BANCA D'ITALIA
EUROSISTEMA

Notes on Financial Stability and Supervision

No. 3
April 2016

Contents

The papers published in the Notes on Financial Stability and Supervision series reflect the views of the authors and do not involve the responsibility of the Bank of Italy

What's the value of NPLs?*

L. G. Ciavoliello – F. Ciocchetta – F. M. Conti
*I. Guida – A. Rendina – G. Santini**

Summary

The main reasons for the difference between the book value of bad loans and the price that specialized market operators are willing to pay lie in the different criteria used in the financial statement and by investors to calculate their value. This paper demonstrates that these different criteria can account for the entire gap between the book value of bad loans and the price offered by an investor and that the gap is proportionate to the length of recovery procedures (judicial and extra-judicial). In other words, recovery times play a key role in the valuation of these assets.

Introduction and main conclusions

One of the reasons for the failure to develop a secondary market for non-performing loans (NPLs) in Italy is that there continues to be a substantial difference between the book value of these assets and the prices offered by investors. This paper investigates the main drivers of this difference, of which there appear to be two:

1. Investors in NPLs demand a very high rate of return, partly because they generally have less financial leverage than banks. This return is used to discount the expected cash flows from NPLs (banks adopting the IAS/IFRS international accounting principles instead use the original effective interest rate on the assets, which is usually much lower) and results in a lower NPL price.

2. Banks, as required by international accounting principles, include the indirect costs of managing NPLs in their financial statement of the year in which they are incurred, whereas potential acquirers deduct them immediately from the value, thus reducing the purchase price.

This paper shows that these two factors alone can account for the entire difference between the book value of bad loans and the price an investor is willing to pay, and that this difference is proportionate to the length of the recovery procedure (judicial or extra-judicial). In other words, recovery times play a key role in the valuation of these assets.

These results have major implications for solving the problem of the sizeable stock of NPLs. First, a shortening of recovery times would almost immediately increase the value of NPLs, with positive consequences for banks' ability to allocate sufficient resources to financing the economy and for financial stability. Simulations conducted by the Bank of Italy show that a two-year reduction in recovery times would entail a market price increase of approximately 10 percentage points and, other things being equal, a significant reduction in long-term stocks of NPLs.

As was recently highlighted by the senior management of the ECB and the Bank of Italy, the disposal of NPLs will take place gradually. The supervisory authorities assess the situation of each bank – the effectiveness of internal procedures for the management and recovery of NPLs, the coverage ratios, the ratio of NPLs to total loans – in order to identify the most appropriate supervisory measures, also taking account of the external context in which the banks operate. They do not push all banks, indiscriminately, to sell these assets on the market at the earliest opportunity.

Banks need to adopt more efficient internal procedures for NPL management, carefully considering the advantages of outsourcing to specialized operators and scheduling disposals as part of their business plans.

1 NPLs: basic concepts and accounting rules

All the Italian banks, like the main European banks that adopt international accounting principles (IAS-IFRS),[1] calculate the book value of loans according to the amortized cost method,[2] which provides for the discounting of future expected cash flows over the life of the loan. The discounting takes into account the time value of money; according to IAS, the original effective interest rate, *i*, of the loan itself must be used as discount factor.[3] As a rule, the gross book value (GBV) is equal to the discounted sum:

$$GBV = \sum_{t=1}^{n} \frac{f_t}{(1+i)^t}$$

where *f* indicates the expected cash flows. This method is also used to determine the net value of NPLs. When the debtor (for instance a firm) has difficulty repaying a loan, the bank must assess a) the probability of not being able to recover the entire amount (including interest) by the due time; b) the recoverable amount, which largely depends on the guarantee backing the loan; and c) the cash flow recovery time, which usually differs from that stated in the loan contract. This assessment involves a new estimation of expected cash flows, *f'*, which normally translates into a write-down in the profit and loss account (P&L) for the year.

