

**Economic Commission for Europe**

Committee on Housing and Land Management

**Seventy-fourth session**

Geneva, 7 and 9 October 2013

Item 5(a) of the provisional agenda

**Review of the implementation of the programme of work 2012-2013**

**Sustainable housing and real estate markets**

## **Evaluation of real estate property and market risk for real estate backed financial products**

**Note by the Real Estate Market Advisory Group**

### *Summary*

This document provides a framework for discussing the evaluation of real estate property and market risk for real estate backed financial products. It was prepared by the Real Estate Market Advisory Group at the request of the Working Party on Land Administration and the Committee. The draft has been updated from that presented during the seventy-third session of the Committee based on comments received from stakeholders.

The Committee is invited to take note of the information in this document.

The preparation of this report was overseen by the United Nations Economic Commission for Europe (UNECE) and the UNECE Real Estate Market Advisory Group (REM) with the support of the Appraisal Institute, The European Group of Valuers' Associations, the International Real Estate Federation and Tecnoborsa.

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The views expressed in this document are those of the authors and not necessarily those of the United Nations or the United Nations Economic Commission for Europe.

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## LIST OF ABBREVIATIONS

BIS	Bank for International Settlements
CDO	collateralized debt obligation
CHLM	UNECE Committee on Housing and Land Management
CRD	capital requirement directive
EU	European Union
FIABCI	International Real Estate Federation
IIF	Institute of International Finance
IMF	International Monetary Fund
IRB	internal ratings-based
IRRS	internal risk rating systems
IVS	International Valuation Standards (of the IVSC)
IVSC	International Valuation Standards Council
LTV	loan-to-value
MBS	mortgage-backed securities
PaM	Property and Market Rating system (of TEGoVA)
PMRS	property and market risk-rating systems
REV	Recognized European Valuer
REM	Real Estate Market Advisory Group
RICS	Royal Institution of Chartered Surveyors
SEC	U.S. Securities and Exchange Commission
TEGoVA	The European Group of Valuers' Associations
UNECE	United Nations Economic Commission for Europe
VÖB	Bundesverband Öffentlicher Banken Deutschlands
WPLA	UNECE Working Party on Land Administration

## DEFINITIONS

analytical hierarchy process – a structured decision-making process in which a complex problem is decomposed into several less complex sub-problems for analysis

debt service coverage – a measurement of borrowers' ability to meet principal, interest, real estate taxes, and insurance premiums (such as hazard or flood insurance) required by their outstanding debts, given the borrowers' income.

loan origination - the process of applying for and processing a loan application.

loan-to-value ratio – the ratio of the amount of a loan to the value of the underlying asset

mortgage-backed securities - securities created when mortgages are securitized by the originating bank or other lending institution; the resultant security represents a claim on repayments to the mortgage.

obligor – an entity which is obliged to issue payments to another; a debtor

real estate covenant – an agreement regarding the use of a piece of land

real estate rating - the evaluation of the reliability of the investment on the basis of the overall quality of the building and of the probability that it will preserve over time its usefulness and its value in order to evaluate the risk of the capital invested

securitisation – the process of distributing the risk for loans, such as mortgages, by pooling claims to these loans and selling them as bonds or other income-generating securities

underwriting –the process by which a financial institution determines whether or not a customer is eligible to receive its products; for example, the process by which a bank determines whether or not a borrower is eligible for a mortgage loan

valuer – a person who values real property

## I. INTRODUCTION

1. The preface to the United Nations Economic Commission for Europe (UNECE) 2010 report, *Policy Framework for Sustainable Real Estate Markets: Principles and Guidance for the Development of a Country's Real Estate Sector* (UNECE REM 2010), states:

“Analyses of the current global economic crisis have shown that unclear regulatory frameworks in the financial and real estate sectors were among its main causes. The crisis brought up a range of problems and demonstrated the urgent need for UNECE to respond by providing guidance and promoting sound real estate markets in the region”.

