from an earlier version of the Doing Business “Getting Credit” report) that is said to measure “the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders”, are associated with lower NPL levels in MENA banks

Objective: to understand what determines NPL levels in MENA banks, and in particular the possible impact of the business and institutional environment on the rate of NPLs in these banks. The “business environment” factors of interest to the authors are (a) the existence of credit bureaus and the depth of information they make available on NPL levels, and (b) collateral and bankruptcy laws. The “institutional environment” factors of interest to the authors include the degree of corruption and the quality of courts.

Method: Data from 46 commercial banks from 12 MENA countries for the period 2002-2006 was collected, providing 230 observations. The Doing Business database was used to obtain country level data on two information-sharing variables (the existence of public credit bureaus, and the existence of private credit bureaus); a further variable on the depth of credit information was constructed from six indicators. The Doing Business database was also used to construct a “legal rights index”, which “measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders”; this appears to be derived from an historic version of the Doing Business Getting Credit report. Countries are scored on 10 factors, two of which relate to bankruptcy laws (secured creditors are paid first in a liquidation; secured creditors are not subject to an automatic stay or moratorium on enforcement when the debtor enters a court-supervised reorganisation procedure), the remaining 8 relate to secured transactions law. Country level data on information sharing measures and legal rights were derived from the Doing Business database. Country level data on the institutional environment were derived from the World Governance Indicators. Among the dimensions of governance selected for inclusion were rule of law (“as a proxy for the quality of contract enforcement, the police and the courts”) and control of corruption. The authors also compiled bank-specific data (including state and foreign ownership).

The authors use pooled regression analysis to explore the relationship between the chosen bank-specific factors and measures of the business and institutional environment on NPL levels over time, controlling for macroeconomic conditions. NPL levels are measured by the NPL ratio (non-performing loans to total loans ratio).

Findings:

• Credit bureaus and credit information: the mere existence of public registries and private bureaus is not found to impact on NPL levels, but there is a negative relationship between NPLs and the depth of credit information (“It appears then
that it is not only the existence of credit bureaus that improves the quality of banks’
credit portfolios but it is mainly the relevance of the information published by these
offices”.

• Legal rights: there is a statistically significant negative relationship between NPL
levels and the legal rights variable (i.e. higher legal rights is associated with a lower
NPL level): the authors conclude, “The coefficient of legal rights is negative and
statistically significant, suggesting the positive effect of legal rights on bank risk-
taking. This result indicates that when collateral and bankruptcy laws provide
higher protection [to] borrowers and lenders, credit quality improves. Indeed,
banks are more likely to seize collateral and to force repayment”.

• Institutional environment: there is a statistically significant negative relationship
between the rule of law variable and NPL levels, and the corruption variable and
NPL levels. The authors hypothesise that there are two channels at work here: first,
higher institutional quality improves the credit granting process; second, higher
institutional quality improves the quality of the processes that apply on default (i.e.
institutional quality impacts on both the incidence of NPLs and their resolution
when they arise).

Limitations: The authors make very little of the finding on legal rights in their introduction
or conclusion, perhaps because it is difficult to interpret. There is no clearly developed
hypotheses as to what impact the indicators included in the legal rights index are expected
to have on NPL levels, and the relationship between the chosen indicators and NPL levels
is not necessarily intuitive. Additionally, the impact of legal rights on NPL levels is only
explored by reference to each country’s aggregate score (its total score in the legal rights
index), which may mean that the significance of one or more of the indicators is being
obscured. Because the indicators are not disaggregated, it certainly cannot be said that the
study demonstrates that banks are “more likely to seize collateral and force repayment” in
countries scoring highly in the legal rights index; only two of the indicators in the legal
rights index relate to enforcement. Similarly, the measures of institutional environment are
coarse aggregate measures, making it difficult to evaluate the hypotheses about the impact
of this variable on NPL levels. Finally, it is not clear that the sample is representative (little
is said about this), and the time series is short.

2. M. Balgova, M. Nies and A. Plekhanov, “The economic impact of reducing non-

Available at: http://npl.vienna-initiative.com/wp-content/uploads/sites/2/2017/02/EBRD-

Takeaway: in a cross-country survey of NPL reduction episodes, countries that adopted
policies for active reduction in the stock of NPLs did not do better, in terms of growth, then
countries that encouraged growth in new loans (changing the NPL ratio in this way), but
both did better than countries that took no action to address a high NPL ratio.

Objective: to assess the economic impact of three different approaches to non-performing
loan reduction: (i) active reduction in the total stock of non-performing loans, where there
is encouragement to move NPLs into special purpose vehicles such as asset management
companies, or incentives offered for restructuring or write-off, (ii) growth in new loans (so
that the ratio of non-performing loans to total loans becomes smaller), the “passive”
approach, and (iii) the no-action approach or “procrastination” approach, where no active
action is taken and credit fails to expand. A high NPL ratio is hypothesised to affect an
economy negatively by restricting lending activity, while measures to reduce the stock of
NPLs are expected to “help to revive the flow of credit, boost economic confidence, and thus stimulate economy activity”.

Method: the authors construct a dataset of NPL reduction episodes, and the policies associated with them, from 100 countries during the period 1997-2014. “NPL ratio reduction episodes” are identified. Of these, only those in which the NPL ratio fell by 7 percentage points during the episode are included, with a view to narrowing the focus to cases when “the initial NPL ratio represented a significant problem for the economy while the reduction in NPLs was sizeable”. This gives 73 periods which constitute the treatment group; these are then sorted into group (i) (active treatment) and (ii) (passive treatment), based on whether the change is being driven more by reductions in NPLs or growth in new loans. A third group, the procrastinators, is compiled from countries that experienced NPL ratios in excess of 7% for three consecutive years.

