

New Approach and More Equitable Solutions for Credit Recovery: The Case of Non-Performing Mortgage Loans

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Abstract

The paper, after a short analysis of the disappointing results of the widespread procedures of non-performing mortgage loans recovery, proposes a new approach to the problem and new recovery models. The aim is, in particular, to avoid unfair redistributions of wealth such as those that occur with the most widespread procedures that benefit the speculative investors and damage the lender bank, the debtors and the local economy. Research has been focused on multi-effect solutions that are able to achieve a fair and efficient tradeoff among not easily compatible aims, such as those of a fast cleansing of the bank's balance sheet, as Supervisors require, the complete credit recovery for the bank, the grant of a second "chance" to the debtor with a consequent, implicit, sustainment of the local economy. The essential feature of the solutions presented here, which may differ according to the different size of the bank, is a requalification of the role of the mortgaged Real Estate, with the passage from the traditional function of a more certain credit recovery, though not at all certain in the amount, and in any case very complicated, to a new function as "bridge" for the possible reprise by the debtor, with consequent ant-cyclical effects for the economy and an easier and more integral credit recovery for the bank.

Keywords: Non-Performing Mortgage Loans, Innovative Credit Recovery Approach, Collateral, Social Interest

1. Introduction

Only during great economic crises, as the recent one, does credit recovery cease to be an ordinary problem for the majority of banks and become widespread and even extremely virulent, to the point of requiring drastic interventions by the Supervisors. During the last decade, and under Supervisor pressures for a rapid cleansing of the banks' balance sheets in order to avoid a domino effect, significant results have been achieved everywhere, and especially in Europe, in terms of reduction of Non-Performing Loans (NPL). However the recovery solutions that are applied have meant heavy costs for banks, usually as great as the cleansing of the balance sheet has had to be rapid. Of course, time is a strategic variable in preventing a systemic crisis, but the quickest solutions are not necessarily the most efficient. At present, an increasingly widespread practice of recovery in a number of countries, and especially European ones, is the sale *en masse* of non-performing loans to professional operators or specialized funds, often typically speculative hedge funds (nicknamed "Vulture Funds"), with a great *gap price* with respect to their Net Book Value (NBV), and so to the detriment of the bank's capital.

Also the image of the bank is damaged by this kind of abandonment of the debtors to these Funds if, as often may occur, these latter provide the credit recovery with "harsher" method as compared to the bank's and in sheer indifference to the effects on the debtors, some of whom would perhaps have some chance of overcoming their present difficulties if they were given enough time. This indifference may be particularly evident if the credit is secured and this type of financial investor had access to more rapid and efficient forms of monetization of the collateral than the bank has. The end result is usually a disproportionate redistribution of wealth in favor of those speculative investors, to the detriment of both the banks and the debtors. The local economy, which is the basis of the bank's long-term equilibrium, is also damaged. Therefore, this elementary strategy of balance sheet cleansing can in many instances result in a vicious cycle of future losses on still performing loans. All this, of course, ultimately leads, when the bank's shareholders refuse to bring new capital, to the absorption of a number of banks by others, sometimes even foreign, or to the input of public capital by the Treasury, where public intervention is not yet prohibited as an alternative factor to free competition and the public debt is still able to sustain such an intervention. Can we think up a new model of non-performing loan recovery that is able to effect a rapid cleansing in the banks balance sheet without producing, at the same time, the above-mentioned negative effects and that is valid both in ordinary and acute economic crisis situations?

The aim of this paper is precisely this and will be pursued with a new approach that takes into account the interests not only of the bank but also of the other players. Only through such a wider prospective can a bank really protect its long-term interests.

Banks must exit from a unilateral standpoint that underlies both the traditional and, and even more so, the current strategies and techniques of credit recovery, which are harmful to the bank itself as well as to the economy, and often favors an unjust wealth redistribution. So, in this regard, research into new and fairer solutions seems an ethical no less than an economic imperative. This paper focuses on the best ways to recover non-performing mortgage loans, having identified in an innovative use of collateral the path toward an equitable “exit” strategy for all the parties concerned. At the same time, the indirect effects on recovering on-performing unsecured loans will also be taken into account. The analysis will cover the following points. After a brief review of the traditional unsatisfactory credit recovery procedures in chapter 2, in chapter 3 we will examine the general outline of a model that marks a strong discontinuity with the standard procedures of credit recovery in its attention to the debtor’s problems together with the possibility for the bank to recover almost all the Net Book Value of the credit through an alternative use of collateral and an unusual securitization of the credits reserved to banks that participate in an Alternative Investment Fund (AIF). However, despite its very appreciable aim, this model presents substantial complications in its concrete application and some overall critical aspects in terms of the imperfectly symmetrical conditions of its returns, because of the margin left to opportunistic behaviors. More in general, free-play market rules seem not fully applicable. Therefore, in the subsequent chapter 4 we formulate another alternative resolution model that, as opposed to the previous one, will be divided, respectively, into two different forms, one reserved for small banks and the other for middle or large banks, and that, without altering market principles, seem able both to avoid any complication and to enable the bank to recover its credit in full while also giving the debtor a “second chance”, with a consequent indirect advantage for the local economy. The conclusion will highlight the strengths of this new conceptual and operative approach, centered on a reevaluation of the role of collateral in a solution that takes into account not only the creditor’s position but also the debtor’s and of that of the local economy. The sustainability of this solution is founded on the combination, lacking in other models, of a social vision of the problem with equity criteria and free market principles.

