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Finance, Competitiveness & Innovation
Financial Sector Advisory Center (FinSAC)

Joint Vienna Institute

Loan and Collateral Valuation

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ADB Virtual Training Course on NPL Resolution

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The views expressed here are exclusively those of the presenter and to not necessarily reflect the position of the World Bank (FinSAC) or the JVI.

Outline

1. Introduction
2. NPL Loan Valuation
3. Collateral Valuation

Introduction

- **(Non-)Performing loan valuation and collateral valuation closely related**
- **As long as NPLs remain 'going concern' loans, the valuation is not substantially different from that of any other loan**
  - Policy can, however, have a substantial impact on going concern NPL valuation
- **Transition from going to gone concern, however, brings collateral valuation centre stage**
  - Outcomes are again substantially impacted by the policy environment

NPL Loan Valuation

- **When a loan becomes non-performing (but remains going concern), the expected cash flow *(CF)* needs to be revalued**
  - Revaluation may imply changes to the monthly amount and duration of the loan *(t)*
  - The effective interest rate *(i)* remains unchanged.

$$NBV = \sum_{t=1}^{T_{rev}} \left[\frac{CF_{t\,(rev)}}{(1+i)^t} \right]$$

- **Factors determining revised cash flow:**
  - Ability to pay of distressed borrower (depending on idiosyncratic as well as macro features)
  - Willingness to pay
  - New loan terms (for restructured loans)

NPL Loan Valuation

- **Sale of NPLs to investors imply two major changes to the valuation of the loan**

- **First, replacement of originating banks' effective interest rate *(i)* with investors' internal rate of return *(IRR)***
  - NPL investors are likely to have less information on the loan
  - The implied higher risk needs to be compensated (IRR > i)

- **Second, deduction of expected administrative costs *(AC)* during remaining lifetime of the loan;** arising e.g. from staff costs, servicer fees or costs of setting up an SPV

$$NBV = \sum_{t=1}^{T_{rev}} \left[\frac{CF_{t_{rev}}}{(1+IRR)^t} \right] - AC$$

- **Both changes result in differences in NPL valuation between banks and investors** ('bid-ask spread')

NPL Loan Valuation - An Italian Example

Table 2 - Main differences between banks' and investors' methods of valuing bad loans

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

Source: Ciavoliello, L. et al (2016), What's the value of NPLs?, Notes on Financial Stability and Supervision No. 3, Banca d'Italia, April 2016

NPL Loan Valuation

- **Determinants for NPL's NBV**
  - Underwriting standards; will impact PDs and LGDs *(banks and supervisors)*
  - Quality of restructurings; will impact cure rates and LGDs *(banks and supervisors)*
  - Macro-financial environment; impacts PDs, LGDs, cure rates *(government, central bank, supervisor, external sector)*
  - Legal system; impacts PDs and LGD, including by affecting the willingness to pay
- **The NPL bid-ask spread on the secondary market is discussed in more detail in the next part of the training course**

Loan stagging by European banks

- According to IFRS9, banks should define a threshold above which the loan classification should be reviewed with a certain frequency
- Individual assessment triggers for **Corporate Portfolios**

Triggers	Stage 2	Stage 3
1. External Rating		▼ BB–
2. Internal PD	$\frac{(current\ PD\ - initial\ PD)}{Initial\ PD}\ x\ current\ PD > 0.1\%$	PD > 10%
3. Decrease in equity due to losses	Interannual decrease > 25% Cumulative decrease in 3 years > 50%	Interannual decrease > 50%
4. Negative equity		< 0
5. Significant amounts dpd to public bodies		X
6. Decrease in sales	Interannual decrease > 12.5% Cumulative decrease in 3 years > 25%	Interannual decrease > 25%
7. Negative EBITDA		✓ (EBITDA < 0)
8. Decrease in EBITDA	Interannual decrease > 12.5% Cumulative decrease in 3 years > 25%	Interannual decrease > 25%
9. Increase in ratio debt-to-EBITDA	Interannual increase > 12.5% Cumulative increase in 3 years > 25%	Interannual increase > 25%
10. Ratio debt-to-EBITDA	4 (depending on the sector)	6
11. Repossession of collateral		✓
12. Repossession of collateral to other member of the group		✓

Source: World Bank

Loan stagging by European banks

- Individual assessment triggers for **Real Estate Developers**

Triggers	Stage 2	Stage 3
1. Significant deviation in the execution of the RE development (execution delays)	12.5% - 20%	> 25%
2. Deviation in the projected sale prices	> 10%	> 25%
3. Building costs overshooting	> 10%	> 20%
4. Collateral value decrease (according to an appraisal)	> 10%	> 20%