Propensity score matching is used to create a counterfactual for each treatment episode in the treatment group from the control group, with a view to understanding the effect of the treatment on four variables (growth, investment, and export and labour market performance). The “active” group is found to do better across all four areas, though the labour market and export growth effects are only statistically significant in some specifications. Quantitatively, active treatment of NPLs is associated with a 3-4 percentage point increase in GDP growth, compared with the control group cases, and a 13 percentage point increase in investment growth. However, when the active and passive treatment groups are compared, it appears that there are no systematic differences in economic outcomes between the active and passive episodes: “In other words, in the absence of a positive external shock, efforts to reduce the stock of NPLs are associated with economic benefits that are close to (and statistically indistinguishable from) those afforded by growing out of the NPL problem”. The results are found to be robust to various checks made to the model, although the extra growth rate found in active v. procrastinating groups is reduced (but nevertheless statistically significant at the 5 per cent level).

The overall result appears to be that whilst it clearly “pays off to reduce the NPL ratio” in terms of economic and investment growth, the most effective way to do so may be to provoke credit expansion rather than deal with the NPL stock directly. But as the authors acknowledge, engineering a credit boom may not be advisable for other reasons, and also may not be possible. In these circumstances, an “active” policy is clearly preferable to procrastination if growth is the desired outcome.

Limitations

As the authors acknowledge, it is possible that the NPL reduction episodes compared here are not alike and that the observed outcomes reflect underlying differences between the countries experiencing the episodes, rather than the choice of NPL reduction treatment. “For example, if all the countries with lower NPL ratios actively sought to reduce NPLs and all the procrastinating countries were the ones with the highest NPL ratios, the differences in economic outcomes could have more to do with the severity of the problem than ways of addressing it”. The authors come up with a way to explore whether this kind of difference is in issue (concluding it probably is not), but there may be other relevant differences that have been missed.


Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2903851
Takeaway: that an increase from the first to the third quartile in the number of days to contract resolution, as measured by the World Bank Doing Business Resolving Contracts report, increases the NPL ratio by 0.1% in the short run and 1.4% in the long run in European banks.

Objective: to determine the effect of systematic (country level) and idiosyncratic (bank-level) factors on NPL ratios in Europe. Among the country level variables that are of interest to the authors is judicial efficiency, on the hypothesis that “legal uncertainties and a lengthy foreclosure process limit the options for restructuring and increase its costs”. The two other country level (systematic) variables considered are GDP growth (GDP growth expected to have a negative impact on NPLs) and interest rates (high interest rates expected to have a positive impact on NPLs).

Method: The authors use a panel of 1,116 observations from 2006-2014 for 124 banks from 21 European countries. Bank level data is derived from the Bankscope database, checked against annual financial statements. NPLs are reported as a ratio of total impaired loans (loans where it is probable the creditor will not recover in full) to total gross loans to customers. Judicial efficiency is measured by days required to enforce contracts; this data appears to be derived from the World Bank’s “Enforcing Contracts” dataset in the Doing Business report, though the paper is not entirely clear on this point. The authors use a dynamic panel data model to investigate the links between NPLs and the three country-level variables, as well as bank-level variables. Various robustness tests are applied.

Findings: The chosen idiosyncratic / bank-specific variables are found to have only a limited impact on NPLs, whilst the country-specific factors are shown to have a statistically significant impact in the direction suggested by the hypotheses. In relation to judicial efficiency particularly, the authors report “the influence of contract enforcement efficiency on ex-post loan portfolio risk is positive and highly significant from a statistical point of view: a high number of days required to enforce contracts increases the NPL ratio”. Looking at the long-run impact of this variable (its cumulative impact on ex-post portfolio risk), the authors conclude that an increase from the first to the third quartile in the number of days to contract resolution increases the NPL ratio by 0.1% in the short run and 1.4% in the long run. However in one robustness check designed to deal with omitted variables the contract efficiency result falls away.

Limitations: If I am correct in understanding that the paper’s measure of judicial efficiency is drawn from the World Bank Enforcing Contracts report, this is a limitation. The Enforcing Contracts report looks at the enforcement of a judgment debt for the payment of a purchase price in a sale of goods. Given that loan enforcement and foreclosure remedies may occur in a different court to contract disputes, and indeed may involve recourse to out-of-court remedies (e.g. foreclosure remedies), this measure does not appear ideal for testing the hypothesis about the impact of legal uncertainty and lengthy foreclosure processes on NPL resolution, though there may well be a correlation between the two (if legal institutions are generally weak, for example). In cross-country studies there is also a more general problem with omitted variables, which the authors have attempted to deal with by applying a range of robustness tests. In the first of these (related to the headquartering of the relevant bank) the significance of contract efficiency drops away, suggesting that there may be an omitted variable problem.

Takeaway: European banks in jurisdictions with higher insolvency process effectiveness, as measured by the recovery rate reported in the Doing Business Resolving Insolvency indicator, experienced lower increases in NPLs in the post-crisis period.

Objective: To determine whether banks subject to the internal risk based approach to minimum capital requirements, as introduced by Basel II, are more effective in managing credit risk. The motivation is the suggestion in the literature that the IRB framework can help improve risk management practices in banks. Although it’s not particularly clear from the paper, the hypothesis seems to be that IRB banks will be better positioned to “weather the storm” – a crisis and sudden rise in NPLs – because the underlying quality of the portfolio of loans will be better, the risk of borrowers having been more carefully assessed. This would suggest that NPL levels would normalise more quickly for these banks. This is the main focus of the inquiry, but the authors are also interested in other variables that might have an impact on changes in non-performing loan levels after a crisis, and they select for study various macroeconomic and bank-level variables, as well as, relevantly for our purposes, measures of the “environmental” determinants of credit risk, “i.e. the jurisdictional and institutional framework at country level”. The overall idea is to assess the long run impact of IRB and of the macroeconomic, bank-level and environmental factors on non-performing loan levels.

