

Banks' Real Estate Exposures: Risk-Based Approach to Measurement of Exposures and Concentrations

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Abstract

The study develops a holistic risk-based approach to measuring banks' real-estate exposures and real-estate sector concentrations. As banks' real-estate exposures increasingly extend beyond traditional lending, adequate statistics shall cover broader types of on-balance sheet exposures and off-balance sheet exposures. The study describes a novel approach to measuring banks' exposures and concentrations utilising a risk-based approach aligned with the more granular post-crisis reforms of the Basel standards. It outlines a method of integrating the revised Basel standards with statistics on banks' sectoral exposures and concentrations and proposes refined metrics based on credit risk-weighted assets.

Banks' Credit Risk and Sector Concentrations

Sector Exposures and Concentration Risk

- Historical experience shows that sector concentration risk in banks' portfolios has been one of the main causes of bank distress, which warrants a focus on appropriate statistical methodologies.
- Sector concentrations in banks' portfolios arise from excessive exposures to a sector, several highly correlated sectors, and also apply to other exposures exhibiting high default dependencies.

Sector Exposures and Financial Distress

- Banks' credit risk concentrations, particularly real estate sector exposures, exert material impact on the soundness of the financial system and contributed to numerous financial or bank crises globally.
- Real-estate-linked financial crises were not limited to a particular real estate category, as the causes stem from exposures to both residential real estate and commercial real estate rather equitably.

Sector Exposures and Financial Innovation

- While banks' real estate financing has been traditionally dominated by loans, other types of on-balance sheet and off-balance sheet exposures to the real estate sector increased in prominence.
- This is attributable to broadening financial innovation and deepening market-based finance. In response, authorities should adjust statistics to accommodate changes in financial structures.

Extending Measurement Scope of Sector Exposures

- Adequate measurement and analysis of banks' real estate exposures require extending their scope to include all types of on-balance sheet and off-balance sheet exposures to the real estate sector.
- Measurement and disclosure of off-balance sheet sector exposures are commonly missing even in relatively advanced contemporary frameworks and dashboards, resulting in material data gaps.

Consolidated Sector Exposures

Equation (1)

$$CSE = \sum_{i=1}^n On_SE_i + \sum_{j=1}^m Off_SE_j \times CCF_j$$

Legend: CSE – Consolidated Sector Exposures; On_SE – On-Balance Sheet Sector Exposure; Off_SE – Off-Balance Sheet Sector Exposure; and CCF – Credit Conversion Factor.

Off-balance sheet items can be converted into credit-exposure equivalents through the use of harmonised credit conversion factors that were developed as part of the BCBS's Basel Accords.

Enhancing Risk Sensitivity of Sector Exposures

- While the consolidated sector approach defines an all-inclusive scope, it might not be sufficiently risk-sensitive. Risk sensitivity recognises that credit risk of same-sized credit exposures differs.
- The credit risk of real estate exposures relates to factors such as loan-to-value ratios, counterparties' external credit ratings, source of repayment cash flows, exposures' asset quality, or others.

Credit Risk-Weighted Consolidated Sector Exposures

Equation (2)

$$CRWA(CSE) = \sum_{i=1}^n CRW_i \times On_SE_i + \sum_{j=1}^m CRW_j \times Off_SE_j \times CCF_j$$

Legend: CRWA(CSE) – Credit Risk-Weighted Consolidated Sector Exposures; CRW – Credit Risk Weight; On_SE – On-Balance Sheet Sector Exposure; Off_SE – Off-Balance Sheet Sector Exposure; CCF – Credit Conversion Factor.

Note: The equation has been simplified to provide a more intuitive expression of the use of risk weights and credit conversion factors for the measurement of risk-sensitive sector exposures. A more detailed calculation might also recognise the impact of credit risk mitigants as defined in the BCBS's Basel Accords, the role of specific provisions, and other relevant factors.

Credit risk weights derived from the harmonised BCBS's Basel Accords can be utilised to obtain credit risk-weighted consolidated sector exposures.

Revised Risk Sensitivity of Real Estate Exposures

- The revised standardised approach for credit risk (part of finalising post-crisis Basel III reforms) enhances risk-weight granularity of bank real estate exposures to residential and commercial properties.
- Revised risk-weight granularity varies based on loan-to-value ratios, risk weights of counterparties, sources of repayment cash flows, issue-specific ratings of covered bonds, and other relevant factors.

Risk Weights for Residential Real Estate Exposures

Repayment is not materially dependent on the cash flow generated by the property						Table (1)
LTV ratio	≤50%	50% to 60%	60% to 80%	80% to 90%	90% to 100%	> 100%
Risk weight	20%	25%	30%	40%	50%	70%
Repayment is materially dependent on the cash flow generated by the property						
LTV ratio	≤50%	50% to 60%	60% to 80%	80% to 90%	90% to 100%	> 100%
Risk weight	30%	35%	45%	60%	75%	105%

Source: BCBS (2017)

The revised standardised approach enables a greater integration between the measurement of sector exposures and the harmonised Basel Accords' risk sensitivity (also applicable in the IRB approach).

Revised Risk Sensitivity of Real Estate Exposures (continued)

Risk Weights for Commercial Real Estate Exposures

Repayment is not materially dependent on the cash flow generated by the property				Table (2)
LTV ratio	≤60%		>60%	
Risk weight	Min (60%, Risk weight of counterparty)		Risk weight of counterparty	
Repayment is materially dependent on the cash flow generated by the property				
LTV ratio	≤60%	60% to 80%		>80%
Risk weight	70%	90%		110%
Source: BCBS (2017)				

Risk Weights for Covered Bond Exposures

Rated covered bond exposures							Table (3)
Issue-specific rating	AAA to AA-		A+ to A-	BBB+ to BBB-	BB+ to B-		Below B-
Risk weight	10%		20%	20%	50%		100%
Unrated covered bond exposures							
Risk weight of issuer	20%	30%	40%	50%	75%	100%	150%
Risk weight	10%	15%	20%	25%	35%	50%	100%
Source: BCBS (2017)							

Risk-Weighted Sector Concentration Ratio

- Sector concentrations in banks' portfolios represent a key driver of credit risk. For this reason, adequate measurement of concentrations remains crucial for risk management and banking supervision.
- Similar-sized sector exposures of different banks or banking systems may have significantly different credit risk characteristics, rendering concentration risk statistics that are not risk-sensitive inadequate.

Sector Concentration Ratio

Equation (3)

$$\text{Sector Concentration Ratio} = \frac{CRWA(CSE)}{CRWA}$$

Legend: CRWA(CSE) – Credit Risk-Weighted Consolidated Sector Exposures; CRWA – Total Credit Risk-Weighted Assets.

A sector concentration ratio defined through credit risk-weighted assets benefits from the Basel Accords' harmonised methods for risk sensitivity (and also, credit conversion factors, risk mitigants, etc.).

Extending Measurement Scope of Sector Exposures

- Holistic and harmonised approaches for measurement of sector exposures shall include all types of on-balance sheet and off-balance sheet exposures to a sector.
- Off-balance sheet exposures can be converted into credit-exposures equivalents using harmonised credit conversion factors developed as part of the Basel Accords.

Risk-Based Measurement of Sector Exposures

- Sector exposure and concentration measures need to be adequately risk-sensitive. The BCBS's Basel Accords provide the only globally harmonised methodology for risk sensitivity.
- Sector exposures and concentrations expressed in terms of credit risk-weighted assets provide a more comparable and intuitive approach related to credit risk and capital adequacy.