In determining the new *f'* banks must also consider the direct costs of managing NPLs, for example the costs of collecting and selling the collateral. Instead, they do not consider indirect costs, as these are largely staff costs or fees paid to a servicer, which are recorded in the P&L for the relevant year. Therefore, the NPL net book value (NBV) equals:

$$NBV = \sum_{t'=1}^{n'} \frac{f'_{t'}}{(1+i)^{t'}}$$

where *f'* represents the new cash flow, revised downwards in view of the company's changed financial situation, and *n'* represents the new recovery time, revised upwards to take account, among other things, of the length of the enforcement procedures for the sale of the collateral.

The value adjustment is therefore equal to the difference between GBV and NBV:

$$R = GBV - NBV$$

Over time, the position might become performing again (in which case the bank will record a recovery equal to *R*), or it might deteriorate further (in which case the bank will record further write-downs). In every period the difference between GBV and NBV

---

1 According to Regulation (EU) No. 1606/2002 of the European Parliament and of the Council, publicly traded companies must apply international accounting principles in preparing their consolidated financial statements. The Italian Parliament has exercised one of the options provided for by the Regulation, extending the application of international accounting principles to all banks and supervised entities for the preparation of their individual and consolidated financial statements.

2 Unless the loans are not classified at fair value in the accounting portfolios.

3 See IAS 39, *Financial Instruments: Recognition and Measurement*.

is given by the sum of value adjustments (and possible recoveries) recorded over time. The coverage ratio is given by the ratio between the amount of write-downs and the gross amount of impaired positions.[4]

2 NPLs in the Italian banking system: the current situation

The large stock of NPLs is due to the recession and long credit recovery times

The large stock of NPLs of Italian banks is mainly due to the exceptional recession that has buffeted the Italian economy in recent years, as well as to long credit recovery times. The very limited development of a secondary NPL market has also contributed.[5]

Non-performing loans, gross of provisions, amounted to €360 billion in December 2015, that is 18.1 per cent of total loans to customers. The amount of bad loans (the 'worst' category of NPLs)[6] was €210 billion (10.6 per cent of total loans). For balance sheet purposes, the amounts net of provisions have to be considered: €197 billion and €87 billion respectively (Table 1).

Table 1 – NPLs: amounts, coverage ratios and guarantees
(billions of euros and percentage points; December 2015)

	Gross exposure	Provisions	Net exposure	Coverage ratio	Collateral (1)	Personal guarantees (1)
Total NPLs	360	163	197	45.4%	160	52
of which: bad loans	210	123	87	58.7%	85	37

Source: Supervisory reports, on a consolidated basis for banking groups, individual for the rest of the system.
(1) Amounts on an individual basis. The amount of guaranteed credits is shown, not the amount of the guarantees: where the amount of the guarantee exceeds that of the credit, the largest amount shown is the amount of the credit itself.

Coverage ratios have increased progressively since 2012, partly thanks to targeted supervisory action by the Bank of Italy.[7] The average NPL coverage ratio is 45 per cent (59 per cent for bad loans only), in line with the European average[8] (37 per cent and 55 per cent respectively in June 2012).

The average share of secured lending is high

Collateral for non-performing loans amounts to €160 billion. This figure does not necessarily correspond to the collateral's fair value, but to the amount of credit backed

---

4 In the notes to financial statements value adjustments can be represented in two ways, both indicating the same loan value in the balance sheet, that is, net of adjustments. The first is to write down part of the exposure no longer recoverable; the second, if there is no longer any reasonable expectation of recovery, is to write off the expected loss, subsequently reducing the original gross value of the loan. Write-offs must also be considered when calculating coverage ratios, as otherwise the indicator would be underestimated. For details see the box 'Coverage ratios and write-offs', *Financial Stability Report,* No. 4 (2012).

5 Sales of bad loans were only for small amounts in 2012-14 (about €11 billion, corresponding, on a yearly average basis, to 2 per cent of the average stock). The amount increased in 2015, but was still small (about €9 billion).