Method: A panel set of 177 banks from 14 European countries (accounting for 63% of total banking system assets in these countries) over the period 2006-2015 is constructed with a view to assessing whether banks using the IRB approach were better positioned to curb the increase in credit risk associated with the macroeconomic slowdown following the international financial crisis than non-IRB banks were. Regression analysis is used to investigate whether European banks with validated IRB models faced, all other things being equal, a lower increase in credit risk / lower deterioration in non-performing loan levels in the post-crisis period, controlling for bank-specific, macroeconomic and environmental (“juridical and institutional context”) variables. As to the latter, two variables are used (i) insolvency process effectiveness, as measured by the World Bank Doing Business Resolving Insolvency recovery rate (“the higher this rate”, the authors reason, “the lower the level of NPLs and LLPs – loan loss provisions – in the bank balance-sheet”), and (ii) measures of state support by the establishment of bad banks for asset transfers, capital injections, recapitalization schemes.

Findings: in the long-run, IRB banks did better in curbing the deterioration of their loan portfolios (i.e. controlling increases in NPL levels) than non-IRB banks did, which the authors interpret as “suggesting that the prolonged use of sophisticated and accurate rating models allows for a better selection of borrowers and ultimately a more sizeable reduction of credit risk”. As to the legal “environmental” factor, i.e. the effectiveness of insolvency processes, the authors find that “the effectiveness of the insolvency procedures and creditors’ protection (RR) has a negative co-efficient, confirming that banks that operate in countries where recovering an NPL is less costly and less-time consuming, are less impaired by the crisis, as suggested by previous studies16.

Limitations: the focus of this paper is on the impact of IRB adoption, and so the authors don’t really develop hypotheses about the impacts of the creditor rights variable, or offer

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16 Citing Jassaud and Kang, noted above fn 1, and Chiorazzo et al, discussed immediately above.
much discussion about the model design or robustness of this aspect of their findings. But the basic intuition appears straightforward – once NPLs rise in a crisis context, stronger insolvency frameworks as measured by secured creditors’ recoveries, are likely to facilitate faster resolution of an NPL, which could mean a quicker return to normalised NPL levels, and the results are in line with this intuition.


Available at: https://ec.europa.eu/info/sites/info/files/file_import/dp004_en_2.pdf

Takeaway: The better the “pre-insolvency efficiency” of an EU Member States’ laws, i.e. the extent to which the law facilitates restructuring outside a manager-displacing insolvency procedure, the faster the rate of NPL adjustment, i.e. the speed at which NPLs returned to normal levels, in the post-crisis period.

Objective: in this paper the authors investigate the extent to which cross-country differences in the restructuring procedures of EU Member States could help to explain, among other things, the speed at which deleveraging can be achieved for overleveraged companies in the context of a crisis / macroeconomic shock. The motivation is that “[s]low recognition of bad loans leading to several years of upwards-drifting NPL rates usually deteriorates the outcomes of deleveraging episodes, as it generates macroeconomic uncertainty, impairs the intermediation function of banks, and leads to protracted periods of tight credit for the whole economy, including its viable parts”. The hypothesis is that efficient insolvency and restructuring frameworks may help to enable NPL levels to return to pre-crisis levels more quickly, thereby minimising these broader costs.

Method: NPL data is derived from the IMF Financial Soundness Indicators for the period 2007-2012. It does not distinguish between business and household debtors. The domestic laws of EU Member States are scored by reference to 12 indicators of “pre-insolvency efficiency”, designed to assess the ease by which firm can restructure debts before balance-sheet insolvency arrives and without going into an insolvency procedure (the authors associating insolvency procedures with the loss of control or substantial control by the debtor, and a likely liquidation outcome). These indicators are organised into four composite indicators: ease/availability of preventative measures, facilitation of the continuation of the debtor’s operations while the measures are used, direct and indirect costs of the measures, and the likelihood that the measures will result in ‘debt sustainability’ for the debtor (also referred to as the “effective restructuring chances and early warning” indicator). These combine to give an “overall efficiency indicator” for each EU Member State. The scoring is generally by reference to the law as at the end of 2012, but for countries that changed the law between 2007-2012 the pre-reform position was also assessed.

Regression models are developed to estimate the impact of the 12 indicators of pre-insolvency efficiency on the adjustment of NPLs to macroeconomic shock.

Findings: the authors report significant divergence between Member States in the four dimensions of “pre-insolvency efficiency”. Both models suggest that the fourth composite indicator of the pre-insolvency efficiency index significantly increases the speed of NPL adjustment. This indicator appears to be an aggregate of 10 of the 12 indicators of pre-insolvency efficiency (excluding only “Alternative pre-insolvency”, which refers to the possibility of there being more than one pre-insolvency restructuring procedure available, and “Early restructuring”). The authors conclude that the results suggest that “better ex ante
and *ex post* possibilities to restructure debtors’ liabilities appear to improve the reactivity of the NPL rate to changes in economic conditions and its subsequent normalisation”.

**Limitations:** The NPL data is not ideal for testing the hypothesis, because it concerns both household and business debtors, whilst the pre-insolvency index developed by the authors (the explanatory variable) appears primarily concerned with business debtors. This could mean that something related to the household side of NPL levels is driving the results in some jurisdictions. The authors use a panel with fixed effects to try to deal with the problem of omitted variables at country-level, but this will not assist if these variables are changing over the relevant period.

