Lending Databases

(Mortgage Loan Servicing and Loss Given Default Databases)

Document for Project Working Group Discussion

October 2007

Objectives of the discussion document
The present document is aimed at supporting the project working group in:
1. Raising awareness within the banking community regarding the significant potential benefits from setting up industry-wide lending (mortgage loan servicing and loss given default) databases;
2. Outlining the international experience on setting up industry-wide databases;
3. Proposing possible solutions for setting up the industry-wide lending databases, together with the implementation steps and criticalities.

Document prepared by the SPI Secretariat

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PROJECT WORKING GROUP COMPOSITION

Project Management Group
Project Owner (PO): Nicolae Danila, CEO, BCR
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Project Working Group
Angela Margarit, National Bank of Romania, Financial Stability Department
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SPI Project Technical Anchor
Italian Banking Association

PRIOR PROJECT WORKING GROUP ACTIVITIES

Dec. 2006: Convergence appoints the project technical anchor (Italian Banking Association)
Dec. 19, 2006: Technical workshop on the "International Experience with Lending Databases", with the participation of the Italian Banking Association
Feb. 1, 2007: Project strategy meeting defining the project objective and the guiding principles, based on the technical anchor recommendations
Apr. 19, 2007: SPI Secretariat submits to the SPI Committee members from NBR and RBA and to the project owner the project status report and a "rescue" strategy for their endorsement and action;
May-June, 2007: Following the SPI Secretariat actions, three additional banks and the NBR Supervision Department have designated representatives in the PWG;
July 25, 2007: SPI Committee decides to revamp the project management team in order to strengthen the ownership and speed up project completion;
Aug.-Sept. 2007: SPI Secretariat follows up with RBA management on the project ownership. A concrete action plan for project implementation is sent for endorsement;
Sept.-Oct. 2007: SPI Secretariat finalizes the enclosed project working group document;
Oct. 29 (TBC): PWG meeting to discuss the enclosed document and endorse next steps.

Contents

I. Summary and Recommendations

The project has a critical importance for the financial sector as it will support banks in reducing their capital requirements under Basel II; improve the risk management and the pricing of certain categories of products; and enhance the tools available to the central bank for monitoring financial stability. However, the project has marked limited progress since it started in late December 2006.

The SPI Secretariat proposes a project revival strategy, which should draw from the enclosed document for PWG discussion.

The following figure illustrates the recommended sequence of the project working group meetings and actions, which are based on the presumption that, since off-the-shelf solutions may be readily available, the solution search should start with this option:

Oct 2007

October 29 (TBC) – PWG meeting with the following agenda:
- endorsement of action plan for project completion by end 2007
- discussions on the enclosed document, with special emphasis on:
  - informational, methodological, and technical database requirements
  - the 2 options for setting up the databases (off-the-shelf and custom made) and their pros and cons

Nov 2007

- PWG finalizes the informational, methodological, and technical database requirements
- PWG disseminates the study with banks (through RBA) and NBR in order to raise awareness
- PWG starts exploration on the existence of an off-the-shelf solution

Dec 2007

- PWG prepares progress report on off-the-shelf solution identification for SPI Committee meeting
- If a feasible off-the-shelf solution is identified, PWG starts the preparation of the feasibility studies with support o RBA technical commissions

Ian 2008

- Feasibility studies for the preferred option are finalized and submitted for RBA approval and SPI Committee information

Feb 2008

- Upon approval of RBA, solution provider is officially designated

Mar 2008

- Implementation of database setting up begins.

II. Project Background

The SPI Committee approved the undertaking of the SPI Project on Lending Databases on September 14, 2006. The project's objective was to "***prepare a set of recommendations on the consensus-building, practical and technical steps that the banking system will need to take in order to set up databases that address mortgage loan servicing and loss given default information requirements***".

The two related database projects are relevant to both banking industry and NBR as they can facilitate the implementation of the Basel II requirements, improve risk management, and enhance the tools for monitoring financial stability. Given the commonalities in terms of purpose and informational and technological requirements, the SPI Committee decided that it would be advisable to run the two database design and implementation modules in parallel, in order to achieve the best learning and implementation synergies.

The project has been placed under the oversight of the RBA, which has appointed Mr. Nicolae Dănila as Project Owner. Following the request of the SPI Secretariat to strengthen the project ownership and the banks' expert representation, the working group has been restructured in May-June 2007. The new project working group included representatives of six banks and of the Supervision and Financial Stability Departments from National Bank of Romania.

Also, the project has benefited from the assistance received from the Italian Banking Association, which represented the project technical anchor. The SPI Secretariat facilitated the access of the project working group to international knowledge and practice through the organization of workshops and presentations with international experts' participation.

The technical workshop held on Tuesday, December 19, 2006, at the Romanian Banking Association, with the participation of the Italian Banking Association experts aimed at helping the local stakeholders build a common understanding on the two lending databases starting from existing international hands on experience on the matter. Also, the international workshop on "International Experience with Provisioning in View of IFRS and Basel II Implementation" included a presentation on "Industry-wide Solutions for IFRS and Basel II Implementation" of one of the most important database global providers[1].

[1] For more information on the workshops and presentations organized by the SPI Secretariat on the matter, please consult http://www.spi-romania.eu/seminars/ .

III. The Benefits of Setting Up Industry-Wide Lending (Loss Given Default and Mortgage Loan Servicing) Databases

III.1. Reducing capital requirements under Basel II

Banks find strong incentives in promoting the creation of industry databases from the Basel II favorable provisions on calibrating the capital requirements.

a) Mortgage Loan Servicing Database

Basel II Capital Accord provides that loans fully secured by mortgages on residential property that is or will be occupied by the borrower, or that is rented, can be **risk weighted at 35% (instead of 50%),** provided that certain conditions are met (see Box 1). Also, Basel II provides that, in exceptional circumstances for *well-developed and long-established markets*, the mortgages on office and/or multi-purpose commercial premises and/or multi-tenanted commercial premises may have the potential to receive a **preferential risk weight of 50% (instead of 100%)** under very well defined conditions.

b) Loss Given Default (LGD) Database

Under the Basel II foundation methodology, LGD is estimated through the application of standard supervisory rules (the starting point proposed by Basel II is a 45% LGD value for most unsecured transactions and a 75% LGD applied to subordinated exposures). In the advanced methodology, the bank itself determines the appropriate LGD to be applied to each exposure, on the basis of robust data and analysis which can be validated both internally and by supervisors. Therefore, **a bank using internal LGD** estimates might be able to differentiate LGD values on the basis of a wider set of transaction characteristics (e.g., product type, wider range of collateral types) as well as borrower characteristics, potentially **being able to reduce its capital requirements.**

In either case, an industry-wide database is the most cost-efficient approach.