6 NPLs are divided into categories according to their recoverability. If the debtor's difficulties are expected to be only transitory, banks can opt to make lower provisions.

7 See 'The recent asset quality review on non-performing loans conducted by the Bank of Italy: Main features and results', Bank of Italy, 2013.

8 Unlike other countries, even in Europe, the share of foreclosed assets (properties seized by banks due to debtor default) is almost negligible in Italy. This has to be taken into account for a true international comparison. Foreclosed assets are not in fact NPLs from a technical point of view, but from an economic one they do represent a risk for banks, comparable to that of NPLs secured by real estate collateral. In both cases banks are exposed to real estate market trends.

by collateral.[9] The average ratio of credits backed by collateral or personal guarantees in total non-performing loans is 67 per cent. Considering only residential mortgages to households, collateralized credits (nearly all with real estate) amount to 94 per cent.

3 Main reasons for the difference between book value and market price of bad loans

The NBV of bad loans is significantly higher than the price that investors in this market (generally international hedge funds) are willing to pay. The figures on NBV are conclusive: currently, system-wide average NBV is 41 per cent of GBV (the difference between the coverage ratio shown in Table 1 and 100). There are no figures indicative of market prices because the market is very thin and the loans sold vary widely as to type, guarantees and amount of the write-down. There have been cases in which the sale value has topped 45 per cent of GBV, where the loan was secured by high value guarantees (such as prime residential property), and others in which it has barely reached 3 per cent (unsecured positions). For the time being, therefore, it is impossible to quote an average value that is representative of market prices. To give an example, in the case of the bad loans of the four banks put into resolution last November (GBV of €8.5 billion), independent experts' latest estimates set the disposal value at 22.3 per cent of GBV.

Although investors do not have access to valuation methods, it is possible to analyse some of the factors that can generate gaps between market prices and banks' book values that are similar to those observed.

Let us take an exposure classified as a bad loan with a GBV of €100, partly secured by a real guarantee. We assume that the bank's estimate of expected cash flows is the same as that of investors in the market,[10] with only one inflow whose expected value is 47 per cent of the gross value of the loan (already net of the direct costs of selling the guarantee), which will be collected in full at the end of the recovery procedure.[11] We also assume that the expected residual recovery time is four years. This is consistent with the result of the survey of recovery times for credit to firms that the Bank of Italy carried out in 2015.[12]

Let us look first at how these assumptions translate into the valuation of a position from the bank's point of view. To do so, a further assumption must be made regarding the original effective interest rate on the loan which the banks, in accordance with

---

9 For example, if a credit is backed by a guarantee with a higher fair value than the credit itself, the amount reported is that of the credit. Furthermore, guarantee values are based on individual supervisory reports of Italian banks, whereas NPL values are based on consolidated reports (which include NPLs relating to foreign intermediaries and to Italian financial institutions belonging to a banking group).

10 This assumption may not be true and the low price offered by market operators may be the result of a lower estimate of future cash flows than that of the banks. In other words, the coverage ratio may be too low. In such a situation, the assumption merely pinpoints the causes of the 'spread' that are not linked to the coverage ratio.

11 The example does not take into consideration partial reimbursements over time.

12 Luisa Carpinelli, Giuseppe Cascarino, Silvia Giacomelli and Valerio Vacca, 'The management of non-performing loans: a survey among the main Italian banks', Questioni di Economia e Finanza (Occasional Papers), No. 311, February 2016. According to this study, almost 80 per cent of loans involved in liquidations have been the object of recovery procedures for less than 5 years and the average duration to date of the liquidation proceedings, weighted for the loan amount under a number of simplifying assumptions, was 3.5 years in 2014. In bankruptcies, the average duration was 3.8 years, against 2.9 years for compositions with creditors and 3.3 years for foreclosures.

IAS 39, must use to discount the expected cash flows (see paragraph 1). This is set at 4 per cent, which is the average recorded in the course of the 2014 asset quality review (AQR).