Source: World Bank

Loan stagging by European banks

- Individual assessment triggers for **Project Finance**

Triggers	Stage 2	Stage 3
1. Absolute level of Debt Service Coverage Ratio	Not applicable (absolute rather than D)	1.1 x
2. Decrease in Debt Service Coverage Ratio	▼ 10% (from initial recognition)	Not applicable
3. Rating	< 1/2 notches from origination	Default level
4. Reserve Fund decrease	10%	50%
5. Specific government reductions (electricity, energy, etc.)	5 - 10%	> 20%

Source: World Bank

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Loan stagging by European banks

- Individual assessment triggers for **Financial Institutions**

Triggers	Stage 2	Stage 3
1. Increase in loans	▲ 25%	
2. NPL ratio	▲ 40%	
3. Net NPL / Equity	> 75%	
4. Decrease in equity	Maintenance decrease of 25%	
5. Decrease in CET1	< 6%	
6. Decrease in deposits	Internal decrease of 15%	
7. Decrease in net profit	< 0	

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3. **Collateral Valuation**

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Why is collateral valuation important?

Collateral value

1. Inflated collateral value can lead to imprudent **loan origination** (LTV ratio).

2. Collateral value should **not** be considered for **loan classification** purposes.

3. The basis for loan **provisioning** is adjusted for collateral value. Inflated collateral value leads to inflated profit (dividend) and capital.

4. Consequently, **NPL write-off** can be impeded by the existence of (unrealized) collateral. Solution – a phase-out period for collateral recognition for provisioning purposes.

5. Collateral value is critical in assessing **NPL resolution options** (restructuring, collateral enforcement, sale).

6. Collateral value is critical in assessing NPL value during the **sale** process.

7. Historic recovery values serve as inputs for **LGD rates** in banks' risk models.

8. Valuation of bank assets (loans) for bank **resolution** purposes.

- NPL resolution process

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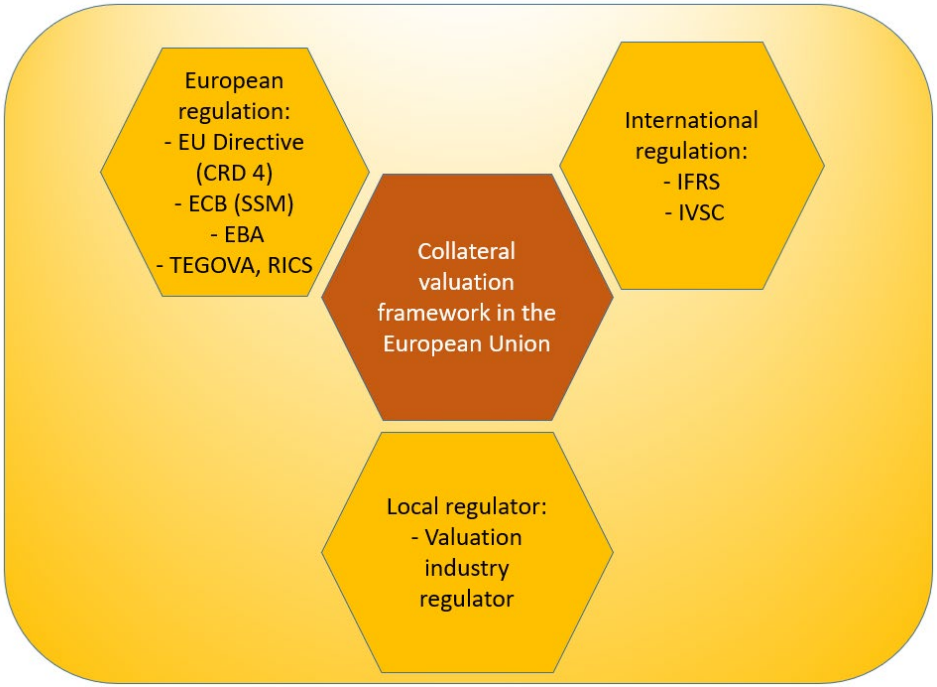
Collateral valuation framework



- European Regulation No 575/2013 sets a minimum requirement for the European financial institutions
- Para 3 (a) of Article 208 states: "*institutions monitor the value of the property on a frequent basis and at a minimum once every year for commercial immovable property and once every three years for residential real estate.* ***Institutions carry out more frequent monitoring where the market is subject to significant changes in conditions***"
- Para 1 of Article 229 states: "*for immovable property collateral, the collateral shall be valued by an independent valuer* ***at or at less than the market value****. An institution shall require the independent valuer to document the market value in a transparent and clear manner*"
- The definition of market value, according to TEGOVA, is: "*The estimated amount for which the property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without being under compulsion*"

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Collateral valuation approaches

Market approach	• Comparative method
Income approach	• Capitalization method • Discounting method • Accounts of the current or a theoretical occupier
Cost approach	• Depreciated replacement cost method • Residual method