According to the preliminary impact assessment performed by Convergence, in the first year of implementation of the two databases, banks may benefit from equity relief of EUR 112 mil. and an increased lending volume of EUR 27 mil.

III.2. Improving the risk management of banks

The two industry-wide databases would also support banks in improving their individual risk management functions, as follows:

a) Mortgage loan servicing database

The mortgage loan servicing database would offer to banks a data pool that would complement internal information on: the value of real estate, the location of the real estate, the nature (residential or commercial) of the mortgage, the rank of the mortgage, the loan-to-value (LTV) information, default rates and recovery rates for mortgage loans, etc.

This information would help banks to better assess the credit risk associated with the mortgage loans and also to price them accordingly. The mortgage lending has become particularly important in the context of the recent international developments (the US sub-prime lending crisis) which highlighted the need for carefully considering borrower's information.

b) Loss given default database

In addition to its Basel II related functions, LDG is also a useful tool in assessing the adequacy of provisioning in the day-to-day management of the credit risk. In this regard, many banks use parameterized methods (LGD-PD type) for the determination of loan loss provisions calculated under the IFRS framework. Moreover, LGD is an important parameter used in calibrating internal rating systems, which represent an important risk management tool.

As it is intended that in the future, provisions be calculated under the IFRS standards, more banks will start developing internal models that use LGD and PD estimates. It is conceivable that these banks will not have enough internal data on default and recovery to calculate reliable statistics. Also, the use of external sources (i.e., mother entities estimates) may not be appropriate for various reasons (i.e., different behavioural patterns of borrowers from various countries).

III.3. Improving the pricing techniques of banks

In addition to supporting the banks' risk management functions, average figures coming from data pooling initiatives could be useful for banks to improve the pricing of their portfolios during a securitisation of non-performing or other categories of loans.

III.4. Enhancing the tools for monitoring financial stability and banks' supervision

From the National Bank of Romania point of view, it would be also useful to have access to the two industry-wide databases for financial stability monitoring purposes. At present, the National Bank of Romania developed only a model for corporate probability of default (PD), but the LGD was not yet approached.

At the same time, the participation of authorities in the design of external data solutions will ensure the adequate understanding of the scope and methodology of the data pooling and thus will facilitate its validation by NBR from the supervisory perspective.

IV. The Main Principles for Setting Up Data Consortiums

A data pooling solution must draw on certain key requirements for collecting, normalizing and aggregating observation data coming from many different institutions:

- **Established standards –** the data collection must be based on established definitions, terminology, data models and methodologies agreed upon by all participating institutions;

- **Reliability** - the data pooling solution should be reliable, accurate, and cost-effective;

- **Relevance** - the database solution should allow access and control of substantial histories of relevant data. The pooling should be done uniformly, consistently across all member banks;

- **Confidentiality** - the solution should ensure the safeguarding of the confidentiality of each institution's data. Consolidated information in the database received by participants should be confidential and may be used only for their own internal operational risk management purposes. Mechanisms should also be established to render the data anonymous. Borrower identity should be protected by not including borrower names, and bank identities are to be protected by aggregating the data;

- **Security** - all information exchanges should be conducted within a secure website environment (or another technical solution), ring-fenced from other information systems;

- **Comparability** - the pooled data needs to be recent, of good quality, uniform and applicable;

- **Control** - based on their own needs, participating financial institutions should be able to determine issues such as the scope and scale of data collected, access rights and approval of new participating institutions. Providers of data pooling solutions should „work with banks and for banks": data templates, quality controls, the methodology, calculations and statistical analysis should be developed in consultation with industry leaders;

- **Checks on quality and quantity** - the consortium should designate an entity to interpret and implement the checks on quality and quantity, and to monitor and report on member banks' adherence to consortium standards and protocols;

- **Transparency** - the provider of the data pooling solution or the institution created for that purpose should deliver the data, statistics and research to clients/members with a

transparent approach. The data pooling agent must not work in a „black box", but publish definitions, calculations, and publish reports on its performance;

- **Proven technology –** the database solution should encompass automated data validation, submission and load tools ensure consistent data quality and provide complete audit trail;

- **Managed by banks –** the member banks should be involved in database project planning and logistics, member consultation, industry expertise and leading credit risk practitioners;

- **Reciprocity** - banks can choose which asset classes or other information they share data for, and from what period. In order to avoid the free rider problem, it would be advisable that banks will only receive back statistics for the classes and time periods to which they contributed data;

- **Membership standards** - a bank should not automatically qualify for membership if it applies. First, potential participants have to prove that they can meet the consortium's standards in terms of quantity and quality of data;

- **Data ownership –** it is recommended that banks own the data and have a considerable say in its use; the data pooling operator should not have unlimited use of the data;

- **Automation** - for greater efficiency, a more rational use of operational resources and more accurate data validation the data pooling solution requires technology systems to automate the data management process. As a manual process would be arduous, the data pooling system should use an automated application interface. Online access to the data bank considerably reduces costs associated with implementation, technical support, updates and physical distribution;

- **Logistics coordination** – given the high complexity of data pooling initiatives, it is important to set up proper organizational structures to deal with communications, organization and coordination;

- **Authorities participation and validation** – considering that one of the main goals of the industry-wide databases would be to help banks in better calibrating the capital requirement, the involvement of the supervisory authority in the database methodology would be useful for ensuring subsequent validation.