2. In 2009, the UNECE Real Estate Market Advisory Group (REM) was requested by the UNECE Working Party on Land Administration (WPLA) to create a document which contributes to the clear and transparent risk assessment of real estate properties used as collateral for financial products. This request was supported by the UNECE Committee on Housing and Land Management (CHLM) at its seventy-second session. Real estate rating systems used together with an assessment make a significant contribution towards risk analysis and the efficiency of loan procedures where loans are guaranteed by real properties. A “real estate rating” is understood to be, “the evaluation of the reliability of the investment on the basis of the overall quality of the building and of the probability that it will preserve over time its usefulness and its value in order to evaluate the risk of the capital invested” (translated by the authors from Tecnoborsa 2011).
3. Real estate is a fundamental sector of national economies and the appropriate financial use of real estate is a driving force for economic sustainability and growth, especially for countries in transition. Better regulations for the risk assessment of real properties when linked with financial products will: (a) strengthen credit systems; (b) provide better insights into the factors underlying the global financial crisis; (c) contribute to avoiding similar disasters in the future and (d) accelerate the exit from the crisis while restoring confidence in the market.
4. As noted in Principle 8, Property Valuation, of UNECE REM (2010):

“In order to contribute to the creation of more efficient and developed markets, it is necessary on the one hand to improve the reliability of valuation processes for transaction purposes or for landed-property financings based on prudent LTV [loan-to-value] ratios. On the other hand, developing and fostering the introduction of real estate rating systems may reduce sector investment risk and encourage loans at lower interest rates”.

5. The present document provides a framework for creating an accurate and transparent rating for real estate properties to be used as collateral for financial products. It includes criteria and methods for a risk assessment of real estate properties that will be comparable across borders. It is hoped that, when combined with sound banking practices, this will contribute to improved stability in real estate markets and in markets for financial products of which the value depends on real estate.
6. The Property and Market Rating Systems (PMRS) methods set out in this paper are not universally agreed upon. These methods seek to replace qualitative expressions of risk related to individual real estate loans with numerical scores, with different weightings based on their relative importance. Whether it is possible to quantify the risk of a portfolio of assets using these methods is a subject of debate within the valuation community. It is hoped that this publication will draw attention to a system of real estate and real estate loan evaluation which may be a useful tool to increase the objectivity, comparability and risk assessment of real estate assets.

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## II. THE NEED TO REASSESS THE RISKS TO LENDERS

7. Inadequate underwriting of residential mortgages, particularly subprime mortgages, contributed significantly to the global financial crisis. Underwriting practices often failed to correctly take account of the risk of the borrower failing to repay the mortgage. Subsequent securitization and other structured financing of unviable mortgage loans passed on the risk arising from poor underwriting to purchasers in banking, securities and insurance sectors around the globe. This has caused doubts regarding the effectiveness of loan origination, portfolio management and the integration of real estate as collateral within financial institutions' internal risk rating systems. One result of the regulatory gap exposed by the financial crisis has been inadequate information on real estate risk, which has arguably eroded prudent mortgage underwriting practices and hampered the effectiveness of monitoring by regulators and risk-rating agencies.
8. A number of institutions have underlined the importance of the above issues:
  - (a) In March 2008 the Senior Supervisors Group<sup>1</sup> noted in a report: “firms that experienced the most significant challenges in meeting their funding liquidity needs were those that, before the market turmoil began, had not priced contingent liquidity internally or externally to reflect the *ex post* assessment of the nature and risk profile of these liabilities”.
  - (b) In July 2008, the Institute of International Finance urged banks to take into account “the liquidity of relevant underlying assets, the structure of underlying liabilities, and any legal or reasonably anticipated reputational contingent liquidity risk exposures”.

