

# **Overview of the Basel Committee's Second Working Paper on Securitization**

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([www.frbsf.org/economics/economists/jlopez.html#pubfrbsf](http://www.frbsf.org/economics/economists/jlopez.html#pubfrbsf))

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# **Overview**

I. What is Basel II?

II. What is securitization?

III. What is the Basel Committee's Second Working Paper on Securitization (SWPS) issued in October 2002?  
([www.bis.org/publ/bcbs\\_wp11.htm](http://www.bis.org/publ/bcbs_wp11.htm))

IV. Conclusion

## **I. What is Basel II?**

To answer this question, we need to understand what Basel I is.

Basel, Switzerland is the home of the Bank for International Settlements, a clearinghouse for central banks, and the Basel Committee on Banking Supervision is a forum for addressing issues of international bank supervision.

([www.bis.org](http://www.bis.org))

The Basel Capital Adequacy Accord of 1988 was an agreement by international banking regulators to impose a common system of capital requirements on commercial banks.

(<http://www.bis.org/publ/bcbs04a.htm>)

Current U.S. bank capital standards are based largely on the 1988 Basel Accord.

(<http://www.federalreserve.gov/boarddocs/supmanual/bhc/bhc1202.pdf>)

## **I. What is Basel II? (continued)**

In broad terms, the 1988 Basel Accord:

- set a regulatory capital minimum of 8% of risk-adjusted assets (RWA)

$$8\% \text{ capital ratio} = \text{total reg. capital} / \text{RWA}$$

$$\text{total reg. capital} = 0.08 * \text{RWA}$$

- the only risk adjusted for was credit risk  
(market risk was addressed in the 1996  
Market Risk Amendment)
- risk weighting consisted of five broad asset categories and simple risk weights (for example, all commercial loans regardless of credit quality received a 100% risk weight)

## **I. What is Basel II? (continued)**

The Basel Accord was a groundbreaking agreement in terms of international regulation and standard setting; for example, the current Japanese case.

But very “broad brush” in terms of risk.

So, much regulatory capital arbitrage with regard to credit risk & risk-weighted asset definitions

Basel II is an effort to update and expand the regulatory capital standards.

(CP3: [www.bis.org/bcbs/bcbscp3.htm](http://www.bis.org/bcbs/bcbscp3.htm))

$$\text{total reg. capital} = 0.08 * (\text{RWA} + \text{mkt. risk} + \text{op. risk})$$

RWA calculations are substantially revised with the goal of being more risk sensitive.

## **I. What is Basel II? (continued)**

Basel II has three approaches with which to determine risk weights.

Standardized approach, for use by banks w/o credit risk models, has regulatory risk weights set by borrower type & external ratings.

The two internal-ratings based (IRB) approaches permit banks to use their own credit risk models in setting certain parameters. Risk weights are then determined using a regulatory formula.

Foundation IRB approach permits banks to use their internal ratings systems for PD parameters only.

Advanced IRB approach permits banks to set many of the parameters.

## **II. What is asset securitization?**

Asset securitization is a mechanism for transferring credit risk with the use of securities.