2. Negative effects of NPL standard solutions: the search for a new approach and new, more equitable solutions

The magnitude and duration of the recent international crisis, in contrast to the previous ones, that did not affect structural aspects of the economy (Bikker J.A., Hu H., 2002, Boudriga A, Boulila N., Jellouli S., 2009, Jimenez G., Saurina J. 2006), enlarged the distress assets on the balance sheets of a great many banks to such an extent that the traditional internal bank procedures for credit recovery became insufficient. Consolidated legal proceedings generally imply a long delay of credit recovery conjointly with a marked uncertainty about the entity of effective recovery. Both these elements led to a Net Present Value (NPV) of future recovery often much smaller than the Net Book Value of the credit. When these proceedings are applied, all the parties involved are in some way penalized: not only the bank, which must suffer a net loss on its balance sheet, but also the debtor, who loses his property if mortgaged, and finally the local economy, which is impacted by the depressive impulses from the “domino effect” caused by the debtor’s bankruptcy. These consequences are mitigated in countries where the banks are preventively authorized by the debtor to sell his property in case of insolvency, with possible adjustment in favor of the debtor if the net return from the sale is greater than the debt.

Certainly, an accord of this type is worthwhile to avoid the fall in price of the collateral (the real estate) that frequently occurs in an auction sale, and this in turn alleviates the downward pressure on RE (Real Estate) prices, but does not avoid the loss of the property for the debtor. Nor does it avoid the loss of its use and consequent depressive impulses for the economy when the debtor is a business. These negative effects are usually connected to the internal management of a traditional bank’s credit recovery, but the situation is no better if the recovery work is externalized or if the credits themselves are drastically ceded to external subjects not always independent from the bank. Examples of this kind are offered by a number of securitization techniques based on the translation of homogeneous credit packages to such subjects, with the partial transformation of the classic bank’s credit management model from the one called “originate to maintain” into the one called “originate to distribute”. The greatest risks (Hansel D., Krahen J.P., 2007, Ecchia B. 2013) emerge when the credit transfer occurs between not entirely de-correlated subjects (Wayne R. Landsman, Kenneth V. Peas Nell, C. Shakespeare, 2008) and especially when it occurs within a financial conglomerate through “tunneling” operations, by means of which anything becomes possible, including the paradoxical case in which the final target of the placement, after some passages through other intermediaries, becomes the clients of the same bank, thus closing a circular movement aimed to mask, with an indirect placement, an enormous conflict of interest that would be blatantly evident with a direct placement.

In such cases the real problem is not so much this masking in itself but the overall fact that, thanks to the cession of the NPL to a non-independent subject, in the case of bonds that are issued by it and placed on the market by the same bank or other intermediaries of the same conglomerate, the bank can hide the very low quality of the credits that are the collateral for the interest and capital payments on such bonds, and therefore the placing of the bonds can take place at a price not consistent with their “junk quality”.

In like manner the bank can transfer the cost of its unfortunate credit management to unaware final small investors, who are often its own depositors. On the other hand, more physiological procedures of securitization, in which these bonds are acquired by institutional investors totally de-correlated with respect to the bank and all the successive placements take place in conditions of effective transparency, certainly generate much lower prices for the bank, even considerably smaller than the Net Book Value of the credits, thus also diminishing the bank’s capital. As an alternative, the bank, in order to obtain a favorable cession price for serial credit packages and so avoid an immediate loss, is obliged to accept a clause that guarantee sat its own cost at least a percentage of the possible failed repayment of the riskiest series (junior bonds); however, in this way the cleansing operation of the balance sheet is not complete and definitive. At present the most widespread practice for NPL recovery is selling large part of such credit portfolios to professional investors, who repay themselves with the flows from their own credit recovery action, with a usually great “price gap” in their favor. This gap is due both to the weak contractual strength of the bank if solicited by a Supervisor to undertake a rapid cleansing in its balance sheet and to a low-price competition, since the till now very narrow market for such credits benefits the purchasers. Obviously, the gap is the greater in direct proportion to the required rapidity of the cleansing. But in this way the advantage of such an externalization for obtaining a more rapid recovery of capital may be more than counterbalanced by the lower amount recovered. It is easy to recognize in such a credit recovery solution an unjust redistribution of wealth to the advantage of these purchasers and the detriment of the banks and all players involved by the effects of the NPL cessions. But it is no less likely that these speculative investors justify the very low purchase price by a number of arguments, such as:

- the usual opacity of an NPL portfolio of NPL that is ceded *en masse*, without even an adequate “line by line” approach. In other words, the losses incurred by the banks are presumably motivated in large part by the typical condition of a “lemon’s market”, and such a justification may to some extent be well founded. In fact, the problem of asymmetrical information is weightier for these investors than for the bank because the latter has a more intensive relationship with its debtor. Instead investors have to face a double asymmetry, one connected to information on the debtor not intercepted and filtered by the bank and the other connected to information passed by the bank which is naturally interested in sustaining as much as possible the value of its NPLs. the different methods of accounting for the differences between Gross Book Value and the expected value of recovery (Net Book Value for the bank), since while investors are not blocked by external links in determining the IRR, the bank must discount the cash flows, as foreseeable on the credit recovery, on the basis of the interest rate originally applied on the loan, as imposed by the International Accountability Principles, at least in all those countries that adopt them. As a consequence, even in the unlikely instance that the foresights of the bank and the investors on such cash flows coincide, determining the price would be very different. In fact, in any case, the investors, in function of their risk aversion and often in a very wider measure than this, apply an IRR that is as high as is wide the range of the possible foreseeable recoveries with respect to the expected recovery value. Correlatively, the NBV as estimated by the bank will be much greater than the price as determined by the professional investors, and so the greater will be the loss for the bank in case of sale (and obviously in direct function of the recovery period).
- Based on a usually lower leverage than the bank’s, professional investors are naturally inclined to apply a higher IRR.
- Professional Investors deduct immediately and in single solution the indirect costs for managing the NPLs from the price of the latter, while the bank, based on the International Principles of Accountability, is compelled to enter these costs on its annual balance-sheet, together with the costs of competence of each year. The price of the NPLs has to take into account the high “performance commissions” applied by the managers of the speculative hedge funds, which represent most of this type of investor.

As a consequence of such a number of charges, the choice of the block cession of large masses of the NPLs on a primary loan market characterized by such inefficiency conditions, the capital of many banks sometimes decreases to under the minimum requirements as established by the Oversight, with the consequent need for an immediate recapitalization that is not always achievable with private resources. A similar situation was typical of many banks, overall in Europe during the recent big crisis. On the other hand, in the same period even public resources were not available in some countries, where the public debt was already too heavy. Furthermore, in the UE, while at first State intervention was tolerated, it was later prohibited for being in contrast with the free competition principles (Nkusu M. 2011, Rinaldi, L., Sanchis-Arellano, A. 2006). The pernicious effects for the bank of the *en masse* NPL cessions are not

limited to heavy losses; another negative effect is the image of a bank that abandons its debtors to the clutches of these speculative operators. This effect is especially evident in the case of bank debtors labeled as “Unlikely to pay” (UTP), meaning that insolvency seems not at all irreversible. But the bank is not often open-minded to make fine distinctions about the different nature of insolvencies when it is compelled to effect a quick cleansing of its balance sheet, and so frequently prefers to abandon even UTPs to “vulture funds”, albeit at an unfavorable price.

It is hard to deny the weakness of a bank’s strategy of credit recovery where the rapidity variable of NPL monetization plays so dominant a role up to the point of superseding the sale price and the links with the local community. Since this last is the basis for a sustainable future of any bank, the risk increases of a vicious cycle (Reihnart C.M., Kenneths R., 2008) of negative interactions between economics, social and financial aspects that is hard to break (Balboa M., Nies M., Plekhanova, 2016). Obviously, in this regard there is a range of very differentiated behaviors, and only in banks where this strategy is particularly accentuated can such behaviors be likened to a sort of moral hazard aimed at pursuing the bank’s survival although at a high cost, in the guilty hope that somehow over time things will be set to rights. To conclude these brief observations, there is an obvious need for other solutions to the problems of credit recovery, solutions that are not only quick but also economical and equitable. None of the current practical solutions is able to satisfy all of these conditions, nor does the literature offer adequate contributions in this regard (for are view of this argument, see A. Dimitrios, 2016). Such contributions do not advance beyond the limits of the best consolidated practices in managing non-performing loans (Alvarez and Marsal, 2016), and they usually result from analysis of the comparative advantages and disadvantages between an “integrated” approach to managing non-performing loans and a “disintegrated” approach through their sale (Nico B. Rottke, Julia Gentgen, 2008). Even in an analysis of the process of credit recovery “industrialization” it is hard to find elements of a “cultural” approach to the NPL problem that transcends the exclusive viewpoint of the bank (C. Scardovi, 2016). For the above reasons this paper proposes and formulates a new approach that attempts to reconcile the various interests in play, in order to get beyond the poor to very negative mono-result of the current myopically unilateral strategies. The approach here adopted also differs from the albeit interesting one that was recently proposed (M. Onado 2018) in the broad European debate aimed at examining new solutions for the problem of a no longer sustainable number of NPLs on the balance sheets of a great many European banks and centred on the recourse to a Fund supported by the Treasury, directly or through other public operators. *The underlying idea of this paper is instead to seek a solution that remains absolutely “within” the private financial sector*, where there is sufficient wiggle room for new forms of credit recovery in which a bank can find a collaborative, because interested, counterpart in its debtors, and which exclude any involvement by public operators and any burden on public finance.