Regulators need to encourage, and banks need to implement, new rules that will reflect all the dimensions of liquidity. The Joint Forum at the Bank for International Settlements (BIS) has further stated that it “believes that sound, consistent and effective underwriting practices should apply to financial products” and that, “problems arising from poorly underwritten residential mortgages contributed significantly to the financial crisis”.

9. In their January 2010 report, the Joint Forum made some recommendations on underwriting practices at loan origination, including advice on:
  - (a) The effective verification of income and financial information;
  - (b) Reasonable debt service coverage;
  - (c) Realistic qualifying mortgage payments;
  - (d) Appropriate loan-to-value ratios;
  - (e) Effective appraisal management;
  - (f) No reliance on house appreciation;
  - (g) Mortgage insurance; and
  - (h) Recourse.

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<sup>1</sup> A group of senior financial advisors from ten countries which advises the G20's Financial Stability Board on emerging supervisory and risk issues.



10. The International Monetary Fund (IMF) has addressed both the importance of securitization in the financial system and the flaws in its implementation (IMF 2009). It commented as follows: “The methodologies and inputs used to rate non-prime residential MBS (mortgage-backed securities) and CDOs (collateralized debt obligations) backed by MBS were particularly flawed, overestimating the quality of the underlying loans and underestimating the correlation of their performance. As a result, most of the senior tranches of such products have either been downgraded, or are soon expected to be”. Improved disclosure and transparency standards providing detailed information on the assets underlying structured finance products are a part of ensuring better understanding of risk.
11. According to the European Commission, “the most acute phase of the crisis in the banking sector has now receded, but the situation remains very fragile. EU banks are still highly leveraged and persistent worries about the quality of their assets have fuelled concerns about the overall health of their balance sheets. Additional problems for banks have emerged as the financial crisis has extended to the real economy”. The operating environment for banks is likely to remain challenging, in large part due to credit losses linked to their real estate loan portfolios.
12. In 2008 the U.S. Securities and Exchange Commission (SEC) proposed rules “to prohibit rating agencies from issuing a rating on structured products unless information on assets underlying the product was available” and from “structuring the same products that they rate”.
13. The need for a fundamental review of practices in loan origination and effective loan portfolio management is clear. Any process of property and risk evaluation should also be designed so that it can be integrated with internal risk rating systems (IRRS) under Pillar 1 of the Basel III Accord and the requirements of the European Union’s Capital Requirements Directive IV (CRD IV).<sup>2</sup> Recent BIS reports have drawn attention to the need to reinforce policies and processes for collateral valuation and management.

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<sup>2</sup> The Third Basel Accord, or Basel III, is an international regulatory framework for banks which regulates minimum capital requirements and other aspects of banking. The regulations are determined by a Committee of banking supervisory supervisors from 27 countries, including all G-20 countries. Basel III, in effect since 2010-2011, is an update of Basel II, which is an update of the Basel I agreements. The first of the three pillars of the Basel III deals with maintaining capital in order to address credit risk, operational risk, and market risk. The European Union implements the first pillar of Basel III through its Capital Requirements Directives. For more information on Basel III, see Bank for International Settlements (2013).

### III. CURRENT BANKING PRACTICES TO ASSESS RISK

14. The real estate market is characterized by inherent volatility with distinct features that differentiate it from traded capital markets in stocks and bonds, which include:

- (a) Medium- to long-term hold periods;
- (b) Illiquidity and lengthy marketing and trading periods;
- (c) Heterogeneity of individual markets, assets and players;
- (d) Large financial lot sizes;
- (e) Significant leveraging linked to bank borrowing;
- (f) Cycles typified by leads and lags due to supply side constraints; and
- (g) Opacity and limited market data.

Illiquidity, even after consideration of the average weighted life of a loan, and a lack of transparency contribute to volatility and thus undermine debt and equity investors' ability to price or regulate prepayment risk due to fluctuations in interest rates and other external factors, and credit risk credit.