Accordingly, the bank records the net position as 40 per cent of GBV, with a coverage ratio of 60 per cent (Table 2, column 1, rows l and m). The exercise has been built so as to approximate the system-wide observed net value of bad loans and related coverage ratio, as reported in Table 1.

Table 2 - Main differences between banks' and investors' methods of valuing bad loans					
Bad loan valuation		Bank	Bank with con indirect costs	Investor's IRR 15%	Investor's IRR 25%
Assumptions		(1)	(2)	(3)	(4)
Gross book value (GBV)	(a)	100	100	100	100
Expected value collected at maturity (from sale of guarantee and other)	(b)	47	47	47	47
Time remaining to collection of cash flow (years)	(c)	4	4	4	4
Average weighted cost of liabilities (investor's IRR)	(d)	Not applicable	Not applicable	15%	25%
Indirect costs	(e)	0%	6%	6%	6%
Average cash flow discounting rate	(i)	4%	4%	15%	25%
Results					
Discounted cash flow	$(j=b/(1+i)^c)$	40.2	40.2	26.9	19.3
Indirect costs	$(k=e*b)$	0	2.8	2.8	2.8
Book value (bank's NBV); price (for investor)	$(l=j-k)$	40.2	37.4	24.1	16.4
Expected loss on position (coverage ratio)	$(m=a-l)$	59.8	62.6	-	-

... while investors also consider the indirect costs of loan management ...

Let us now consider the investor's point of view. Investors have a different economic perspective compared with banks and they use different methods to estimate the value of bad loans. In fact:

(i) they deduct from the price all the indirect management costs (administrative expenses and servicer fees) they will incur during the 4 years needed to recover the cash flows (as explained in paragraph 1, banks pay and record these costs annually until the position is closed).

(ii) they aim for a much higher internal rate of return (IRR) than the discounting rate used by the banks in their financial statements. The IRR is high for a number of reasons. In the first place, liabilities consist almost entirely of equity. In the second place, even assuming the same valuation of expected cash flows, investors are risk averse and the more the possible loan recoveries are dispersed around the average value, the larger is the requested premium. In the third place, the expected return demanded by investors

also takes account of performance fees levied by fund managers, which can be as high as 20 per cent of net profits. Finally, there may be genuine differences in the valuation of future cash flows due to information asymmetries in the credit market.

The following two factors play a key role in determining prices.

(i) Indirect management cost effect

To our knowledge there are no reliable publicly available statistics on the indirect costs of managing bad loans. Anecdotal evidence suggests they may account for as much as 6 per cent of nominal expected cash flows.

Table 2, column 2, shows the valuation of a bank which includes these costs, contravening accounting principles, and does not change the other factors listed in column 1. In this case, the present value of the bad loan is 37 per cent of GBV, some 3 percentage points below the example in column 1. Provisioning should therefore be increased by the same amount.

(ii) Rate of return effect

Based on available evidence, again anecdotal, the simulation assumes that investors' IRR to acquire bad loans is between 15 and 25 per cent.

The results, which appear in columns 3 and 4 of Table 2, show that the effect on the valuation of bad loans is substantial, ranging from 13 to 21 percentage points of GBV according to the IRR.[13]

(iii) Overall effect

As a whole, taking both factors into account (indirect costs and IRR), the different approach followed by investors would warrant a price gap with respect to NBV of between 16 and over 24 percentage points of GBV. This represents a purchase price for the investor of between 24.1 and 16.4 per cent of GBV.

These tentative findings suggest that the main reasons for the gap in the market price of bad loans relate to the different valuation criteria used in the financial statement and by investors to compute the value, rather than to insufficient coverage ratios.