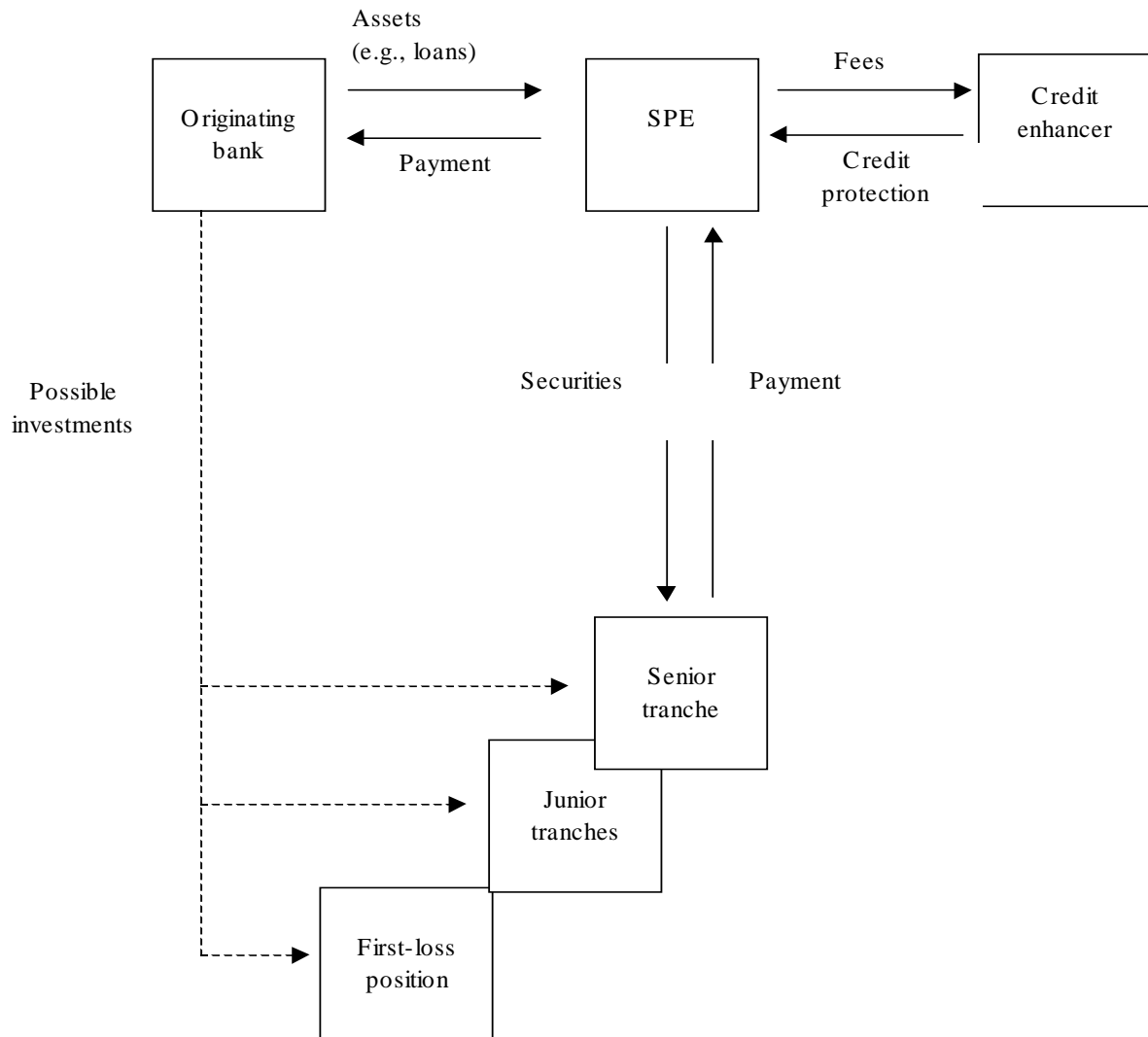
([www.securitization.net/knowledge](http://www.securitization.net/knowledge))

A traditional asset securitization involves the legal or economic transfer of a pool of assets or obligations to a third party (typically an SPE), which then issues asset-backed securities that are claims against the pool.

Figure presents the structure of a stylized asset securitization of credit exposures, such as loans.

Note that the transferred assets could be on-balance sheet, such as loans; off-balance sheet, such as loan commitments; or credit derivatives; i.e. a synthetic securitization.

**Figure 1. Diagram of a stylized asset securitization**





## **II. What is asset securitization? (continued)**

The SPE funds its obligations by issuing securities and using the proceeds to purchase the assets from the originating bank.

Typically, several tranches of securities with differing seniorities are issued. The most senior tranche is the safest; the least senior and riskiest tranche is the “first-loss” position, which contractually must absorb the first credit losses from the asset pool.

First-loss positions are commonly held by the originating bank. The originating bank may choose to invest in these tranches as well.

The SPE may arrange for a third party to provide credit enhancement for the securitization.