15. The capital adequacy discount applied to residential and, in limited circumstances, commercial property under the Basel II and III Accords reflects the relative robustness of such loans in terms of the potential loss in case of default compared with unsecured lending. Nevertheless, the focus of IRRS has been on well-developed systems to assess the credit risk of the obligor or borrower, not of the underlying asset. The underlying quality of an obligor for a real estate loans is assessed in the regulation and lending practices of financial institutions by considering of the credit risk of the obligors, analyzing the borrower's debt service coverage, obtaining credible information regarding the value of the property, and assessing LTV ratios at loan origination.

16. The cyclicity of real estate markets and illiquidity of property are major issues for debt and equity investors. However, valuation in accordance with established guidelines does not provide an explicit, objective assessment of the underlying risk inherent in a real estate asset or any indication of the future value, sustainability or likely volatility related to real estate cycles. The risk-management departments of banks have not had any means to assess the risk profile of the assets on their loan books that come from their real estate departments. Communication has been hampered by the lack of a common language that would enable the real estate bankers who are originating loans to articulate a qualitative assessment of the relative risk of an asset or portfolio and to share this information with others such as the bank's risk-management department.

17. Nonetheless, such an objective assessment is required to determine the "mortgage lending value" in the Directive 2006/48/EC of the European Parliament and of the Council (European Union 2006). Commercial due diligence on corporate acquisitions, focusing on the exit position of the debt or equity investor, is prescribed by current valuation standards. Principle 7: Transparency and Advanced Financial Products, of UNECE REM (2010) draws attention to the need for greater transparency in the valuation process.

18. For commercial properties, obligors with investment-grade credit ratings can, as has been shown in the recent recession, still default on their loans. At default, the lender has to assess exposure and loss in the case of default, at which point the lender will consider the valuation obtained at origination, typically updated using indices of property prices or other current market information. However, because the underlying quality of the asset is often not properly recognized in existing processes, or not communicated to creators of loan portfolios, both pricing at origination and subsequent adjustments are prone to error and the potential loss exposure of the lender cannot be objectively assessed.
19. At loan origination, the credit risk of the obligor, the debt service coverage, valuation of the collateral, and LTV ratios are all considered when deciding whether to grant a loan and when determining the pricing or risk premium (defined, for example, as the margin over the Euribor or other reference interest rate) of the loan. However, the lender often has no means of knowing the relative marketability, volatility (such as Beta) or sustainable value of the individual assets in a loan portfolio in order to price and subsequently manage the loan book.
20. It is not unusual for an investment-grade corporate obligor to operate from premises that have a special value to that obligor but are not well adapted to the general market where the property is located. An example an investment property (such as the back office of a financial institution) located where there would be little local market for this type of asset, let to a good-quality lessee. If the property goes into receivership, and the landlord or obligor consequently breaches his or her loan agreement, the only resort for the lender would be to repossess an asset for which there is a limited market.
21. Credit risk, income and the business cycle are strongly related to loan default risk. The marketability of the asset, the underlying quality of the asset and the prospective volatility of the asset's value, which are measured by property market risk-rating systems (PMRS), are indicative of the potential recoverability of principal through the sale of the collateral or loss exposure when a loan defaults.
22. In a real estate market that is active and either rising or nearly peaked, even poorly located secondary property of all real estate asset classes will sell. These same assets, which typically demonstrate high price volatility, may not be saleable or only saleable at a deep discount in a recession. Conversely, though the liquidity of any property cannot be known with certainty, prime properties will be less price sensitive in market downturns and will be the first to sell as conditions improve.
23. A well-constructed risk-rating system for property markets should complement and enhance existing risk-management systems and provide a robust risk-management tool to ensure the transparency and enhanced performance of secured lending programmes and facilitate an active market in asset-backed securities and covered bonds.