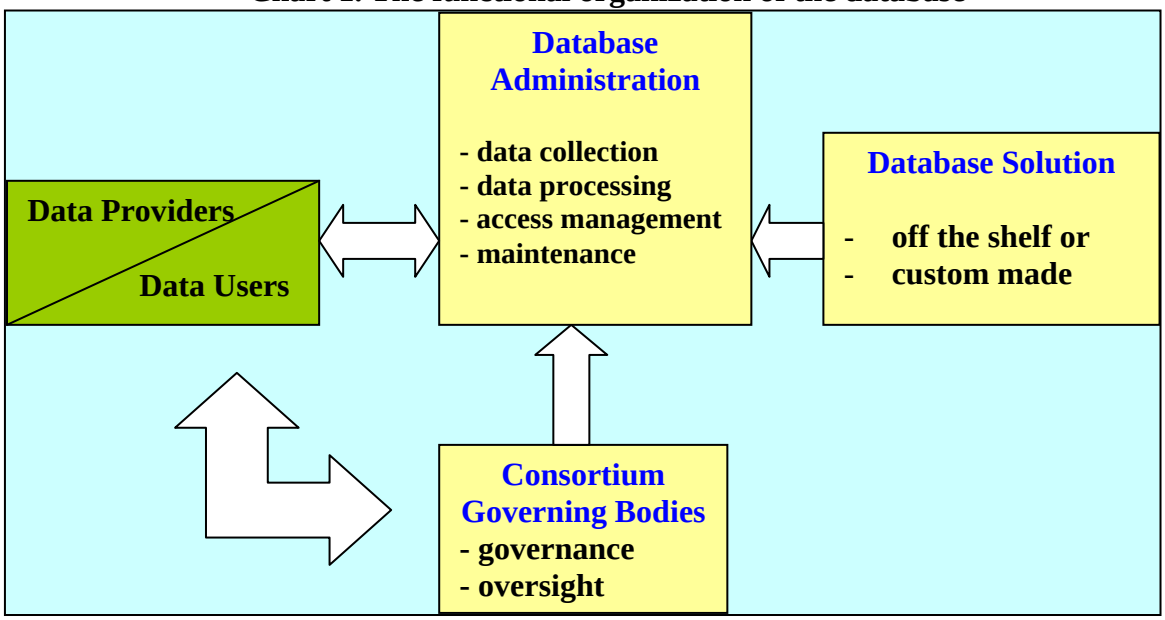
V. The Possible Options for Setting Up Industry-Wide Lending Databases: Off-the-shelf and Custom-made Databases and Their Pros and Cons

An industry-wide database structure would be in principle composed of the following elements (see Chart 1):

1. **Data Providers / Users** – the banks participating with their data and information to the database. Implicitly, the data providers will be also the users of the application and its outputs, based on the principle of reciprocity (users will receive only the types of data provided by them). In addition, it could be envisaged that NBR would also be one of the users with rights to be further determined and agreed by participants;

2. **Database Administrator** – which is the entity that will ensure the database management, by carrying out the following functions:
   - ***data collection***;
   - ***data processing***, including:
     - participate in database and application development:
       - assist in requirements stage and data model creation;
       - play an active role in database design and creation;
     - facilitate changes to database structure:
       - seek community-wide solutions;
       - assess impact on all users;
       - provide configuration control forum;
       - be prepared for problems after changes are made;
       - maintain documentation;
   - ***access management***, including:
     - managing processing rights and responsibilities;
     - developing database security;
   - ***database maintenance***, including:
     - controlling concurrent processing (ensuring that one user's work does not inappropriately influence another user's work);
     - providing for database recovery;
     - maintaining the data repository;
     - providing or facilitating the provision of customer support.
3. **Consortium Governing Structure** – is represented by designated governing bodies which represent the interest of the participating banks and possibly NBR. The governing bodies will have the following attributions:
   - establish the database governance and operating principles;
   - ensure the oversight of the operating of the database and that the participating institutions' rights and obligations are followed;
   - decide on financial aspects related to membership and operating of the database.

Chart 1. The functional organization of the database



In terms of practical steps, the members of the data consortium will have to make a decision on ***where to place the database***. The possible options are:

- **i)** RBA (following the Italian model) – which will imply the development of a specific structure to ensure the operating of the database;
- **ii)** Specialized / dedicated ONG or commercial company set up for this purpose (following the English model);
- **iii)** Credit Bureau / Transfond or another entity which already collects data and information from banks;
- **iv)** Could be outsourced, possibly to the database administrator.

However, such a decision will depend on the availability of a ***database solution*** to respond to the needs of the consortium members. In essence, the database solution will be composed of:

1. **a product** – representing the IT system (software license + server) needed to support the database;
2. **a service** – representing the ongoing maintenance of the product, including customer service.

Therefore, the first option that banks willing to participate in the data consortium will have to make will be between:

- **A. The purchase and adaptation of an off-the-shelf solution** - this solution will entail the identification of an already existing database solution which would represent a suitable solution and would require no or little further development or modification. It is foreseeable that given the lack of experience and knowledge on the local market, such a solution could be procured from foreign companies;
- **B. The design of a custom-made solution** – this solution will entail the preparation of a specific database application, if no suitable off-the-shelf solution is identified. It is foreseeable that such a solution could be developed in cooperation with a local company, given the more intense interaction between supplier and user implied by the development of the solution.

VI. The Recommended Option for Setting up Industry-Wide Databases, its Implementations Steps and Criticalities

The following steps are proposed for enabling the PWG and the relevant stakeholders to make a decision regarding the best option and for its implementation.