## **II. What is asset securitization? (continued)**

### **Regulatory capital considerations**

Securitization unbundles the traditional lending function into a variety of components:

- originator of the credit exposures;
- servicer of the asset pool;
- investors in tranches of different risk levels;
- credit enhancer or derivative counterparty.

From an economic standpoint, the total amount of credit risk and the capital held against it should not be less than the amount of capital needed if the originating bank did not securitize the assets.

Hence, the reference point for total regulatory capital for a securitization should be the regulatory capital required for an asset pool when it is within a single bank.

### **III. Details of the SWPS**

With respect to the originating bank,

- it is granted regulatory capital relief to the extent that it successfully shifts the asset pool's credit risk to the SPE.
- If it transfers all of the risk, the asset pool is removed completely from its risk-weighted assets for regulatory capital purposes.
- However, if it retains an exposure through its investment in any of the SPE's tranches, capital must be held against that exposure.
- If it provides implicit support to the SPE, it must hold capital as if the securitization had not been carried out.

### **III. Details of the SWPS (continued)**

With respect to bank investors in senior tranches,

- risk weights are set as for standard corporate lending. ( < 100% for investment-grade; can exceed 100% for riskier securities)
- Under the standardized approach, the risk weights are based on the securities' external ratings (or lack thereof) and maturity (short-term vs. long-term).
- For example, tranches with long maturities and BB+ rating are given a risk weight of 350%. If unrated or below a B+ rating, the investment has a dollar-for-dollar capital charge (i.e., risk weight of 12.5).

### **III. Details of the SWPS (continued)**

With respect to bank investors in senior tranches,

- 2 methods available for the IRB approaches.
- The choice is dictated by the amount of information regarding the asset pool that is available to the banks.
- Banks that have enough information to calculate IRB capital for the asset pool were it not securitized, such as originating banks and credit enhancers, must use the supervisory formula approach (SFA).
- Alternatively, the ratings based approach (RBA) for investors without this information and who invest based on external rating.

### **III. Details of the SWPS (continued)**

#### **The Ratings Based Approach (RBA)**

- These risk weights are determined by the regulators, since investors cannot determine an asset pool's risk independently.
- The risk weights are based on four variables:
  - the rating of the tranche,
  - its maturity,
  - the granularity of the asset pool, and
  - the percentage of the securitization rated at least AA- that is senior to the tranche.
- If purchased tranches were below investment grade or unrated when purchased, a dollar-for-dollar capital charge is applied or the SFA to determine the risk weights.

### III. Details of the SWPS (continued)

#### The Ratings Based Approach (RBA)

##### Long Term Weights:

External rating (illustrative)	Risk weights for thick tranches backed by highly granular pools (column 2)	Base risk weights  (column 3)	Risk weights for tranches backed by non-granular pools  (column 4)
Aaa	7%	12%	20%
Aa	10%	15%	25%
A	20%	20%	35%
Baa1	50%	50%	50%
Baa2	75%	75%	75%
Baa3	100%	100%	100%
Ba1	250%	250%	250%
Ba2	425%	425%	425%
Ba3	650%	650%	650%
Below Ba3 or unrated	Deduction	Deduction	Deduction

##### Short Term Weights:

External rating (illustrative)	(column 2)	(column 3)	(column 4)
A1/P1	7%	12%	20%
A2/P2	20%	20%	35%
A3/P3	75%	75%	75%
All other ratings or unrated	Deduction	Deduction	Deduction

Note that deduction means that the entire position is subtracted from total capital, which effectively is a dollar-for-dollar capital charge.

### **III. Details of the SWPS (continued)**

With respect to first-loss positions,

- the standardized approach requires a dollar-for-dollar capital charge.
- For banks approved for the IRB approach on the underlying assets in the pool, capital requirements for securitization tranches, whether first-loss or more senior claims, are to be determined under the SFA.
- For banks that use the RBA, there is no maximum on total capital for a securitization.
- Under the SFA, total capital for a securitization may not exceed the capital requirement for the asset pool in the absence of the securitization.