Additionally, the basic idea that law increases NPL adjustment speeds by facilitating early restructuring must assume that a restructured loan is no longer (or after a certain period of time is no longer) classified as non-performing. Jurisdictions differ, however, on the treatment of this classification question, and this might have been expected to impact on the observed results. It is not however addressed in the study.

More generally, the pre-insolvency index developed by the authors is concerned only with restructuring-related law ‘on the books’, rather than with outcomes in practice. In a Member State with long judicial delays, for example, a high score on the restructuring index would not necessarily be expected to translate into a faster rate of NPL adjustment. If the Member State enjoys a high NPL adjustment speed, then perhaps something else is driving this result. But in the presence of reasonably well functioning courts, a law which ‘on the books’ facilitates early restructuring by distressed but viable debtors may well translate into effective restructuring outcomes in practice, given that restructurings are typically negotiated in the shadow of the formal law.


Available at: https://www.imf.org/external/pubs/ft/sdn/2015/sdn1519.pdf

For the most part this paper synthesises the existing literature rather than offers new evidence of impact, but the paper does report evidence of two correlations (based on 2014 data) which may be of interest: (i) between time to foreclosure and internal rate of return (IRR) on investment in distressed assets, with longer foreclosure periods being associated with lower IRR, (ii) between time to foreclosure and NPL ratios, suggesting NPLs are lower when foreclosure periods are shorter. In both, foreclosure time appears to be measured by reference to the Doing Business report (presumably the Resolving Insolvency indicator).
Limitations: this is only evidence of correlations (and so useful if at all only for introductory purposes), and the second is not necessarily intuitive – as Jappelli et al demonstrate (see immediately below), stronger creditor rights might also be expected to increase default rates, where they permit banks to lend to riskier borrowers (see also above, text to n 6).

See also: in relation to correlation (i), the accompanying background technical note, available at http://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2016/12/31/A-Strategy-for-Resolving-Europe-s-Problem-Loans-43286, Section V.


Takeaway: Increasing judicial efficiency, measured by length and backlog of civil suits, increases mortgage default rates.

Objective: to explore the impact of judicial enforcement of debt contracts on the amount of lending, interest rates, and default rates – theoretically and then empirically. The motivating intuition is that debtors may default because they are unable to pay, but they may also default because they are unwilling to pay. Such strategic default may occur where the debtor expects the gains from default to exceed the cost of sanctions from default. The perceived costs of sanctions will depend not only on the lender’s willingness to inflict them, but also on the underlying institutional set-up – the law and its enforcement (including the efficiency and honesty of judges). The institutional framework is expected to influence the likelihood of strategic defaults, and in this way to influence the willingness of creditors to lend ex ante and the terms on which they lend, and through this to impact on the effectiveness of credit markets more generally.

Method: first, the authors develop a theoretical model of debtor opportunism in the presence of inefficient courts, where efficiency is measured by the fraction of inside or outside
lenders can expect to recover from an insolvent borrower at the end of a judicial process. Under the model an improvement in judicial efficiency is shown to reduce credit rationing and increase aggregate lending, while the effect on average interest rates is ambiguous in that it depends on the structure of the credit market (competitive v. monopolistic) and the specific nature of the improvement (whether concerned with enforcement against inside or outside collateral).

These predictions are then tested empirically with two datasets, one an Italian panel on interest rates, lending, default rates, and indicators of judicial efficiency across provinces (length of civil trials and number of civil suits pending per thousand inhabitants), spanning 1984 to 1998, the other a cross-country sample of mortgage lending, down-payment ratios and interest rates, plus measures of cost/length of foreclosure. In the first, regression analysis is used to explore the relationship between judicial efficiency and measures of credit market performance (outstanding loans as proportion of GDP; fraction of firms with overdraft loans, as an indicator of credit rationing; interest rates; non-performing loans), controlling for credit market concentration, provincial GDP, calendar-year effects and in some specifications provincial effects). In the second, the authors explore at the descriptive level correlations between the quality of judicial enforcement (measured in three ways: duration of foreclosure on home mortgage loans, average cost of foreclosure on home mortgage loans, and overall judicial efficiency based on perception data from a survey) and volume of mortgage lending (mortgage lending to GDP), down payment ratios in mortgage lending (as a measure of credit rationing) and interest rate spreads.

Findings:
(i) the first dataset (Italian, across provinces): looking at the data at cross-sectional level (i.e. not looking at the position over time), the descriptive evidence indicates that the amount of lending is negatively correlated with the length of civil suits and stock of suits pending, and that where trials are longer and the backlog heavier credit rationing is higher. Interest rate spread and the non-performing loan ratio are also higher where courts are less efficient. In the regression analysis (which allows for the time-series dimension of the data to be exploited, and various potentially relevant variables controlled for), similar results are obtained in relation to amount of lending and credit rationing, but the position in relation to interest rate spread and non-performing loans is reversed: in other words, increasing judicial efficiency seems to increase interest rates and default rates. This is, however, shown to be consistent with the underlying model, which demonstrates that where judicial efficiency increases, such that credit rationing is relaxed, riskier borrowers will be permitted to borrow – leading to an increase in interest rates and default rates.
(ii) the second dataset (cross-country mortgages): the size of the mortgage market correlates negatively with the duration of foreclosure and positively with judicial efficiency, i.e. “the countries with better judicial systems also feature the broadest mortgage markets”. Down payment ratios correlate positively with duration of foreclosure and negatively with overall judicial efficiency “that is, the countries with better judicial systems also have less credit rationing”. Interest rate spreads correlate negatively with duration of foreclosure proceedings and positively with overall judicial efficiency, that is “in countries with better judicial systems interest rates on loans are relatively higher”, but in this case only the correlation with judicial efficiency is statistically significant.