Actions and Timeline	Off-the-shelf solution	Custom made solution
Awareness Raising	The present study, incorporating the PWG comments and suggestions is sent to the RBA (to be distributed to all banks) and to the NBR for information on the database initiative	
Selection of Option **(October 2007 – March 2008)**	Since off-the-shelf solutions may be readily available, it would make sense if **the solution search will start with this option**. Even if not subsequently chosen by the PWG, off-the-shelf solutions may constitute important benchmarks for designing a custom made industry database. The following steps are envisaged: 1. PWG agrees on the main informational, technical, and organizational requirements for the database to represent the *minimum database specifications* 2. PWG submits the minimum database specifications to the RBA Technical Commissions (Lending, IT) for endorsement 3. PWG with SPI Secretariat support sends a request for proposal (RFP) to potential off-the-shelf solution providers 4. PWG reviews proposals received and determines if any of them is an adequate off-the-shelf solution	

Actions and Timeline	Off-the-shelf solution	Custom made solution
Preparation of Option Implementation (March 2008 - July 2008)	5. If a common market solution for the two databases (MLS and LGD) is identified, the PWG with the support of the RBA technical commissions (Lending and IT) prepares a single feasibility study for the preferred option. Otherwise, separate feasibility studies are to be prepared for each database module 6. Feasibility studies are submitted for RBA approval and to the SPI Committee for information 7. RBA endorses the feasibility studies and decides on setting up the database governing bodies. NBR is invited as observatory 8. The solution provider is officially designated. Implementation starts with participation of stakeholders	5. If no off-the-shelf solution is deemed adequate, the PWG initiates the search of a custom made solution provider. Selection criteria are established for the custom made solution provider and a request for proposal is sent to potential providers 6. PWG reviews the proposals received and determines if any of them is an adequate custom made solution 7. The PWG with the support of the RBA technical commissions (Lending and IT) prepares a feasibility study for the built of a custom made solution 8. Feasibility study is submitted for RBA approval and to the SPI Committee for information 9. RBA endorses the feasibility studies and decides on setting up the database governing bodies. NBR is invited as observatory 10. The solution provider is officially designated. Implementation starts with participation of stakeholders
Implementation Criticalities	Active involvement of stakeholders in order to ensure that the off-the-shelf solution is adequately adapted to local needs	The best design of the database structure to integrate

VII. The International Experience on Setting up Industry-Wide Databases

There is a well established practice of banks putting their data together in order to improve the richness of their individual information for a better management of their processes (risk assessment and optimization of risk transfer, pricing policies, internal controls, etc.). A widespread example is that of banks setting up credit bureaus which pool data on the credit history / repayment of individual borrowers in order to enable banks to improve their assessment of credit risk.

There are examples of banks pooling individual data at national and international level. Some practical case studies are presented below:

VII.1. Italian Banking Association Databases

The Italian Banking Association (ABI) had a couple of industry-wide database initiatives.

The ABI database on Operational Risk (DIPO) was set up in 2003 in order to support banks in improving their operational risk management which is an important requirement under Basel II. The DIPO database objectives were to support banks in reducing the probability of a loss event, limiting the loss given event, and transferring the operational risk to third parties.

Another ABI database initiative referred to the setting up of an LGD industry-wide data pooling. Although the LGD database initiative advanced well in terms of building consensus among banks and establishing database architecture, the project did not materialize because Bank of Italy decided to take it over and develop it as a compulsory reporting system for all banks. So far, the initiative is still pending under the auspices of Bank of Italy.

Both databases (DIPO and LGD) were set up starting from the recognition of the fact that small banks had no clear idea on how to structure internal data collection and big banks had not sufficient internal data for an accurate assessment of operational risk. In practical terms, both databases were set up following these principles:

- raising awareness on the importance and role of the database about two years before starting the database set up;
- running open working groups which at certain point turned into smaller project groups;
- clear rights and duties of the consortium members: only those who send data receive outputs; respect of deadlines for submission; performance of data quality self assessment;
- small governance bodies, but open to all technical committees;
- flexibility of outputs;
- high standards of confidentiality;
- cost efficiency (low costs).

In terms of organizational structure, the DIPO database has the following characteristics:

- ABI is the only custodian of the DIPO's data;
- DIPO is governed by an Observatory which has clearly specified purposes (data collection, data analysis and return flows providing aimed at helping members to improve their estimates of operational losses and to perform comparative analysis);
- the governing bodies of the Observatory are the Steering Committee (composed of a limited number of representatives of member banks and of Bank of Italy representative as observer); the Technical Committees (whose areas of analysis and study are determined by the Steering Committee, and which are open to all members) and the Technical Secretariat (composed of ABI representatives). In addition, each member bank must identify a DIPO coordinator whose duties include making sure that the minimum quality requirements for the observatory are maintained: accuracy, timeliness, and auditability.

VII.2. British Bankers' Association Database

In 2000, a British Bankers' Association (BBA) initiative created an external loss event database (GOLD) operated by an unincorporated not-for-profit consortium of financial services institutions. The database was set up starting from the principle that "pooling" external information provides participants with a depth of information that is much wider than the experience of their own institution.

Loss events in GOLD were initially categorized according to the original Basel definition of those arising from "the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events". In 2005, event categories were converted, to be compliant with, though retaining greater granularity than, the definitions of loss event types, effects and business units arising from the qualitative impact studies conducted in Basel II.

GOLD is governed by a Management Committee selected from participating institutions and the BBA executive. Participation, subject to approval by the Management Committee, costs a joining fee of GBP1,500 and an annual subscription charge of GBP1,000 (n.b. all fees quoted are current levels and exclude UK Value Added Tax).

All funds are held collectively for the purchase of database custodian services from the BBA, legal costs or the development of the database. Applications to join the database are welcome from any financial institution, irrespective of its global location - membership of the BBA is not a pre-requisite for participation in GOLD.

Institutions supply quarterly loss event information to the BBA's Statistics Team, where it is validated for accuracy and consistency before being anonymized and consolidated into a report which is made available for nominated individuals within participating institutions. All information exchanges are conducted by the BBA within a secure website environment, ring-fenced from the general BBA information systems.