#### **IV. AN OVERVIEW OF EXISTING PROPERTY AND MARKET RISK-RATING SYSTEMS (PMRS)**

24. Several PMRS exist. Most commercially available systems have been based on modern portfolio theory, which was largely developed for institutional investors. These systems are based on the diversification of risk through exposure to different asset classes and locations, so avoiding a concentration of risk within a portfolio. Rating agencies have developed similar systems for financial institutions to use in constructing their portfolios. However, such systems often do not take into account the underlying fundamentals of a property asset; in particular, they do not address key issues inherent to the nature of real estate markets such as such liquidity, volatility and sustainability.
25. In October 2003, The European Group of Valuers' Associations (TEGoVA) published *European Property and Market Rating: A Valuer's Guide*, which outlines a system for fundamental risk analysis. Then, building on this publication, Bundesverband Öffentlicher Banken Deutschlands (VÖB) published "VÖB - Immobilien Analyse - Instrument zur Beurteilung des Chance-Risikoprofils von Immobilien" (VÖB 2006).
26. A number of banks in Germany, Austria and Switzerland have developed analogous internal systems focused on meeting Basel II requirements. German banking institutions also use "mortgage lending value", a variant of market value, to recognize risk by identifying medium-term sustainable value when making real estate secured loans. More recently, some UK banks have also considered adopting internal systems analogous to PMRS.
27. National Governments have also published their own guidelines for valuation standards. For example, the Government of Poland published a law on 4 January 2010 on valuation for loan security purposes, "Krajowe Standardy Wyceny – Specjalistyczne 3" ("National Valuation Standards - Special 3"; Government of Poland 2010). This requires the valuer to provide, as an annex to the valuation report on market value,
  - (a) An appraisal of property related risk
  - (b) Foreseeable changes to the market
  - (c) Risks associated with the evaluation of the subject property by investors
  - (d) An opinion of the influence of investors on future value.
28. In January 2007 the Royal Institution of Chartered Surveyors (RICS) published a Research Paper entitled "Property Risk Scoring: The reporting of investment risk to clients" (RICS 2007). This document examines risk using an analytical hierarchy process from the perspective of investors in commercial property. One conclusion of this work is that an unmet demand exists for this type of analysis.

## V. A PROPERTY AND MARKET RATING SYSTEM

29. In order to contribute to the creation of more efficient and developed markets:
- (a) It is necessary to improve the reliability of valuation processes for transaction purposes or for landed-property financing;
  - (b) Developing and fostering the introduction of a real-estate rating system may reduce sector investment risk and enable lower-interest-rate loans (UNECE REM 2010); and
  - (c) Modern standardized appraisal systems contribute to tax equalization (fairness), by avoiding the application of very different tax rates to assets having similar economic and technical characteristics, and also avoid economic rent-seeking that may sometimes accompany the application of differentiated tax rates.
30. Currently prevalent valuation standards focus on defining “market value” based on a comparison with recent market transactions on the assumption of a perfect market (i.e., with all relevant facts known by the purchasers), the comparability of the properties in question (i.e., one is not unknowingly comparing apples with oranges) and that the properties used as the basis for comparison were properly valued. Whereas a well-founded assessment of market value is essential, on its own it does not provide all of the information that a lender requires, in particular as related to market risk.
31. The influential (and for members mandatory) RICS Valuation Standards, for prudential reasons, does not allow the forecasting of future values other than the potential sale price within a defined marketing period starting on the date of valuation. TEGoVA, on the other hand, proposes an approach that is congruent with its Property and Market Rating (PaM) system and recommends that the valuer “should prepare a *structured risk assessment* (considering both market and property risks) for each property in mortgage loan portfolios at the moment when the relevant mortgages were granted. If this assessment was not carried out at the time when the individual properties were financed, this must be done for the first time at the point when the mortgage loans are being sold to the special purpose vehicle” (TEGoVA 2009).
32. The International Valuation Standards Council (IVSC) sets valuation standards for all types of assets. Their International Valuation Standards (IVS) are adopted and enforced by many professional bodies or stipulated by lenders and trade associations. In many states there are statutory or regulatory requirements for secured lending valuations and conditions on who may carry them out. These are not always congruent with the IVSs.