- the most prudent
- not allowed by the EBA and ECB

- Both IFRS and European Valuation Standards propose three essential valuation approaches
- Based on these approaches, there are six recognized methods
- While the appraisal industry has its own rules and governance, the financial industry needs a special regulatory framework
- The latest EU regulations require the recognition of NPL in full amount without accounting for collateral
- EBA regulations require 100% provisioning after two years for unsecured and after eight years for secured part of NPEs

European Banking Authority - NPL Guidelines (collateral valuation) I

Governance, procedures and controls

- Internal quality assurance policy in place, checked by internal audit regularly;
- Indexation (internal or external) is allowed with safeguards in place;
- A threshold for the individual valuation and revaluation of the collaterals used for NPEs by an independent appraiser;
- Valuations should be performed by an independent and qualified appraiser;
- Any potential conflict of interest of appraisers should be mitigated (e.g., close relative, interest in the property);
- Banks should establish a panel of independent and qualified appraisers (supervisor could introduce a 'black' list);
- External appraisers on the panel should have adequate and valid professional indemnity insurance;
- Adequate rotation of appraisers - two sequential individual valuations of the immovable property by the same appraiser;

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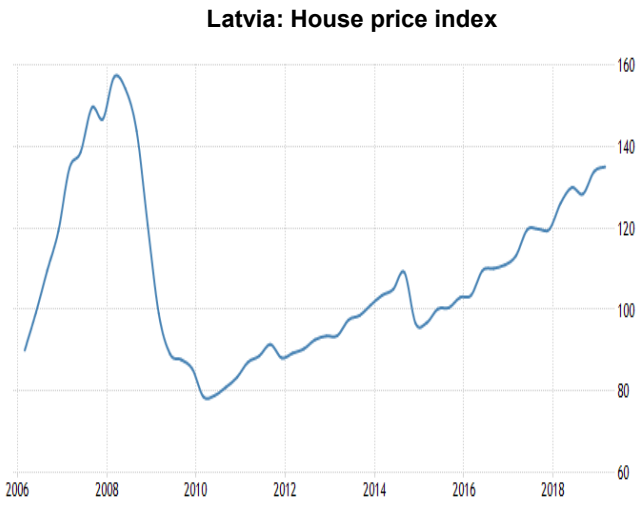
European Banking Authority – NPL Guidelines (collateral valuation) II

Frequency of valuation

- At a minimum once every year for commercial immovable property and once every three years for residential real estate;
- Re-evaluation when the exposure is classified as non-performing and at least annually while it continues to be classified as such;
- Re-evaluation should be done after a significant decline in collateral value, which must be defined;

Valuation method

- All immovable property collateral should be valued on the basis of market value or mortgage lending value;
- Overall valuations based only on the discounted replacement cost should not be used. For income-generating properties, a market-comparable or discounted cash flow approach can be used;
- Banks should estimate discounted cash flow in a prudential manner and adjust for the appropriate liquidation costs and market price discount;



Source: Eurostat

European Banking Authority - NPL Guidelines (collateral valuation) III

Valuation of foreclosed assets

- Credit institutions should strongly consider classifying foreclosed assets as non-current assets held for sale under IFRS 5 (available for immediate sale and a plan to sell the asset within a short timeframe (1 year));
- A hold strategy on property collateral is not acceptable;
- The condition, location, risk and uncertainty regarding the assets should be incorporated in the fair value estimation;

Other issues

- Banks should have databases of transactions to enable the proper assessment, monitoring, and control of the credit risk;
- Banks should demonstrate via sound back-testing that the assumptions used when assessing the recoverable amount were reasonable and grounded in observed experience;
- For the ECB AQR purposes, if the re-appraisal valuations are on average significantly lower (i.e. by more than 10%) than the bank's valuation, then the bank should be required to have an independent, external party reappraise the entire foreclosed real estate portfolio following the completion of the comprehensive assessment;
- ECB NPL Guidance - a minimum discount of 10% should be applied if the collateral is sold in auction;
- Alternatively, banks using the advanced internal ratings based (A-IRB) approach may use secured loss given default (LGD) to determine haircuts.