Box 1. Governance of British Bankers Association GOLD Database

- Participation in GOLD is approved by a Management Committee and subject to legal agreement.
- Participants provide data in accordance with timetables and processes specified by the BBA and commit to provide loss event data to the best of their institutional ability, dependant upon internal reporting capabilities. Participants should aspire to providing worldwide group information.
- BBA shall preserve the anonymity of individual participants' data.
- BBA shall maintain and develop the database solely for the purposes of the GOLD participants.
- Participants and the BBA are expected to use reasonable skill and care in compiling the data entries.
- BBA shall validate submitted information, but is not legally liable for the quality of the consolidated database.
- BBA has the right to retain a participants' data should participation be terminated.
- Consolidated information in the database received by participants is confidential and may be used only for their own internal operational risk management purposes.
- Joining fees and annual subscriptions are reviewed by the Management Committee annually and payable by participants within 30 days of being invoiced.
- Funds are held by the BBA on behalf of the GOLD participants, with payments authorised by the Management Committee.

VII.3. International Data Consortiums (Pan-European Credit Data Consortium)

To overcome the problems raised by the insufficiency of internal data on default and recovery to calculate reliable statistics, a group of 14 European Banks (among which can be mentioned Barclays, BNP Paribas, JPMorgan, Royal Bank of Scotland, NIBC, etc.). The database was set up to meet both compliance (Basel II) and business objectives (to help them better prices their portfolios in securitization transactions).

The database was set up in the context of a consortium of banks that would contribute data and an external third-party data management specialist. This approach allowed the banks to apply their credit expertise, and to be active in designing the data resources that they required for their business. The banks have been attracted in the consortium between end of 2003 and June 2005. The contract with the data management company was signed in June 2005. The criteria for choosing the company were previous experience in collecting loss data, a good reputation, and also the decision was for it to have a profit incentive.

The banks decided to collect LGD data from 1998 for eight asset classes: three regional – small and medium-sized enterprises, large corporate and real estate and five global – project finance, commodities, shipping, aircraft and banks. The observation data would be collected at four points in the lifecycle of each loan – at the date of origination, one year before default, at default, and at resolution. Other information gathered included the rating of the

counterparty, the nature of the collateral and guarantees, the exposure at default (EAD) and the value of the collateral and the details of each recovery cash flow following default.

The data drawing from the LGD database will be used initially for benchmarking – checking that internal credit statistics are in line with the market. As the quality of data improves and more data becomes available, banks will start using the statistics for calibrating their loss given default and probability of default models.

The database architecture was also reviewed by a Validation Subgroup of the Accord Implementation Group of the Basel II Committee. The supervisory review showed that the inter-bank data pooling was an accurate, reliable and cost-effective way of creating empirical data sets required to help banks estimate Basel II risk components.

From a business perspective, the data pooling will support the participating banks in commoditizing their credit risk. It was acknowledged that the more banks will be able to decrease the information asymmetry between themselves and investors by giving them access to reliable credit statistics, whereby the investors are able to assess the risk they are taking, the more confident the latter will be about investing and the more willing they will be to pay a higher price.

ANNEX A

NBR Conditions for Benefiting From More Favourable Capital Requirements

The implementation of the Basel II provisions as of January 2008 does not automatically warrant the application of more favourable capital requirements. In order to benefit from the Basel II more favourable provisions on calibrating the capital requirements, banks have to demonstrate compliance with specific provisions comprised in NBR/NSC Regulation no. 15/20/2006 regarding the treatment of credit risk for credit institutions and investment firms.

A. NBR conditions for recognizing data coming from industry data pools

In case that a credit institution uses centralized databases, coming from more credit institutions, it has to demonstrate the following:
a) the systems and the rating criteria used by the third credit institutions are similar to the ones used by the credit institution;
b) the centralized data are representative for the portfolio for which the data are used;
c) the centralized data are used by the credit institution in a consequent and coherent matter in time for obtaining its own estimations.

Also, a credit institution uses centralized data, coming from several credit institutions, will remain responsible for the integrity of its own rating systems.

B. NBR specific conditions for the two databases

a) Mortgage Loan Servicing Database

In order to apply the 35% risk weight to loans for residential purposes, the supervisory authorities should satisfy themselves, according to their national arrangements for the provision of housing finance, that this concessionary weight is applied restrictively:
a) for residential purposes;
b) in accordance with strict prudential criteria, and also
c) based on the default experience for these types of exposure.

Also, the preferential risk weight of 50% to mortgages on office and/or multi-purpose commercial premises and/or multi-tenanted commercial premises may be applied:
a) for the part of the loan that doesn't exceed the lower of 50% of the market value or 60% of the mortgage lending value of the property securing the loan;
b) and under the fulfilment of two conditions have to be fulfilled:
b.1. losses stemming from commercial real estate lending up to the lower of 50% of the market value or 60% of loan-to-value based on mortgage-lending-value must not exceed 0,3% of the outstanding loans in any given year;

b.2. overall losses stemming from commercial real estate lending must not exceed 0,5% in any given year.

The application of this more favorable regime for loans secured by mortgages would decrease the capital requirements and, most probably, also lending costs. In order to benefit of the New Accord on Capital provisions, the banking system should create and maintain an industry database that allows the calculation of the following ratios: default rate and recovery rates for loans secured by mortgages on residential real estate and, if endorsed by the National Bank of Romania, also on commercial real estate whose guarantee value is up to 50% of the market value respectively. The database should gather also information on the real estate market (market values of real estate properties).

b) Loss Given Default Database

Loss Given Default (LGD) is an important credit risk exposure data requirement under Basel II, indicating the magnitude of the likely loss on the exposure, given key transaction characteristics such as the presence of collateral and the degree of subordination. Banks willing to use their own estimates of LGD will need to demonstrate to supervisors that they can meet requirements pertaining to the integrity and reliability of these estimates.

In order to comply with these features of the Basel II framework, the banks should set up a database containing loan-specific data, including transaction and cash flow information that would enable users to more accurately quantify the unique characteristics of loan credit risk. The LGD database would also provide a rich repository of loss experiences as most banks will not have enough internal observations to draw meaningful conclusions.