4 Effect of recovery times on the price and stock of bad loans

The valuation of a bad loan position can differ greatly based on the recovery time, both in terms of accounting value and, especially, of market value. Various factors affect recovery times, including the efficacy of a bank's internal procedures and the efficiency of a country's legal and judicial system. As a result of the latter, the valuation can

---

13 In the interval considered (15-25 per cent), the effect of the IRR on the price offered is approximately linear. For example, with an IRR of 20 per cent, the valuation is 19.8 per cent of the GBV, compared with the 16.4 and 24.1 per cent reported in Table 2 for IRRs of 25 and 15 per cent respectively.

change significantly even within the same country as different courts process recovery procedures at different speeds.

Table 3 contains a sensitivity analysis of the value of the bad loan with respect to the cash flow recovery time. It shows the price that investors would be willing to pay to buy the bad loan as a function of various recovery times, assuming an IRR of 20 per cent. Shortening the recovery time by even a year, from 4 to 3 years, increases the price by 4.6 per cent of GBV.

Tav. 3 - Sensitivity of bad loan prices to recovery times [1] *(per cent of GBV)*	
Recovery time (years)*	Price
1	36.3
2	29.8
3	24.4
4	19.8
5	16.1
6	12.9

(1) Assuming 20 per cent IRR.

Not only do recovery times affect the valuation of bad loans and, more generally, NPLs, but balance sheet values as well. The longer the recovery time, the higher the ratio of bad loans to total loans. Recent estimates show that two banking systems with a loan growth rate of 5 per cent and a rate of new bad loans of 2 per cent but with different bad loan recovery times (2 years and 5 years), in equilibrium would have respective bad loan to total loan ratios of 3.5 per cent and 7.4 per cent.[14]

5 Conclusions

Recently, the press and specialized operators have spread the rumour that the Single Supervisory Mechanism (SSM) intends to force banks to rapidly offload NPLs on the market. This perception may be one of the causes of the recent sharp fall in bank stocks in the euro area and Italy. The idea that the SSM intends to force banks to indiscriminately and rapidly offload their NPLs is incorrect, as underlined on various occasions by senior members of the ECB, the SSM and the Bank of Italy.[15] With regard to NPLs, the Supervisory Authority carefully evaluates each case, keeping in mind the numerous internal variables of each bank (such as the efficacy of recovery procedures, the adequacy of the coverage ratio, and the share of NPLs in total loans) as well as the external context within which the bank operates.

---

14 See the box 'The relationship between length of credit recovery procedures and volume of bad debts on banks' balance sheets', *Financial Stability Report*, No. 5, 2013.

15 M. Draghi, 'Introductory statement to the press conference' – Governing Council decisions, 21 January 2016; D. Nouy, 'Introductory statement at the Presentation of the ECB Annual Report on supervisory activities 2015', ECON Committee of the European Parliament, 22 March 2016; I. Visco, 'Fact-finding inquiry on the Italian banking and financial system and the protection of savings, also regarding supervision, crisis resolution and European deposit insurance', 19 April 2016.

In general, the reduction in the large stock of NPLs will be gradual. There is ample room for manoeuvre to speed up the process. Banks will have to improve the efficacy of their internal procedures, with the understanding that a class of assets that now represents nearly 20 per cent of total gross loans cannot be managed in a residual fashion; they must also carefully assess the possibility of outsourcing them to specialized operators and of scheduling their sale as part of the business plan. The Supervisory Authority strongly encourages this process. To this end, the Bank of Italy has recently launched a statistical survey on bad loans also to incentivize banks to improve their management.[16]

Important progress has been made on the reform front. The state guarantee scheme GACS may bring additional benefits to the active management of bad loans, also in the light of the creation of the new private fund 'Atlante' (see the box 'The launch of the Atlante fund', *Financial Stability Report*, No. 1, 2016) which will invest in junior and mezzanine tranches of securitized bad loans. Moreover, the law[17] passed last August is helping to shorten recovery times; the Government has announced new measures on this front. These factors, together with the economic recovery, will contribute significantly to the gradual reabsorption of the stock of NPLs.

---

16 See 'Nuova segnalazione delle esposizioni in sofferenza'.
17 Law 132/2015, converting Legislative Decree 83/2015.