### Outline of the property and market rating systems

33. PRMS consist of objective assessments of the relevant factors underlying the sustainable quality, volatility, liquidity and marketability of the subject property on a risk-rated scale. The analysis, which would take place at valuation, yields a rating score which is the weighted average of various data. This seems to conform to the requirements under Basel III, Pillar I, which sets out the basis for determining the

ratio of capital to risk-weighted assets (i.e., assets whose value has been adjusted to take risk into account). Table 1, below, shows equivalent risk ratings of existing risk-rating systems and an example of a PRMS, the Property and Market (PaM) risk-rating system proposed in TEGoVA (2003).

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**Table 1: Comparison of risk-rating models**

Aaa to AA3	A1 to A3	Baa1 to Baa2	Baa3 to Ba1	Ba2 to Ba3`	B1	B2	B3 to Caa				Moody's
AAA to AA	A+ to A-	BBB+ to BBB	BBB- to BB+	BB to BB-	B+	B	B- to C				S & P
excellent	very good	good	above average	average	below average	poor/ special mention	very poor/ substa ndard	doubtful	loss		Example internal bank rating system
1 (excellent)	2 (very good)	3 (good)	4 (slightly above average)	5 (average)	6 (slightly below average)	7 (mediocre)	8 (poor)	9 (very poor)	10 (disastrous)		TEGoVA PaM rating

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34. The TEGoVA PaM system includes four principal elements that evaluate the underlying quality, stability of value, liquidity and medium-term marketability of any property. Each of these elements is subdivided into a number of subsidiary elements. The elements (and their component parts) are given weightings based on their estimated importance in influencing the medium-term marketability of the property. These weightings are based on the results of an expert survey across the professional valuation bodies in Europe.
35. The PaM makes explicit what is implicit in the valuer's assessment and replicates the considerations of an experienced valuer. It is an objective means of appraisal which provides a means of comparative analysis.
36. Nonetheless, care must be taken in aggregating the riskiness of properties scored using PaM or any system; a portfolio of highly correlated investments can be much riskier than the individual risk ratings of these investments imply.
37. Although an assessment or rating can be formulated using as PMRS model and a simple spreadsheet programme, this would be very time-consuming. A more sophisticated software model has the advantage of speed in use, consistency and the provision of an audit trail.
38. In order to ensure the consistency and comparability of results in PMRS systems it is important that there are:
  - (a) Training programmes in the uniform application of evaluation criteria to ensure consistency
  - (b) Certification upon successful completion of the training programme
  - (c) Help files to reinforce the training
  - (d) Measures to minimise the risk of conflicts of interest
  - (e) Fixed weightings of criteria to discourage the artificial manipulation of results
  - (f) Facility to access data used in assessments of criteria to check the basis of the rating and to audit results
  - (g) Finalization of the rating following only senior third-party authorisation.
39. The evaluation of the market environment should be based on publicly available and comparable statistical sources and analysed with appropriate software. An additional country risk factor can be included to provide comparability across borders.

### **Practical applications of property and market rating systems**

40. The principal potential applications of a robust rating system in bank lending include:
  - (a) At loan origination, setting lending policy, pricing, and audit rules as well as establishing the automated granting or refusal of loans;
  - (b) During portfolio management and on-going risk assessment implementing, inter alia:
    - (i) Multi-level cluster analysis to establish risk homogenous assets;
    - (ii) Assessment of risk concentrations; and
    - (iii) Implementation of standardized appraisal systems;



- (c) Meeting the foundation or advanced internal ratings-based (IRB)<sup>3</sup> reporting requirements under the Basel II/III standard; and
- (d) Facilitating efficient pricing based on securitization and covered bond issuance.