ANNEX B

The Two Options for Setting up the Industry-Wide Databases and their Pros and Cons

	Off-the-shelf solution	Custom made solution
Product **(IT software and hardware)**	**Characteristics:** - highly-specialized product, very close to the final needs of the database users **Advantages:** - already existing system architecture, which requires no or little modification - quicker delivery - product already tested - better knowledge on needed characteristics to ensure supervisory compliance **Disadvantages:** - lesser degree of flexibility in terms of complying with customer's needs	**Characteristics:** - the product is developed based on the customer's needs, starting from an structure with a lesser degree of sophistication (i.e. Oracle/SQL plus additional custom-made software modules) **Advantages:** - product that responds more closely to customer's needs as customization is done based on customer's specifications **Disadvantages:** - longer time to develop the product - product that may require more frequent fine-tuning as there is no previous product testing
Service **(maintenance and customer service)**	**Characteristics:** - enhanced maintenance and customer service as there is previous experience **Advantages:** - potentially better customer support (tested call center, customer service, communication infrastructure) **Disadvantages:** - if external company selected as solution provider, it may be more difficult (less operative) to benefit from on site customer support	**Characteristics:** - the maintenance and customer services will be developed concomitantly with the product **Advantages:** - improved on site support as expertise has been built during product development phase **Disadvantages:** - potentially less operative in solving customer issues as no previous experience with maintaining the product exists
Cost	**Characteristics:** - given the highly proprietary solution, it is expected a medium initial investment, but higher recurring (maintenance) service	**Characteristics:** - as the solution could be developed locally, it could be envisaged a lower initial investment, and lower recurring (maintenance) service fees

	Off-the-shelf solution	Custom made solution
	fees **Advantages / Disadvantages:** - determined based on price specifications received	**Advantages / Disadvantages:** - determined based on price specifications received, however it is anticipated that there is a higher degree of flexibility in negotiating the price
Stakeholders Involvement	**Characteristics:** - a lesser degree of involvement of the stakeholders as the solution is already available **Advantages:** - more operative resolution for stakeholders **Disadvantages:** - lesser stakeholders' ownership and control	**Characteristics:** - a more intense involvement of the stakeholders as the solution will be developed following customer specifications **Advantages:** - higher stakeholders' ownership and control **Disadvantages:** - more resource intensive for stakeholders
Implications for Functional Database Infrastructure	**Characteristics:** - the solution provider will most likely play the Database Administrator role given the high proprietary solution - the IT infrastructure (server, software for sending/receiving data) could be outsourced (placed abroad) **Advantages:** - already tested system infrastructure with efficiency gains **Disadvantages:** - less flexible design of the system infrastructure - potentially less effective interaction with stakeholders	**Characteristics:** - there are options for sharing database administrations with the entity designated by the consortium to collect the data - the IT infrastructure (server, software for sending/receiving data) could be placed at RBA, or to a specified entity (specially set up or already existing entity) **Advantages:** - more flexible design of the system infrastructure - more effective interaction with stakeholders - better accountability **Disadvantages:** - more resources devoted to identify the most appropriate system infrastructure

A detailed action plan for enabling the PWG and the relevant stakeholders to make a choice and to start implementing it is presented in Chapter VI.

ANNEX C

See:

ABI LGD Database Document.pdf, an abstract of the volume, published by Bancaria Editrice in November 2002, “Loss Given Default”.

ANNEX D

Proposed Outline of the LGD and MLS Databases Informational, Methodological, and Technical Requirements

The present section outlines a proposed approach for the LGD and MLS databases informational, methodological, and technical requirements.

A. LGD Database

The present sub-section outlines the main points of the document (attached in Annex C) sent by the SPI project technical anchor (Italian Banking Association) on the Italian experience with setting up the loss given default (LGD) database. The following considerations represent a useful reference for the local stakeholders in designing a LGD database according to banking industry needs and in line with regulatory requirements.

I. LGD Database General Approach

The LGD database approach should take into account **a dual perspectiv**e:

- **Regulatory**, with the objective of identifying models that are consistent with the new regulations of the Basel Committee, therefore making them suitable for use in the Advanced Internal Ratings Based Approach –AIRB;
- **Managerial**, with the objective of providing valid reference frameworks that can also be applied, albeit in a simplified version, by those banks which, out of necessity or choice, will not adopt, at least initially, an Advanced Internal Ratings Based Approach.

(For more information see Annex C, Chapter Two "The model for the LGD estimate", section 2.1. "LGD in the context of the model for the management of risk")

II. LGD Database Methodological Considerations

The following approaches are possible for calculating the LGD:

- **Deterministic approach**, which has the advantage of simplicity, but it is not free of problems regarding the approximate nature of the results produced;
- **Stochastic approach not correlated with the PD**, which explains the variability if the observed recovery rate as much as possible;
- **Stochastic approach correlated with the PD**, which assumes that there is a correlation between the recovery rates and the credit rating of the client.

The approached embraced by ABI, which is useful for both regulatory and management purposes, is based on the deterministic approach (since the stochastic approaches require massive resources in terms of quantity and quality).

(For more information see Appendix C, Chapter Two, section 2.2. A comparison of the "families" of models, distinguishing characteristics, differences and consistency with the real situation in Italy).

In the event of a debtor default, the amount actually recovered by the bank depends on a number of different factors:

1) The presence of securities, collateral or guarantee;

2) The elapsed time between the onset of the default condition and the partial or total recovery of the amount leant entails a financial cost that depends on the level of market rates;

3) Bankruptcy procedures and/or a bank's internal credit-recovery procedures entail costs that contribute to reducing the effective recovery of the credit.

(For more information see Appendix C, Chapter Two, section 2.3. Estimating the loss given default. The document provides LGD estimates for both non-secured and secured claims and also outlines the use of LGD in forecasting and how to integrate administrative costs in LGD estimation).

III. LGD Informational Requirements and a Possible Database Architecture

The database presented is articulated in three archives that are differentiated in logical terms:

1. The first archive contains all the information on the counterpart that would be useful to repeat on every exposure referring to that same client. The indications include the status of the counterpart kind of default (both in terms of non accrued status/bad loans and from the Basel perspective). The key, therefore, is given by the identifier of the counterpart, linked with the ABI code, in the case of a centralized database (DB) centralized at the group level or in cases of data pooling.