Limitations: the cross-country mortgage analysis is purely descriptive, so does not control for other factors that might be predicted to influence the observed outcomes. But the Italian across-province data is subject to statistical analysis, and it is this that is more directly

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17 The authors do not define these terms but I assume by inside collateral they mean assets owned by the debtor, and by outside collateral they mean assets not owned by the debtor but made available to the creditor, e.g. by way of third party guarantee.
relevant for our purposes. One limitation with the Italian dataset is that the two measures of judicial efficiency are not specific to loans (duration and backlog of civil suits generally), which suggests the possibility of measurement error. But the authors acknowledge this and test accuracy by comparing their measures with banks’ own assessment of these indicators based on survey level data, and the results suggest that the authors’ measure of judicial efficiency tracks lenders’ perceived collection costs reasonably well.

**Qualitative cross-country evidence**


This paper reports, among other things, the results of a survey of banking authorities in EU Member States that was designed to help illuminate how the structural features of domestic markets impact on credit quality, provisioning and recovery of distressed assets, motivated by evidence of uneven levels of NPL reductions across Member States in the post-GFC period. The survey asked authorities to “assess major impediments of the local legal and judicial system in supporting an efficient corporate NPL workout”, and then grade them with a severity value of high importance, medium importance, low importance or no importance.

Only a few respondent authorities seem to have identified impediments relating to the law that they would grade as of “high” or “medium” severity. But when thinking about the judicial system more generally, authorities in nine jurisdictions (PL, PT, CY, HR, IT, SI, GR, BE and CZ) identified the long duration of insolvency proceedings as an impediment of high or medium severity. In ten jurisdictions (SE, DK, EE, ES, FI, GB, IE, LV, MT and SK) no legal or judicial impediments were identified by respondents. Respondents were also asked to estimate the average duration of corporate insolvency proceedings; perhaps surprisingly, some of the jurisdictions in which higher estimates were offered were also jurisdictions in which the authority had identified no legal or judicial impediment (RO, MT) – this would seem to suggest non-performing bank loans are being resolved outside the framework of corporate insolvency proceedings. But the three jurisdictions in which the longest estimates (over 4 years) were offered – GR, SI, and IT) – were ones where the duration of insolvency proceedings was identified as an impediment of high or medium severity.


This paper reports, among other things, the results of a survey conducted with 13 banks with a large regional presence in Central, Eastern and Southeastern Europe to “identify their views and practices on NPLs”. Among the responses reported were:

- in several countries (unspecified) “the current legal framework and its implementation, are inadequate to facilitate, and in some cases hinders, orderly and efficient debt resolution”
- insolvency proceedings were sometimes used to postpone resolution: “sometimes insolvency proceedings were used as a way to postpone an inevitable liquidation and not to restructure or reorganize a distressed but viable company”
- deficiencies in the legal framework were a barrier to the entrance of international players into the distressed debt market: “the biggest impediments to experienced distressed investment are the local legal and regulatory environments, opaque judicial processes, and a lack of restructuring and resolution skills in local markets, both at law firms and in the servicers themselves”

10. European Central Bank, Stocktake of national supervisory practices and legal frameworks related to NPLs

In this paper the ECB reports the results of a “qualitative stocktake” of practices being applied to tackle NPLs in eight Member States (Cyprus, Germany, Greece, Ireland, Italy, Portugal, Slovenia and Spain), as at the end of 2015. Data was initially gathered through a survey of competent authorities in each jurisdictions, but this was then checked in a ‘quality assurance’ phase, further checked in consultation with country experts, and then the final report submitted back to the competent authorities to check if they concurred with the findings (they did). This is the most robust design of the surveys noted in this section.

Among the areas covered in the survey was “Legal, judicial and extrajudicial framework”. Six topics were covered:

Sale of portfolios – the development of distressed debt markets expected to accelerate NPL workouts in some circumstances.

<table>
<thead>
<tr>
<th>Table 13</th>
<th>Main features of the sale of portfolios</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is the sale of portfolios an obstacle to NPL resolution?</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>Existence of a developed NPL market?</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Does an AMC exist?</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Transfer of loans (and collateral) without borrower’s consent?</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>Banks are allowed to sell NPLs to third parties</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>To non-banking institutions</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>To foreign investors</strong></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>

* Changes have been implemented in the first half of 2016
** Possible under strict conditions

The authors note that the survey indicates that the under-development of an NPL market in these jurisdictions is not to be attributed to specific legal obstacles in transferring loans.

**Debt enforcement / foreclosure:** weak enforcement is expected to be a deterrent to NPL resolution; strong enforcement to help deter default and, where it does arise, maximise returns for the recovering bank.
Corporate insolvency and restructuring: the corporate insolvency regime is expected to impact on creditors’ expectations of timing and total recoveries. Three of the eight surveyed countries identified the framework as an obstacle to NPL resolution overall:

Household insolvency and restructuring: limitations in the legal framework for dealing with household insolvency and restructuring are expected to impede private workouts.

The authors suggest that this aspect of the survey indicates that the duration of court cases is the most problematic aspect in this area, though this is not entirely clear from the results above.

Judicial system: where settlements between debtors and creditors require judicial sign-off, the authors postulate that inefficiencies in the court or insolvency practitioner system will inhibit workout potential.
On this aspect of the survey, the authors reflect: “The survey shows that the vast majority of the sample considers the inefficiencies in the judicial system as a notable challenge for NPL resolution, mainly owing to the excessive length of proceedings due to the clogging-up of the courts. The inexistence of specialised judges dealing exclusively with insolvency proceedings is also a reason for judicial inefficiencies. Moreover, in some countries insolvency administrators do not require professional certification and it is seldom that there are time requirements for insolvency procedures”.