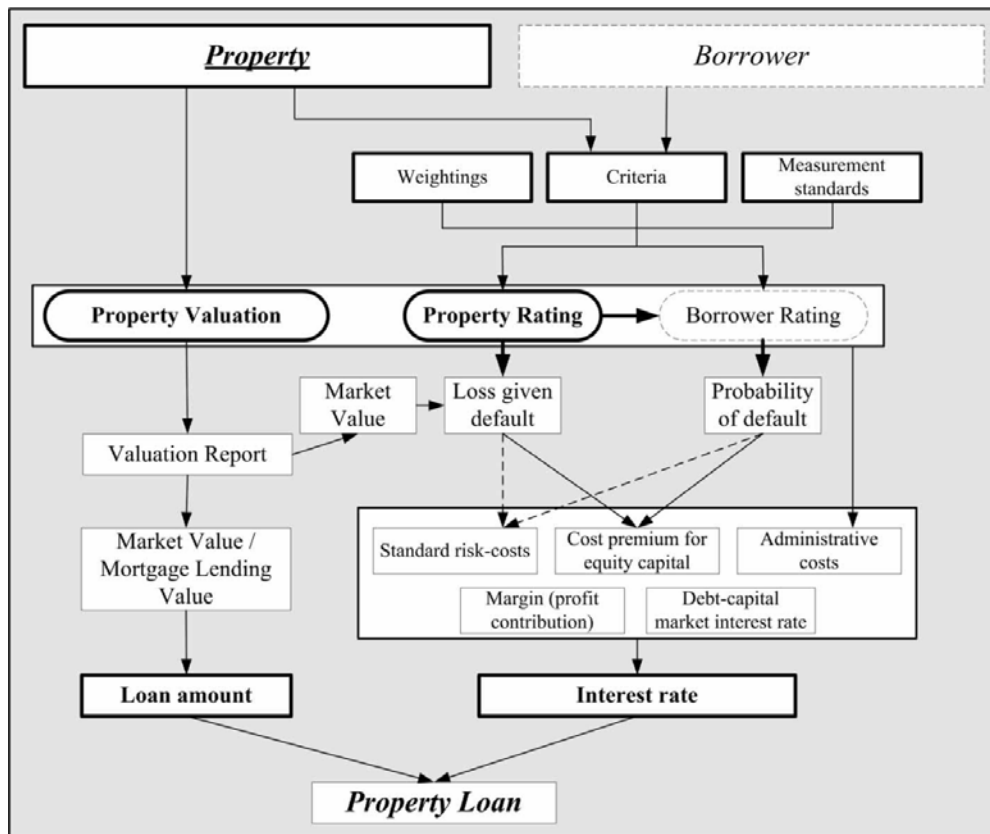
41. The potential, enhanced process by which a lending institution could implement PMRS is set out in Figure 1, below. This approach takes into account the Basel II guidelines. Figure 1 is taken from Lützkendorf and Lorenz (2007).

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<sup>3</sup> The Basel II/III IRB approach is one in which institutions are “allowed to use their own internal measures for key drivers of credit risk as primary inputs to the capital calculation, subject to meeting certain conditions and to explicit supervisory approval” (BIS 2005).

*Figure 1: Finance Decisions under the Basel II advanced IRB approach*



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42. In an initial phase, simple algorithms can be designed to speed, automate and control lending decisions. Such algorithms would take into account, for example, the quality of the underlying property, the credit score of an applicant, the PMRS rating of the applicant, the LTV ratio, and the profit margin of the loan over a reference interest rate such as the Euribor to compare loan applicants and determine which offers the best risk-adjusted return. An ideal application of this process would include full software integration of the resultant ratings process in banking risk-management systems, creating a very powerful tool for risk managers and banking regulators.