3.The PMS model as a new RE finance solution for credit recovery: merits and limits

It must be taken for granted that in view of a rational strategy of credit recovery the bank has to make a preliminary accurate analysis of the features of the NPL portfolio (Alvarez& Marsal,2016). Only afterwards does the problem arise of the most appropriate strategies of recovery that can be based on consensual procedures aimed at formulating a transaction between the parties, or on juridical procedures that usually get from poor to absolutely dreadful results previously anticipated when the transaction does not seem possible. However this impossibility is often the product of passive behavior, especially by the bank, which is not able to look for other opportunities, as could arise from a use of the collateral that is alternative to an auction sale. Such opportunities clearly appear if the bank adopts a new perspective in its relationship with the debtor, by working out with him a shared, equitable solution to the problem of his insolvency. In view of a new approach to this problem, we will first present an interesting model of credit recovery that was elaborated by financial analysts of a Swiss consultancy firm, Pragmatic Management Solutions (PMS) and was illustrated both in practitioners meetings and academic seminars. In one of these, at the Federico II University of Naples, it furnished interesting starting points for the analysis developed in this paper. However, by taking into account the limits that seem intrinsic to the structure of this model, we will subsequently formulate other solutions. The original empirical solution of PMS is based on a simple triangulation between a group of banks, an Alternative Investment Fund (AIF) closed and reserved to these banks, and their debtors. The AIF must be entirely decorrelated with respect to each bank. This condition is essential for assuring the total impartiality of this third subject in reconciling the particular interests of the group of banks adhering to the Fund both among them and between them and their debtors. Each credit recovery takes place in the form of an exchange between the credit itself and the RE settled as collateral, which is achieved through a system of compensations managed by the Fund, which connects all the banks and all the debtors. More in detail, the procedure is as follows:

1. each debtor, in the context of a prefixed agreement with its bank and AIF, cedes the RE underlying its debt to the AIF against:
 - cancelling its debt by the bank;

- maintaining the use of the RE at a specified rent that is lower than the market's, as appropriate to its condition of economic difficulty;
- the option (of an American type) to repurchase the RE within a prefixed period of time (which could be the entire life of the AIF) at a price equal to the NBV of the credit in the bank's balance sheet, only increased by a modicum percentage (10% for residential RE, 20% for industrial RE); each bank receives from the AIF an amount of shares for a comprehensive nominal value that is equal to the lowest among the following prices:
 - the NBV of the NPL,
 - the value of the RE as estimated by independent experts,
 - the value as resulting from an internal estimate of the RE by the AIF.

Therefore, since the value assigned to the RE is never higher than the NBV of the credit, while in some cases it will be lower, the bank will generally suffer a loss in the comprehensive exchange of the NPL mortgage against shares of the AIF. Nevertheless, this loss is likely to be very small, since it is unlikely for the RE value to be smaller than the credit NBV, if we take into account that a certain number of annuities are generally paid by the debtor before the default. Therefore, only the case of a drastic fall in the RE market price, such as to annul the usual cautionary margin between the value of the RE and the amount of the loan, or even over evaluation of the RE at the time the loan was granted, could generally justify a lower RE estimate by the Fund or by independent experts than the credit NBV. In practice, with this model, each bank substitutes its NPL mortgage with shares of almost equal value to an AIF, so that sharing with all the other adhering banks and proportionally to its package of shares the returns due to the rents, the repurchases of the REs and the market sales of the unreurchased RE. Because of the existing relationship between the value of a good and the return it produces, the rent, although low, has to be established in a measure to avoid at least the loss that would ensue from a lower RE value than the NBV loan. What can be observed about such a model, as above explained in brief in its original formulation? It is certainly a great improvement over the current standard credit recovery models for the advantages it offers both for the bank and the debtor. The bank even obtains a margin of gain with respect to the NBV of its nominal credit when the repurchase option is exerted, thanks to the percentage of increase in determining the repurchase price as compared to the entry price of the RE into the Fund; this percentage could be interpreted as partially compensating the rents that are lower than the market ones. If the debtor does not exert the option, the AIF will sell the RE and the return of each non-opted RE will be turned over to all the banks in proportion to the share package owned by each of them. In turn, the debtor maintains the use of the RE and so can both continue his activity and repurchase the RE if he regains the necessary economic capability. Also the local economy derives obvious benefits from the support the banks offer to debtors, at least when these are businesses with some chance of come back.