**Tax regime**: tax rules that deter loan disposal are expected to inhibit NPL resolution. Here the survey indicates that this is not an issue for the surveyed countries, thanks in part to changes in rules to acknowledge tax deductions for LLPs, write-offs and collateral sales, and offer carry-forward mechanisms.

However the authors note that on the debtor side the tax regime could inhibit restructuring where the debtor is subject to capital gains upon a favourable restructuring.

Detailed country reports are contained in the Annexes to the report; these contain helpful detail on the above aspects, including reform measures.

### Table 17
Main features of the judicial system

<table>
<thead>
<tr>
<th></th>
<th>Cyprus</th>
<th>Germany</th>
<th>Greece</th>
<th>Ireland</th>
<th>Italy</th>
<th>Portugal</th>
<th>Slovenia</th>
<th>Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the judicial system an obstacle to NPL resolution?</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Specialised courts or judges to deal with insolvency issues?</td>
<td>No</td>
<td>Yes</td>
<td>No*</td>
<td>Yes**</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Set time requirements for insolvency process?</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes**</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* with strong limitations  
** personal insolvency

### Table 18
Main features of the tax regime

<table>
<thead>
<tr>
<th></th>
<th>Cyprus</th>
<th>Germany</th>
<th>Greece</th>
<th>Ireland</th>
<th>Italy</th>
<th>Portugal</th>
<th>Slovenia</th>
<th>Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the tax regime an obstacle to NPL resolution?</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Tax deductions for LLPs?</td>
<td>Yes</td>
<td>Yes</td>
<td>Limited</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tax loss carry-forward mechanism (e.g. DTA)?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tax deductions for bad write-offs?</td>
<td>Yes</td>
<td>Limited</td>
<td>Limited</td>
<td>Yes</td>
<td>Yes</td>
<td>Limited</td>
<td>Limited</td>
<td>Yes</td>
</tr>
<tr>
<td>Tax deductions for collateral sales?</td>
<td>Yes</td>
<td>n.a.</td>
<td>n.a.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Debtors taxed upon favourable debt write-off/restructuring?</td>
<td>No</td>
<td>n.a.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

11. **IMF Staff Discussion Note, “A Strategy for Resolving Europe’s Problem Loans” (IMF Staff Discussion Note) September 2015 (authored by S. Aiyar et al), also noted above**

This paper reports, among other things, the result of a survey of country authorities and banks in European countries where the aggregate NPL ratio during 2008-2014 exceeded 10%. Respondents were asked to score five areas of institutional obstacle to NPL resolution – supervisory framework, legal system, distressed debt markets, informational shortcomings, and tax regime – as 3 (high degree of concern), 2 (medium degree of concern), 1 (no concern), and to provide explanatory comments. Each area was broken down into a number of sub-areas: for the legal system, respondents were asked to indicate their levels of concern about deficiencies in the judicial system, deficiencies in the corporate debt resolution regime, and deficiencies in the household debt resolution regime. Country authority respondents were also asked to answer a number of more detailed factual questions about each sub-area, to highlight the presence or absence of a
particular element (e.g. in the case of corporate debt resolution regimes, whether there is an out-of-court settlement mechanism). Country authorities for 19 countries participated in the survey, along with 10 banking groups.

The aggregate scores (combining the country authorities and banks) suggest that deficiencies in the legal framework and the development of distressed debt markets were the areas of highest concern (an average score of 2 and 2.2 respectively), though the scores in the other three areas are considered to be not significantly lower. Within the legal framework area, deficiencies in the judicial system were identified as the area of most concern by both banks and country authority respondents. Other results of interest include:

- informational shortcomings and legal obstacles appear to be correlated
- more generally, higher structural obstacles are associated with worse NPL outcomes. For legal impediments, the correlation looks like this:
B. WITHIN-COUNTRY EVIDENCE OF IMPACT

Quantitative within-country evidence


Available at: https://scholar.harvard.edu/campbell/publications/how-do-regulators-influence-mortgage-risk-evidence-emerging-market

Takeaway: while an improvement in out-of-court enforcement rights for banks had some positive impact on the cumulative losses associated with delinquent loans, a far larger impact was caused by a change in the regulatory classification of loans as non-performing (from 180 days delinquent to 90 days delinquent).

Object: to evaluate the impact of mortgage regulation on the structure and performance of housing finance, and particularly to explore the relationship between changes in Indian mortgage regulation and bank delinquency rates. Among the regulatory changes considered by the authors are a change in the regulatory classification of NPLs from loans 180 days delinquent on contractual payments to those only 90 days delinquent (taking effect in 2004 or 2005 depending on the type of bank), and the introduction of stronger enforcement rights in the enactment of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act 2002 (SARFAESI). In relation to the former, the authors observe a decline in 90 day delinquency rates after the regulatory change, and hypothesise that shrinking the timeline for classification of a loan as non-performing might have given mortgage lenders stronger incentives to more intensely monitor shorter-term delinquencies and take earlier action to avoid delinquency at the 90 day (non-performing loan) level.

Methodology: the authors were given access to loan-level data from an Indian mortgage provider that is considered to represent a meaningful fraction of the (highly concentrated) Indian mortgage lending market. The authors begin by looking at the expected loss given shorter-term delinquency before and after the lender adopted the new NPL regulatory classification (expected loss being the product of the probability of experiencing a longer-term delinquency and the loss given longer-term delinquency). They observe that across the sample period, 22.2% of 30 day delinquent loans become 90 day delinquent loans, and 22.8% of 90 day delinquent loans eventually become 180 day delinquent loans. But the period prior to implementation of the NPL reclassification rule, the 30 to 90 day delinquent transition probability was 29.2%, almost twice the post-adoption transition probability of 16%, amounting to a highly statistically significant reduction of 13.3%, which the authors surmise may be due to lenders exerting efforts earlier to avoid NPL build up. (There is only a negligible fall in the 90-180 day transition probability).