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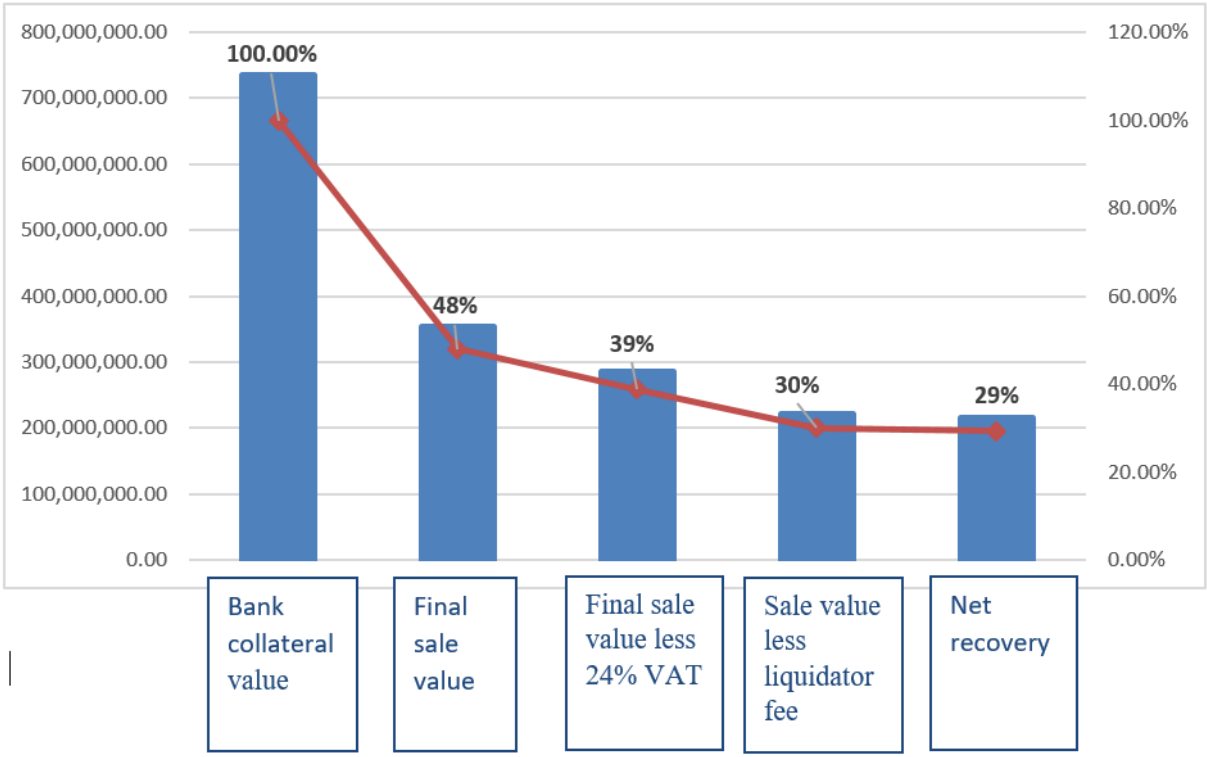
Real estate collateral recoveries



Source (private): data from a real NPL sales transaction.

- Differences between collateral book value and investors' expectations may be stark;
- The chart shows the anticipated recoveries from the sale of real estate collateral underlying loans in a NPL portfolio, based on valuations calculated for a prospective investor by external experts;
- A sale within a year of investment, less VAT, less liquidator fee, **yields 29 percent of the original value of collateral** on the balance sheet of the selling bank;
- The example is from an Eastern European country.

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Country case - recovery value from collateral enforcement

Costs for collateral enforcement (in ……, %)

		in percent of claim, asset value or recovered amount		limits	
				corporate	retail
Court costs	Submission of claim	1,5	% of claim		
	Max fee			240 000	no limit
	Appeal	1,65	% of claim		
	Max fee			264 000	no limit
	Cassation appeal	1,8	% of claim		
	Max fee			288 000	no limit
	Supreme court	1,95	% of claim		
	Max fee			312 000	no limit
Bailiff costs	Bailiff initiation fee	2	% of claim		
	Max fee			32 000	32 000
	Bailiff service fee	10	% of forced sale value / recovered amount	no limit	no limit
Auction sale costs	Liquidity discount (or trading losses)	15-20	% of collateral value	no limit	no limit
	CETAM trading platform fee (depends on amount and negotiations)	2-5	% of forced sale value	no limit	no limit
	Selling costs (e.g. storage costs, insurance, etc.)	1	% of forced sale value	no limit	no limit
Estimated total cost[69]		**37,95**	**% of collateral value**		

Illustration of collateral enforcement costs (in …..)

	31.12.16	31.12.17	31.12.18	31.12.19
Nominal (market) collateral value				100 000
Collateral enforcement costs	1 500	1 917	2 267	12 267
Recovery value				80 000
Recovery CFs after all fees and discounts	**-1 500**	**-1 917**	**-2 267**	**67 733**
NPV @15% discount rate	**39 655**			

- On average, it takes 2-3 years, in the sample country, to complete the process of collateral enforcement. The illustration assumes the worst-case scenario of 3 years' period;
- NPV calculation with 15% discount rate;
- Expenses are based on the Law of …….. on Court Fees, the Law of …….. on Enforcement Proceedings, and the Tax Code;
- The estimated total cost for collateral enforcement process assumes i) court fees for trial and appellate courts, ii) liquidity discount of 20 percent of collateral valuation and iii) CETAM trading platform fee of 5 percent of forced sale value.