A perfect squaring of the circle? Unfortunately no. In our opinion, even if the strong social aim is praiseworthy, this model places the focal point of the credit recovery solution too much in favor of the debtors and so far from an equitable solution for all the interests in play, not to mention the fact that its mechanism creates many operational difficulties. This opinion is based on the following considerations.

1. To begin with, it is obvious that fixing the value of each RE, and so the corresponding amount of shares not superior to the NBV of the corresponding NPL, creates treatment inequalities between the single banks participating in the Fund, to the extent that each of these banks follows its own depreciation strategy on non-performing loans, despite the uniform directive imposed by the regulatory Authority. This misalignment causes an allotment of smaller amounts of shares to banks that have been more rigorous in their depreciation practices, thus bringing a smaller NBV onto their balance sheets. This discrimination is a consequence of the model's framework.

2. The repurchase price, as fixed equal to the NBV value of the NPL (where the $NBV < NPL < RE$ value as estimated when the loan was granted), increased by only a modicum percentage, could often from the beginning or after a short time be surpassed by an RE market price in positive evolution. In this case the lessee could immediately exercise the option and subsequently sell the RE, thus obtaining, substantially risk-free, an economic advantage from an arbitrage operation. Even if the lessee does not have the money for the repurchase, in this situation he could find a new financier with whom to share the profit of that arbitrage. Therefore the AIF can recover from the sale of the RE to the lessee simply the NBV of the original credit, with only a small percentage of increase. The amount of the comprehensive sales of the REs goes periodically in distribution to the bank in proportion to the shares held by each of them. Is it a satisfying recovery for the single bank? Certainly the link between the recovery of the residual credit toward the debtor and the amount effectively obtained is remote, not only because it must pass through a preliminary cession in collective ownership of the REs (or of the credits, according with the two different possible systems) and a successive redistribution on proportional basis of the collective results of the sales, but also because the NBV amount plus the percentage as above defined does not coincide with the simple empirical indicator of adequate recovery for the bank:

the difference between the originally granted loan and its capital quote which has been reimbursed up to that moment. It is clear that such an indicator is only a proxy for a fair regulation of the anticipate extinction of the loan contract, due principally to the modifications that have meanwhile occurred in the market conditions for such capital investments, but in any case the entire reimbursement of that difference indicates at least that the bank does not suffer any loss in nominal terms on the granted loan. The same argument is not identically applicable to the NBV, which is simply the net present value of the loan as calculated on the basis of the original rate of interest.

The NBV, while it cannot be greater than that difference, since the loan is non-performing, can very frequently be smaller. Only the percentage of increase may sometimes make this mode of credit recovery convenient for the bank, which in any case is dislodged from rational criteria of fairness. However, in practice, the recovery of the NBV plus a certain percentage may be collocated in the area of upside risk for the bank, or at least in a grey area. The true downside risk for the bank is instead related to the instance, in which the RE market price does not increase but decreases. If this price falls below the repurchase Price, the option goes “out of the money”, with a consequent RE mass not opted into the Fund. Furthermore, the banks must align the book value of the shares to the modified situation (with a lowering of their capital). If the market price of similar REs does not rise again over time the banks will not have cash inflows from the Fund except for the rents that however could become higher than those of the free market if the latter follow the decrease of the RE market price, so that the lessee could abandon even the use of the RE. If the RE market price falls under the NBV of the old NPL the banks would even suffer losses as compared to a situation in which they keep the NPL on their balance sheets.

More in general, in the best of cases one can doubt that the model is able to achieve a perfect symmetry of the advantages and disadvantages for the bank and the debtor. The latter appears decisively favored and the bank is subject to the consequences of its free choices. Perhaps the problem may be reduced by adopting an option to repurchase of English, not of American, type. In sum, in our opinion, serious problems arise from this model, though from a social and customer standpoint it is better than the current procedures of credit recovery and allows the bank to obtain a greater economic return as compared to the en masse sale of the credits at ludicrous prices. Are there, however, alternative solutions that are more efficient and equitable, hence more sustainable, and still in the RE finance field? And is it necessary to reject the entire PMS model? In our opinion it is possible to maintain the original spirit of solidarity without careening headlong toward a type of misunderstood sociality that alters the conditions of equitability between the bank and the debtor. Also, triangulation with the insertion of a third subject may be maintained but not in the configuration as proposed by the PMS model. Lastly, all the parameters to which the repurchase call and the rents are linked, virtually the entire financial architecture of the PMS model, has to be modified. Not only. Over against this model, the new model would have to be planned not as a uniform scheme independently from the bank, but in two different schemes according to its large or small size.