2. The second archive contains the information on the securities (guarantees + collateral) collected and on the related recovery flows generated. Given that the guarantees can be either specific or generic, there must be a link both with the identifier of the counterpart (always filled in) as well as the guaranteed exposure (missing in the case of the blanket guarantee).

3. The third archive holds the data on the exposures, indicating the respective types, the detailed accounting positions and any actions undertaken towards recovery.

A monthly refresher of the three archives was planned, to be carried out under the following procedures:

- for the first archive (registry), a monthly record of data is collected for each counterpart;

- for the second archive (securities), a monthly record of data is collected for each security;

- for the third archive (exposures), a monthly record of data is collected for each type of exposure.

The structure has been selected on account of its high level of generality, which makes it possible to estimate both parameters necessary for the *IRB Advanced* approach and others used for purposes more closely tied to operations.

The creation of a data-pooling mechanism on a national level also involves selecting from among the fields belonging to the data structure proposed on the company level those which:

• represent minimum information to estimate LGDs (in other words, to minimize the burden of reporting for the participants);

• are characterized by the maximum possible precision and objectivity, prerequisites that are indispensable for the construction of a shared database containing qualitatively optimal data.

(For more information see Appendix C, Chapter Five "The architecture of the data structure").

B. Mortgage Loan Servicing Database

I. MLS Database General Approach

The MLS database approach should take into account **a dual perspectiv**e:

- **Regulatory**, with the objective of identifying models that are consistent with the new regulations of Basel II;
- **Managerial**, with the objective of providing valid reference frameworks that can also be applied by banks in exercising their risk management functions.

II. MLS Database Methodological Considerations

The MLS approach for collecting and compiling information on default rates and recovery rates for mortgage loans could be very similar to the one proposed for the LGD database.

Therefore, the approach for calculating the LGD could be a deterministic one, which is useful for both regulatory and management purposes (since the stochastic approaches require massive resources in terms of quantity and quality).

The same principles can be applied to the MLS database in respect to the factors that influence the amount recovered by a bank in the event of a debtor default:

1) The value of the mortgage;

2) The elapsed time between the onset of the default condition and the partial or total recovery of the amount leant entails a financial cost that depends on the level of market rates;

3) Bankruptcy procedures and/or a bank's internal credit-recovery procedures entail costs that contribute to reducing the effective recovery of the credit.

III. MLS Informational Requirements and a Possible Database Architecture

The MLS database structure could be developed starting the proposed for the LGD database:

1. The first archive contains all the information on the counterpart that would be useful to repeat on every exposure referring to that same client. The indications include the status of the counterpart kind of default (both in terms of non accrued status/bad loans and from the Basel perspective). The key, therefore, is given by the identifier of the counterpart, linked with the database code, in the case of a centralized database (DB) centralized at the group level or in cases of data pooling.

2. The second archive contains the information on the mortgage collected and on the related recovery flows generated. The archive should include information of the market value of the mortgage, the rank of the mortgage, the location of the mortgage, the nature of the mortgage (commercial / real estate).

3. The third archive holds the data on the exposures, indicating the respective types, the loan-to-value information, the detailed accounting positions and any actions undertaken towards recovery.

A monthly refresher of the three archives was planned, to be carried out under the following procedures:

- for the first archive (registry), a monthly record of data is collected for each counterpart;

- for the second archive (securities), a monthly record of data is collected for each security;

- for the third archive (exposures), a monthly record of data is collected for each type of exposure.

ANNEX E

Technical Workshop on the International Experience with Lending Databases (Mortgage Loan Servicing and Loss Given Default Databases)

MINUTES
December 19, 2006

The Technical Workshop on the "International Experience with Lending Databases" was held on Tuesday, December 19, 2006, starting at 9 am, at Romanian Banking Association premises, under the chairmanship of Mr. Radu Negrea, RBA Secretary General.

The Technical Workshop was attended by representatives of the banking industry, delegates from the National Bank of Romania, as well as members of the SPI project on the Mortgage Loan Servicing and Loss Given Default Databases.

The aim of the Technical Workshop was to help the local stakeholders build a common understanding on the two lending databases starting from existing international hands on experience on the matter presented by experts from the Italian Banking Association (ABI)[2]. The technical workshop discussed a broad range of topic closely linked to the banks information requirements, as follows:

1. Public credit registries databases

It was outlined that two types of credit registries coexist in Italy, located at the Bank of Italy: a) a credit registry where financial intermediaries report negative information regardless the threshold as well as positive information on loans, guarantees, personal guarantees above EUR 77,469; b) a credit registry where only positive information is reported for loans from EUR 30,987 to EUR 77,469.

The public credit registries offer to participating entities three types of services: personalized feedback, statistical feedback, and information on request. Regarding the statistical feedback provided, it was stressed that Bank of Italy provides a monthly transmission to each participant containing series of statistical distributions arranged according to individual reporting categories and classifying variables (by aggregation of categories and variables such as branches of economic activity, site of registered office of the customer, characteristic of the

[2] Ms. Claudia Pasquini, Research Department, Italian Banking Association and Mr. Angelo Peppetti, Credit Department, Italian Banking Association

reporting entities and size of loans). This information can constitute for banks valuable benchmarks in calibrating their internal scoring systems.

2. Lending databases

ABI experts outlined that two database initiatives have emerged in 2001 at the level of ABI's inter-banking working groups: a) an operational risk database and b) a loss given default (LGD) database. ABI is also currently considering the setting up of a mortgage loan servicing database.

The first two database structures were meant to support both banks and regulators. Benefits in setting up the databases were perceived by small and big banks alike, as the formed had no clear idea on how to structure internal data collection and the latter had insufficient data needed for operational risk or LGD purposes.

In both cases, Bank of Italy assigned observers, based on the idea that the central bank participation from the inception of the project would facilitate the further validation of the information generated by the two databases.

The setting up of the two databases was preceded by the following actions:

- awareness raising through articles and seminars, 1-2 years before launching;
- running "open" working groups which at a certain point turned into smaller project working groups;
- establishing operating principles of the databases:
    - clear rights and duties of the consortium members:
        - only who sends data receives outputs
        - ability to respect the deadlines
        - ability to undertake data quality self assessment
        - small governance bodies but "open to all" technical committees
    - flexibility of the outputs;
    - high standards of confidentiality (largely relying on ABI's reputation and encrypted data flows);
    - low costs.