The authors then investigate this further by building a sample of 10,000 loans from the total population of loans, randomly sampling 2,500 fixed and 2,500 variable interest rate loans that reach 90 day delinquency and 2,500 of each that do not experience 90-day delinquency. Within each sample of 2,500, half are loans disbursed from an early period in the data and half from the period around which the regulatory change was made. The authors track payment history over time for each of the loans. For each loan they construct a measure of losses accrued over time (the ‘cumulative instalment deficit’, or CID) with a view to estimating the impact of the regulatory change on reclassification using regression analysis, and to comparing this with the evidence of the impact of SARFAESI.
Findings: Looking at the CID measure around 30-day delinquencies before and after the NPL reclassification adoption (demeaned by cohort year and calendar year to ensure cohort and macroeconomic effects are not being picked up), the authors find that prior to the regulatory change loans declared 30-days delinquent on average inflicted a cost on the mortgage provider of 1.1 EMI (or equated monthly instalment) after a year. After the regulatory change, this number improves, “with such 30-deliquent loans roughly 0.4 EMIs delinquent 12 months later”, a highly statistically significant change.

This change is then measured more formally by estimating how changes in CID vary following 30-day delinquency (prior to hitting the 90 day threshold) before and after the regulatory reclassification change, including time and cohort specific fixed effects to control for other changes in the regulatory and macroeconomic environment. The authors find that:

- following adoption of the reclassification rule, the debt collection rate between the 30 and 90 day period increased substantively relative to the pre-adoption period, with a significant discontinuity at the 90 day threshold, after which debt collection rates fall sharply.
- the enactment of SARFAESI is not reported to impact on the debt collection rate.

To check whether the results simply reflect a time-value improvement for lenders (the eventual result being brought forward by 90 days), rather than any more substantial impact on recoveries, the authors focus on a sub-sample of the worst cases – those with the greatest degradation in CID over the year following first 30-day delinquency. Here they find:

- that SARFAESI had “some beneficial impacts for the very worst cases”, but
- this was “dwarfed” by the significant impact of the NPL reclassification change, which produced a “substantial reduction in the incidence of high degradation in the CID”, which the authors attributed to the effects of incentivising lenders to detect delinquencies early and take prompt action.

Limitations:
The out-of-court enforcement rights in SARFAESI apply after a loan has been classified as non-performing. The authors do not consider the significance of this timing point when exploring the impact of SARFAESI, or develop hypotheses about the impact of SARFAESI more generally, so the results on this point should be received somewhat cautiously.


Takeaway: The Korean Asset Management Corporation made a gross profit on the realisation of non-performing loans transferred to it after the Asian Financial Crisis, but after deduction of operating expenses was loss-making.

Object: to explain the role of the Korean Asset Management Corporation (KAMCO) and its governance structure, and analyse its financial performance.

Method: this is a mixed method paper that seeks to bring together multiple primary and secondary sources of evidence to understand and evaluate the role of KAMCO. It is not quantitative in the statistical sense; there is no hypothesis formulation or formal testing of
hypotheses, but I have included it because it offers helpful information on how KAMCO operated, including descriptive statistics.

Findings: among the most salient findings are:

- KAMCO purchased 50% of bank NPLs outstanding in March 1998, selecting loans for purchase based on strict eligibility criteria
- KAMCO initially focused on acquisitions, and then moved into increasingly sophisticated disposal methods
- By 2002, KAMCO had disposed of two thirds of the NPLs it had purchased, resolved by the following routes:

Table 8. Resolution of Non-Performing Loans by KAMCO (Nov.1997-Dec.2002, in trillions of won unless specified otherwise)

<table>
<thead>
<tr>
<th>Resolution Method</th>
<th>Face Value</th>
<th>Purchase Price</th>
<th>Amount Retrieved</th>
<th>Recovery Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>International bidding</td>
<td>6.1</td>
<td>1.3</td>
<td>1.6</td>
<td>26.4</td>
</tr>
<tr>
<td>ABS Issuance</td>
<td>8.0</td>
<td>4.2</td>
<td>4.2</td>
<td>52.0</td>
</tr>
<tr>
<td>Foreclosure &amp; public auction</td>
<td>8.3</td>
<td>2.6</td>
<td>3.2</td>
<td>38.9</td>
</tr>
<tr>
<td>Collection</td>
<td>12.7</td>
<td>4.3</td>
<td>5.9</td>
<td>46.9</td>
</tr>
<tr>
<td>Individual loan sale</td>
<td>2.6</td>
<td>0.6</td>
<td>0.9</td>
<td>35.0</td>
</tr>
<tr>
<td>Sale to AMC</td>
<td>2.6</td>
<td>0.7</td>
<td>0.9</td>
<td>35.6</td>
</tr>
<tr>
<td>Sale to CRC</td>
<td>1.8</td>
<td>0.4</td>
<td>0.7</td>
<td>36.5</td>
</tr>
<tr>
<td>Daewoo</td>
<td>3.3</td>
<td>2.2</td>
<td>2.7</td>
<td>81.3</td>
</tr>
<tr>
<td>Subtotal</td>
<td>45.4</td>
<td>16.3</td>
<td>20.1</td>
<td>44.3</td>
</tr>
<tr>
<td>Recourse and cancellation</td>
<td>19.3</td>
<td>10.2</td>
<td>10.2</td>
<td>52.8</td>
</tr>
<tr>
<td>Total</td>
<td>64.6</td>
<td>26.5</td>
<td>30.3</td>
<td>46.8</td>
</tr>
</tbody>
</table>

Source: KAMCO.