4. An alternative, more specialized model.

4.1. A congenial scheme for middle-sized and large banks.

In the case of large or even just middle-sized banks the solution can opportunely be found not on a collective but on an individual basis, because usually the RE portfolio underlying the loans is sufficiently diversified, so that idiosyncratic risk is very low or nil. As a consequence and taking into account both the convenience to have recourse in any case to an external solution for managing an RE portfolio, that is far from a bank distinctive expertise, and to maintain in the same time the control on the chain value, a bank so dimensioned could choose not a decor related Fund as in the PMS model but a Real Estate Company own Company (REoCO). The successive analogies and radical differences with the PMS model are highlighted in the following steps. On the basis of a triangular agreement that involves the bank, the debtor and the REoCO, the RE's property ownership is transferred to the REoCO against:

1. the integral cancellation of the bank's residual credit toward the debtor;
2. the right for the debtor to remain as lessee with rents equal to those prevailing in the market and that are paid in advance, for an amount equal to the difference between the RE appraisal value and the unreimbursed amount of the loan (and this amount could be greater than the NBV, because the latter takes into account the devaluations made by the bank);
3. the option for the lessee to repurchase the RE at a price (striking price) equal to the unreimbursed amount of the debt. The repurchase option can be exercised for the entire period of the anticipated rents (American option). In short, this scheme is partly similar to a Sale and Lease Back contract.

Example

Value of a certain RE as appraised at the time the loan was granted	100
Loan granted	80
Amount of repaid loan	20
Amount of Loan not reimbursed.....	60
Appraisal of the RE at time Tn (in case of negative trend of the RE market price)	90
Spread between the RE appraisal at Tn and value of unreimbursed loan (90-60).....	30
Repurchase value of the RE (striking price of the option) = amount of unrepaid loans.....	60
Value of any location annuity at market price and in per cent of similar RE Value.....	4%
Value of location annuity for our RE = 4% x 90 =.....	3,6
Number of rents to be anticipated $30/3,6 =$	8,33

Therefore, the old bank’s debtor can remain as lessee for a period $30/3,6 = 8$ years and 4 months. If the appraisal of the RE at time Tn were 110 (case of positive trend of the RE market price), the spread between the RE appraisal and the value of unreimbursed loan would be $110-60= 50$ and, all things being equal, the debtor could remain as lessee for almost 14 months. It is unnecessary to exit from such a simple example and formalize these calculus through a sophisticated mathematical function because it is obvious that the location period will be longer as: a) the greater at time Tn the spread between the RE value and the non-repaid amount of the loan, b) the lower the market price of locations.

Observations

The following observations seem worthwhile.

1. The comprehensive reimbursement strategy in this model is based on the temporary transformation of a financial asset such as a loan into a real asset on condition that this transformation will become definitive if the repurchase option is not exercised. The REoCO has on the asset side of its balance sheet all the (estimated) values of the REs transferred to it and on the liabilities side an equal equity capital that is entirely owned by the bank. Each RE represents a bound asset that is locked-up and non-alienable up to the date on which the repurchase option will expire. Except for the case of a strong fall in the RE market price after the loan is granted or the case of RE overvaluation at the granting time itself, the appraisal value of the RE at the moment of its contribution in the REoCO is greater than the unrepaid loan. Therefore the bank wholly recovers its old nominal credit and even makes a gain. In fact, the REoCO receives from the lessee not only an amount exactly equal to the unreimbursed credit, but also the possible difference (30 or 50 in the example, according to the two different cases) between the assessment value of the RE at time Tn and such unreimbursed credit. This difference is not an unfair advantage for the bank because it is perfectly translated into the anticipated rents that allow the debtor to continue to use the RE. Why do we think rents have to be aligned to market price? It is clear that the appraisal value of each RE depends on its return, so if the rents are equal to those of the free market, the appraisal value of the RE will also be a strong proxy to the market price although a certain, albeit minimum, misalignment is in any case not eliminable, due to the presence of the repurchase option, which prevents the free availability of the RE. If the rents were lower than those of the free market the estimated value would also be lower, and so would the difference between the estimated value and the amount not reimbursed of the debt be smaller.