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## V. REAL-ESTATE RATING PRINCIPLES AND POLICY OPTIONS

43. Valuation supported by recognized valuation standards is an essential aspect of understanding risk in debt or equity investment. PMRS carried out simultaneously with valuation adds significantly to risk analysis and efficient lending processes where loans are secured against real estate collateral.
44. This document aims to promote the use of property rating systems that facilitate the following:
- (a) *Transparency*, which facilitates
    - i. Better decision-taking by providers of debt and equity and
    - ii. The appropriate use of real estate assets as guarantees for advanced financial products, which can also produce social and economic benefits.
  - (b) *Assessment of marketability or liquidity*, which enables lenders to better manage loan portfolios and meet Basel II requirements.
  - (c) *Objectivity*, which
    - i. Is an essential component of valuation and any system of risk rating;
    - ii. Requires training and certification, as well as continuous professional development; and
    - iii. Needs an authorization process for property and market rating assessments that helps ensure compliance.
  - (d) *Comparability* of loans and assets, which is necessary to enable effective multilevel analysis.
  - (e) *Integration into lenders' legacy systems*; these systems must be capable of both an independent analysis and integration into the advanced IRB approach under Basel II/III.
  - (f) *Information extraction*, which is essential so that all aspects of a real estate rating can be tested to provide clarity and a quality check.
  - (g) *Clear audit trails*, which
    - i. Enable all assumptions to be examined and
    - ii. Allow an improved review of valuations following default. (Currently these reviews are often carried out when the precise circumstances and rationale behind the original valuation judgements are opaque. A rating system should resolve this issue and reduce costly legal action.)
45. The following are key issues for an effective system of risk assessment of real estate that is to be used as collateral:
- (a) The criteria for the evaluation and application of a real estate risk assessment must take into account the different uses of properties (such as residential, commercial, offices, industrial, or tourist accommodation) and the specific risk profile of the investment according to the nature of the project, be it the purchase of an existing property or the implementation of a real estate development project.
  - (b) The risk analysis should examine the following elements:
    - iii. *Location* (including the national and local setting, the macroeconomic and environmental context, the socio-demographic setting and the market segment);

- iv. *Market scenarios in the short, medium and long term* at the local and national levels. This includes analysing the potential and dynamics of the reference markets (a series of weighted factor that influence the marketability of an asset based on the long-term stability or potential volatility of the real estate market) according to the forecast of future scenarios regarding the marketability of the real estate in question (marketing, leasing or both) and an estimate of the potential rate of growth (or decline) of the income and value of the property;
- v. *Cash flows* (operating costs and revenues) at the time of the evaluation and short/medium-term forecasts;
- vi. *Quality of the buildings* with reference to matters such as:
  1. Building envelope;
  2. Quality of the interior finishings;
  3. Energy efficiency;
  4. Interior soundproofing;
  5. Heating and air-conditioning;
  6. Use and efficiency of floor space;
  7. Safety systems;
  8. Communication and cable systems;
  9. Lighting;
  10. Elevators;
  11. Water use and treatment; and
  12. Management.
- vii. *Other intrinsic and extrinsic characteristics* (including an analysis of the state of preservation and maintenance of the building) as well as any risks due to the possible establishment of infrastructure or services that have an impact on environmental quality and on market dynamics;
- viii. *Quality of services, infrastructure and transportation*;
- ix. *Current use of the property and its potential alternative uses* on the basis of reference regulations (such as a general urban development plan) and of the possible evolution of town planning and building laws, with sensitivity and risk analyses;
- x. *Long-term and lasting aspects of the real estate*, including value increase and decrease factors. This includes, for example, the continued relevance of a building's technology given expected future changes in environmental and other regulations;

(c) Each category of the assessment should be given a score that is weighted based on the influence of the category on the strength of the investment.

46. A real estate rating system based on the above framework, if adopted as an industry standard, could assist in improving global standards in secured property lending and the market in securitized assets and other advanced structured financial products, with resultant socioeconomic benefits. In particular, the increased transparency and refinement of loan origination procedures could increase lender confidence, reduce finance costs for better-quality loans and increase home-ownership rates. It could also provide properly priced funds to businesses and generate sustainable economic growth.

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