1/ The ratio of amount retrieved to face value, in percent.

- In gross terms these resolution methods generated profits, but after deduction of operating expenses (“amounting to on average 20 percent of the inventory of NPLs purchased, and close to 30 percent of the NPLs disposed of each year”), the fund was loss-making:
Limitations: as noted above, this paper offers descriptive statistics only. But the paper offers helpful detail on how a well known AMC scheme operated, and particularly its costs.


Available at: https://www.bu.edu/econ/files/2012/11/dp157-Visaria.pdf

Takeaway: the establishment of Debt Recovery Tribunals designed to reduce delays associated with loan enforcement in the Indian courts reduced loan delinquency by 3-11%.

Objective: to explore the impact of the introduction of Debt Recovery Tribunals in India on (bank) loan repayment behaviour by companies, and on the terms under which new bank loans were made. The DRTs were intended to provide a faster process for enforcement by banks, and the author provides some evidence to suggest they did reduce the number of procedural steps in enforcement action. The author hypotheses that this kind of improvement in judicial quality would lead the borrower to exert higher effort in repayment. (There is also a hypothesis about the impact on interest rates, but I will not focus on that here).

Method: the author obtains loan data from a large Indian bank with a national presence, focusing in particular on loans given to corporate borrowers for long-term purposes that were granted prior to the establishment of the DRTs (so as to avoid the methodological problem that loans granted after the DRT establishment may have been systematically different to those before). This produces a sample of 798 loans, for which the author observes repayments on commitments for an average of 19 quarters.
The author exploits two features of the introduction of DRTs – that they applied only to loans over Rupees 1 million, and that they were introduced in a staggered way across Indian states – to estimate the impact of the introduction of DRTs using a difference-in-difference specification, comparing the change in repayment behaviour of loans over Rupees 1 million after DRTs are established to the change in repayment behaviour of smaller loans. To measure repayment behaviour, the author computes two dependent variables at loan-quarter level: allpaid, which assesses whether all invoices issued in the relevant quarter were paid within 180 days of the due date (the time at which a loan is to be classified as non-performing), and dayslate, which, for those quarters where not all invoices were paid within 180 days, measures the average number of days elapsing between invoice and payment in relation to the same loan. The latter is designed to be a measure of the delinquency of delinquent loans. The author expects that borrowers respond to Debt Recovery Tribunals by reducing the probability that they default (increasing allpaid), but cannot predict the effect on dayslate – “borrowers may either have decided not to pay on time, in which case dayslate may be unaffected by DRTs; or they may be switching from being late on all loans to paying some loans on time but becoming more delinquent on others, in which case dayslate could increase; or they could be attempting to meet the 180 day limit but not succeeding, in which case dayslate should fall”.

**Findings:** When a DRT was established, loans which had more than Rupees 1 Million overdue were 11% more likely to pay up subsequent invoices within 180 days (the allpaid measure), and even loans which did not pay up in time (the dayslate measure) had the time to pay reduced by 265 days. When the sample was restricted to loans close to the Rupees 1 Million level (on the assumption that the very large loans in the sample might be systematically different to others), comparing loans just above the threshold with those just below, the magnitude of these findings increases. These results survive various robustness checks designed to control for state-level omitted variables and time-varying patterns specific to loans exposed to DRTs. These results suggest that the average invoice was repaid faster after DRTs were established in a state. To test whether this is being driven by compositional changes, rather than improvements in individual loan repayment, the author runs further tests, finding that after the establishment of a DRT it was 3% more likely that an invoice would be paid within 180 days than if the invoice were issued before the state DRT was established, though this result seems to be driven by one group of states (which the author posits might be linked to the timing of the Supreme Court’s resolution of the constitutionality of DRTs).

**Limitations:** none that are obvious: the difference-in-difference specification deployed appears ideal for testing the hypothesis, and is possible because of the differential application of the legal framework and its staggered introduction.

**Qualitative within-country evidence**

15. Li Jiangfeng, “Non-Performing Loans and Asset Management Companies in China: Legal and Regulatory Challenges for Achieving Effective Debt Resolution and Recovery”

This paper does not offer new data, and so ordinarily I would not have included it in the review, but it does offer summaries of data reported in other sources that do not appear readily publicly available. This includes:

- a summary of survey results from 2011 market survey by Orient in which “Nearly 57% of the investors (including investment banks, funds, SOEs and foreign investors) responded that the unsatisfactory legal environment influenced their participation in the NPL market” (pg 147, citing China Orient Asset Mgmt Corp Report of China’s Non-Performing Assets Market 2011).

- a 2009 report by Orient reportedly indicating that the Chinese asset-management companies to which NPLs had been transferred “win in 70% of the involved cases, but only 30% of the awards can achieve enforcement”, the author noting elsewhere a reported judicial practice of slowing execution of NPL related judgments in cases involving state-owned assets (pg 120, citing Orient’s 2009 Report of China’s Non-Performing Assets Market, and see 146 on judicial delay, citing the PWC report immediately below).

16. PWC, NPL Asia, No.11 (Oct 2009)

Available at: https://www.pwc.com/th/en/publications/assets/npl11-asia-october2009.pdf

In this paper PwC reports, among other things, on the impact of a judicially developed “three suspension policy”, under which new NPL-related filings, judgment issue and enforcement of judgments had been suspended, particularly in cases involving state-owned assets, dealing a “significant blow to investors hoping to use the courts to effect payments on their existing loans” and which had “resulted in vastly reduced internal rates of return on portfolios as monies remain uncollected” (pgs 3-4). The suspension appears to have been motivated by Supreme Court guidance, described briefly on pg 4.