This difference is strategically important for the utility of our model for two basic reasons. First, the bank can leave the use of the RE in the hands of the debtor practically without risk, since, as anticipated, the rents covered by this difference are “risk-free”. Second, this difference can act as a “bridge” (whose length is proportional to its amount) for allowing the debtor to have the time to regain the economic capability to exercise his call option. The lower the rents the shorter is the bridge granted to the lessee for surmounting a difficult economic phase. In short, pulling the blanket on an end leaves the other end exposed, since the blanket is short. A zero-sum game. Another consideration that concerns rents is related to the instance in which the option is exercised before the period of prepaid rents has terminated. In this case the REoCO will have to reimburse the lessee for the unused portion of the rents. Vice versa, if the debtor is unable to pay the strike price within the prefixed period the REoCO can, in agreement with the bank, grant him a delay or refuse to do so. In this regard the bank will take into account the comparative convenience with alternative investments that it could make on the profit from the market sale of the RE. The calculus will also consider the positive or negative image effect for the bank’s choosing, respectively, delay or no delay.

2. Is it really expedient to interpose an REoCO in the bank- borrower relationship and achieve this strategy of credit recovery? Is it not simpler from the beginning, at the date of the loan-granting contract itself for the option to be inserted that the bank can:

- appropriate directly the RE in case the debtor becomes insolvent,
- sell the RE,

- extinguish its credit and reverse the eventual surplus to the debtor

At first glance neither the REoCO nor our model would seem necessary. But only at first glance. The final result would be very minor than the one obtainable with our model. In the first place, in this way the RE is not left to be used by the lessee, the lessee cannot repurchase it, and the local community incurs damage and no benefit. With these procedures the bank would take into account only its short-term interest and neglect those of the stakeholders would weaken its own medium and long-term interest.

3. Due to the RE repurchases by the debtors/lessees or the sales on the market of the non-opted RE, the REoCO capital is gradually to reduced (the REoCO, in fact, transfers the return from the sale to the bank with a contextual reduction of its capital against the annulment of Fund's shares for equal value on the bank's balance sheet).

However, this occurs only if the REoCO is conceived as a temporary instrument aimed at recovering an unusual amount of mortgage NPLs. But the REoCO can, alternatively and more logically, be conceived as a permanent instrument for managing the recovery of such loans, independently from their ordinary or exceptional amount, by taking into account the fact that NPL are always present in the bank. In this case the value of the shares on the bank's balance sheet will not follow a gradual decrease but will vary over time in accordance with the variations in the value of the REs in the Fund due to their turnover. The permanent, albeit variable, presence of REoCO shares among the bank's assets will contribute to diversifying the latter, which would otherwise be almost exclusively compounded by credits and listed securities of usually primary quality. This greater diversification is due to two reasons: the drivers of the returns from the REs partially differ from those of the other economic sectors (BIASIN, 2005) and the REoCO shares, as owned totally by the bank, cannot be listed; so they are an investment that is more a proxy of the "private estate" than an "equity real estate" and therefore it is less exposed to systemic risk (to which the listed securities are exposed) and more to idiosyncratic risk (Hartzell, Hekman e Miles, 1986). This latter risk can easily be annulled by the great diversification of the REs underlying the mortgage NPLs of a large bank, although the self-limitation that the bank usually adopts in its credit strategy, aimed at excluding all the REs that do not have sufficient marketability (and so would be only an apparent collateral for credit recovery should the debtor become insolvent).

In addition to the benefit of a greater diversification, the substitution of NPL with shares, albeit not listed, in any case improves the bank's liquidity, if one considers that the bank may find some purchaser in the "over the counter" market for its shares and at prices likely higher than those coming from a rapid and massive *en mass* cession of the mortgage NPLs. In fact there is not any reason the bank has to be compelled by the Supervisors to sell the shares, differently from the NPL, since the substitution of the mortgage NPLs with RE shares is not a "cosmetic" operation and therefore just an apparent balance sheet cleansing but a substantial change of assets. Thanks to this change the bank, through the REoCO, obtains REs of greater value than the unreimbursed part of the loan and only if the bank recovers this part entirely will it again sell the RE to the lessee/ex-debtor. So a substantial risk reduction occurs with respect to the previous situation, as well as an increase of the asset value with consequent positive effects on the bank's capital.

In short, if the above observations are valid, the solution provided by the model presented here for middle or large banks seems the one most able to equitably reconcile the various interests in play.

4.2. A scheme for small banks.

As opposed to large banks, small ones, especially extremely small ones, have no possibility of making a REoCO with a sufficiently diversified asset portfolio. On the other hand, it is easily intuited that, even traditional solutions are not apt, if we take into account the fact that small size is an obstacle not only to a process of *in house* industrialization of credit recovery with relative scale economies, but also to external solutions, such as those previously examined. In these the small bank would have low contractual strength and a high probability of losing control over the value chain in the relationship with customers and the local economy, on which a small bank, if essentially local (nowadays not always so), bases its main reason for survival. Therefore what seems necessary for this bank is an ad hoc solution to the recovery problem, one capable of overcoming these problems while maintaining the same aims as the previous model.

