In RMBS pools with re-performing loans (RPLs) and cross-collateralized exposure to a single borrower, LTV is typically calculated at multiple levels depending on the analytical purpose. Here's how it's done in practice:

1. Loan-Level LTV (Registry / Legal View)

Purpose: Legal enforceability and lien-specific recovery.

- Formula:
  $$\text{LTV}_\text{Loan} = \frac{\text{Loan Balance}}{\sum \text{Appraised Value of Pledged Collateral (to that loan)}}$$

- Use Case:

    ○ Needed to understand legal priority,

    ○ Enforced in foreclosure, per Article 119 LH (liability allocation).

    ○ Used in registry filings and judicial auctions.

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- Limitation:

- Doesn't capture total borrower leverage when assets are reused across loans.

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2. Borrower-Level LTV (Risk & Surveillance View)

Purpose: Holistic credit risk view across cross-collateralized loans.

- Formula:
  \text{LTV}_\text{Borrower} = \frac{\text{Total Debt of Borrower (all loans)}}{\text{Deduplicated Value of All Pledged Properties}}

- Use Case:

  - Used by servicers and rating agencies for risk modeling,

  - Helps avoid double-counting of assets (e.g. Property A used in Loan 1, 3, and 5),

  - Reflects the true loss severity if the borrower defaults across all obligations.

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  - Appropriate for:

    - ○ RPLs, NPLs, and distressed assets,

    - ○ Portfolios where foreclosure could be triggered at borrower-level default, not just loan-level.

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3. Group-Level or Exposure-Wide LTV (Structured View)

Purpose: Securitization pool analysis when multiple borrowers or facilities are linked.

- Formula:
  $$\text{LTV}_\text{Group} = \frac{\sum \text{Linked Loan Balances}}{\sum \text{Linked Properties' Values}}$$

- Use Case:

  - ○ Used in structured pool modeling, especially when servicers repackage loans as a bundle (e.g. re-performing loan restructures),

- ◦ May apply if loans are cross-defaulted or subject to consolidated servicer action.

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Which LTV Is Most Appropriate in Your Case (RPL + Cross-Collateral)?

Level	When to Use
Loan-level	For legal enforcement, foreclosure, registry liens
Borrower-level	For credit risk modeling, loss severity, or if one borrower has many loans
Group-level	For RMBS portfolio aggregation, structured wraps, servicer rollups

In your case (RPLs with cross-collateral, same borrower):

Let me know if you want an Excel or Python function to calculate all three LTVs from a loan tape.