Speakers outlined that the banking industry database initiatives are important because:

i) time series of a single bank might not be deep enough;
ii) external data are useful for any kind of operational risk internal models;
iii) Bank of Italy – provided data might never be at the granularity level that banks need for their internal LGD estimation (given that internal data are not sufficient);
iv) average figures coming from data pooling initiatives could be useful for banks to "better sell" their portfolios during a securitisation of non-performing loans.

It was stressed that only the operational risk database was actually set up, as the LGD database initiative failed following the Bank of Italy decision to take over the development of the database. The mortgage loan servicing database is still at project stage.

2.1. Operational risk database (DIPO)

The database was necessary to enable banks to do a correct capital allocation, by collecting data on operational losses. In this case, ABI is the only custodian of DIPO, which relies on output flexibility, scaling solution flexibility, and low costs (budget for 2006 estimated at around EUR 200,000).

The following infrastructure is used for the management of DIPO:

Steering Committee (composed of a limited number of representatives of member banks). By invitation Banca d'Italia takes part as an observer;

Technical Committees (whose areas of analysis and study are determined by the Steering Committee, and which are open to all members);

Technical Secretariat *(*composed of representatives of ABI).

In addition, each member must identify a ***DIPO co-ordinator*** whose duties include making sure that the minimum quality requirements are maintained: accuracy, timeliness and accountability.

The members have to:

- follow the rules established in the DIPO Manual, report and update the data on losses, exposure indicators and business lines, which are subject to reporting under the DIPO Manual;
- must develop a formal process for data collection within six months from signing the Articles;
- pledge to take all actions necessary to ensure the quality, completeness and timeliness of the data on operational losses (quality certification);
- when requested by ABI, carefully check their data and respond as quickly as possible to requests for verification of anomalies.

2.2. Loss given default (LGD) database

The LGD database initiative started with the issuance of a white paper for PD estimation. This database initiative stopped at the data collection stage, when Bank of Italy announced that it would like to take over the database in order to do make such data reporting mandatory, together with credit registry data.

The database structure was established starting from the following principles:
i) in the event of a debtor default, the amount actually recovered by the bank depends on a number of different factors;
ii) the presence of securities, collateral or guarantee, on a claim paid out reduces the loss prospects, generally leading to higher recovery rates than those for non-secured claim;
iii) the elapsed time between the onset of the default condition and the partial or total recovery of the amount leant entails a financial cost that depends on the level of market rates;
iii) bankruptcy procedures and/or a bank's internal credit-recovery procedures entail costs that contribute to reducing the effective recovery of the credit;
iv) a distinction must be made between secured claims and those that are not secured, given that the corresponding loss given default rates are influenced by different factors.

A working group has been set up to design an appropriate database structure. The structure of the database has been conceived taking into account the high level of generality, which enables the estimation of both parameters necessary for the *IRB Advanced* approach and others used for purposes more closely tied to operations.

The following lessons have been drawn from the LGD database initiative:
1) a broad involvement is needed from various stakeholders: banks, data custodians, regulators;
2) a certain period of time is needed (in this case one year) to get the right awareness and spirit of collaboration; this was made possible by giving a general view of the management issue (i.e., not only for capital requirements);
3) the identification of all potential uses was necessary from the beginning;
4) the identification of a (easy) common data structure, a clear domain and tools to get the data uniformly collected is needed;
5) clear rules (right and duties) have to be established from the beginning;
6) confidentiality has to remain at the forefront of designing the database infrastructure;
7) it was useful to standardise the input via common software;
8) the output flexibility is important.

Speakers outlined that the database working group had also to take a decision on whether to buy an off-the-shelf database solution or to conceive an own database application. For costs reasons, ABI has opted for the latter solution, entailing very simple software, and an interface that is not web-based (for confidentiality reasons).

2.3. Mortgage loan servicing database

Speakers stressed that the key elements for a successful database are:
- establishing a compulsory system for data collection;
- raising awareness on the importance of the database;
- strict supervision of database setting up and operating;
- avoidance of free riding;
- upfront agreement on the most important elements needed for data collection: definition of the value of real estate; location and nature of real estate (commercial or residential); rank of mortgage; time of default, etc.

Concluding Remarks

The representatives of banks stressed that, at present, the most important challenge faced by Romanian banks is the adaptation of their internal data collection systems in order to respond to increased needs for adequate information for the day-to-day risk management and to Basel II information requirements.

Therefore, banks welcome the lending databases initiative and hope that it will provide the necessary support in meeting their data needs. At the same time, NBR is interested to remain

engaged in the process of designing the databases structure as the central bank will need to validate the information used for Basel II purposes and could also benefit from the information provided by the two databases for financial stability monitoring purposes.

The following recommendations were made in respect to the Romanian lending database initiative:

a) Banks should **start by understanding the benefits** of setting up the two databases. This could start from gathering each bank's perspective on the perceived benefits (possibly by performing a survey) and then developing a common vision on the benefits, followed by an awareness-raising campaign;
b) The databases set-up should be a **joint effort** by the banking community and the NBR in order to ensure consistency with the central bank requirements;
c) Once the specific data needs are clear, it is important to agree on a **uniform set of definitions** for data collection purposes;
d) The database project working group should then focus on thinking how to **design an uniform database structure** and at the practical implementation solutions;
e) The database project working group could also think on how to **enhance the use of credit registers' databases**.

In practical terms, speakers made the following suggestions:

- give to all members the same software in which both formal and logical controls should be embedded (this can be obtained by a web-based application or by client server applications);
- the transfer of encrypted data flows between custodian and banks should take place on a protected web site;
- the main database should be under the Romanian Banking Association responsibility;
- give to all members the possibility to use manual or automatic data feeding;
- give to members access to each section with no respect to the section to which they have contributed;
- give access to data only to members and do not sell the data.

Speakers outlined that they will remain open to provide the project working group with any necessary information.