An adequate solution could have a collective nature, necessary to surmount the size limit. The way could be to adapt the previous model to this specific situation by forming a cohesive group of banks, each intent on recovering its own credit under the best conditions according to a common group discipline. The interposition of a third subject over the parties is necessary to guarantee an impartial management of all the banks' interests. Theoretically, such a feature can be present in an AIF totally de-correlated with respect to each bank, on the PMS example, more than in a company created ad hoc. In fact, this could easily fall under the control of a command group made up of those banks that would have greater share packages due to the more important contributions of REs in the company. In practice, however, an AIF is not usually organized to manage an extreme variety of RE's, as would occur in this case, but only big REs, generally of the "sky-ground" type, and in a context of an "active" managing. Instead, in our case, the REs are the most heterogeneous and furthermore a "passive" managing of them would be expedient, since it is not convenient for the

banks, in whose interest the AIF would manage the REs to sustain costs for extraordinary expenses unless exclusively for REs that have not been optioned. Taking into account this fact, it is likely that the solution of a newco participated exclusively by a group of banks, each of them in proportion to the value of the REs that has been conferred as estimated by independent experts, may be a more expedient solution if appropriate covenants are established for preventing both new admissions and the formation of a command group in the new co. Moreover, the procedure could be the same as the model applicable to large banks. If the estimated value of the property is greater than the non-repaid part of the loan, the difference will be assigned in advance lease account. In this way each bank can recover in full the nominal value of the loan.

5. Conclusions

The aim of this research was to find or elaborate solutions for the problems originating from the NPL that have not been adequately resolved by current solutions, which look only at the aspect of capital recovery and often undermine the basis for a bank's stability. Such widespread solutions often open the door to external interventions by other banks or by the State, in the latter case altering the competitive conditions. The problems of NPL must be analyzed in a wider and multifaceted perspective that considers not only the bank's interests but also those of the debtors and the local economy, and naturally taking into account the failure of debtors, and its domino effect increases the systemic risk on which, on the other hand, the crisis of many businesses and banks has recently found its most fertile terrain. In this context, the research guideline has been oriented toward economic and financial solutions that are sustainable and that strengthen both the present and future conditions for the stability of banks and borrowers, and hence also for the economy, at the same time achieving balance-sheet cleansing imposed by the Supervisors. It could be observed that both our model and the PMS model have an intrinsic and declared limitation, that of an applicability confined exclusively to mortgage loans. Is it a disadvantage for banks? Only if the other NPLs must be subject to the ordinary recovery procedures and the return from the unmortgaged NPLs, plus the return from the mortgage NPL of our models would be lower than the result of the single *en masse* sale of both these NPL categories. But this is not the case, for a very simple reason. Cleansing the balance sheet as concerns the mortgage NPLs (of great importance for most banks) would reduce the pressures of the Supervisors in order to complete the operations with unsecured loans to lessen the bank's anxiety and increase its contractual strength in the sale of such credits. This consideration is worthwhile both for our model and the PMS model, though ours is strengthened by the fact that the estimated REs value (= the nominal value of the share amount), is almost entirely aligned to the market price and therefore does not leave room for doubts about the effectiveness of a consistent substitution of credits with shares. In this overall manner our model, by avoiding losses for the bank as concerns NPL in mortgage form, and contributing to reduce the losses as concerns unsecured loans, has the fundamental function of protecting the value of the bank's capital or even revaluating a capital previously reduced by the de-evaluations of the credits and that would be further compromised by the current procedures of indiscriminate *en masse* sales.

A final notation is opportune. These solutions are based on an element that is of common interest for all the parties in play, namely the re-evaluation of the role of the RE with respect to the present and simple collateral useful for credit recovery once the debtor's failure has been declared. The new role is one of an instrument for the dual aim of a full credit recovery for the bank and a bridge for debtors to overcome a difficult but not irreversible economic situation. However, such models are applicable in whatever condition the debtor is in, even if their ex-post utility will fully emerge for both the banks and the debtor if the latter regains favorable economic conditions and repurchases the RE. If not, they will in any case be very useful but only for the bank, which will recover its credit in full (taking into account that the bank will sell the RE on the market, not at auction). On the other hand, the point of this research is not to find solutions for saving all debtors at any cost. The social and solidarity aims must be compatible with a basic principle of equity. A basic distinction is evident in this regard between our model and the MPS model, apart from all the other differences listed in the previous analysis. In my opinion, the PMS model is too weighted toward protecting the debtor, so much so that the debtor can easily make arbitrage operations if not also speculative ones. The aim underlying our model focuses on equidistance. The bank recovers all its capital with a plus that is exactly counterbalanced by the anticipated rents that allow the debtor to maintain the use of his RE and the time to redeem it. If the time is insufficient but the premises are good, the bridge can be extended, but always at market conditions. No more, no less.

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