### III. Details of the SWPS (continued)

#### The Supervisory Formula Approach (SFA)

SFA capital charge = [ S(L+T) - S(L) ] \* notional amount of securitized credit exposures,

where  $K(L) = (1-h)((1-\beta[L;a,b])L + \beta[L;a,b]c)$ ;

$$h = \left(1 - \frac{K_{IRB}}{LGD}\right)^N;$$

$\beta[L;a,b]$  is the cumulative beta distribution with parameters (a, b) evaluated at L;

$$a = c * g;$$

$$c = \frac{K_{IRB}}{1-h};$$

$$g = \frac{(1-c)c}{f} - 1;$$

$$S(L) = \begin{cases} L & \text{if } L \leq K_{IRB} \\ K_{IRB} + K(L) - K(K_{IRB}) + \left(\frac{d \cdot K_{IRB}}{\omega}\right) \left(1 - e^{-\frac{\omega(K_{IRB}-L)}{K_{IRB}}}\right) & \text{if } K_{IRB} < L < L^* \\ K_{IRB} + K(L^*) - K(K_{IRB}) + \left(\frac{d \cdot K_{IRB}}{\omega}\right) \left(1 - e^{-\frac{\omega(K_{IRB}-L^*)}{K_{IRB}}}\right) + (L - L^*) \text{Floor} & \text{if } L > L^* \end{cases}$$

$$f = \left(\frac{v + K_{IRB}^2}{1-h} - c^2\right) + \frac{(1-K_{IRB})K_{IRB} - v}{(1-h)\tau};$$

$$v = \frac{(LGD - K_{IRB})K_{IRB} + 0.25(1-LGD)K_{IRB}}{N};$$

$\tau$  is a regulatory parameter set to 1000;

$$b = (1-c)g;$$

$$d = 1 - (1-h)(1-\beta[K_{IRB};a,b]);$$

$\omega$  is a regulatory parameter set to 20;

$$L^* \text{ solves the non-linear equation } \text{Floor} = (1-h)(1-\beta[L^*;a,b]) + de^{\frac{\omega(K_{IRB}-L^*)}{K_{IRB}}};$$

and Floor is a regulatory parameter set to 0.0056 (the lowest capital charge applicable under the RBA).

### **III. Details of the SWPS (continued)**

#### **The Supervisory Formula Approach (SFA)**

Risk weights are a function of five variables:

- (1) the IRB capital charge were the underlying securitized assets held directly on the bank's balance sheet, commonly referred to as  $K_{IRB}$ ;
- (2) the position's credit enhancement level; i.e., notional amount of all subordinate positions divided by total notional amount;
- (3) the "thickness" of the position; i.e., percent of the securitization it encompasses;
- (4) the effective number of loans in the asset pool, which is a function of its granularity;
- (5) a weighted average LGD for the pool's assets.

### **III. Details of the SWPS (continued)**

#### **The Supervisory Formula Approach (SFA)**

What is the marginal impact? Roughly speaking,

- an increase in  $K_{IRB}$  would increase the risk weights for all securitization positions
- an increase in credit enhancement level should decrease a position's calculated risk weight
- an increase in its thickness may either increase or decrease its risk weight depending on whether more junior or more senior positions are encompassed by the increase

### **III. Details of the SWPS (continued)**

#### **The Supervisory Formula Approach (SFA)**

What is the marginal impact? Roughly speaking,

- an increase in the pool's effective number of loans should decrease the securitization risk weights since the pool should be less concentrated and hence more diversified
- an increase in the pool's weighted average LGD should increase the securitization risk weights

### **III. Details of the SWPS (continued)**

With respect to third-party credit enhancements,

- a bank providing credit enhancement must calculate a capital requirement on the covered position as if it were an investor.
- The risk weights under the standardized approach are then just the ones for the underlying asset pool and the loss position implied by the specific form of credit enhancement.
- For banks using the IRB approaches, the risk weights are determined using the SFA only.

### **III. Details of the SWPS (continued)**

Note on securitization of revolving lines of credit:

Credit card securitizations, especially in the U.S., have commonly been issued with some form of implicit support.

These risk weights are calculated in two parts.

- First, since off-balance sheet, convert to on-balance sheet credit equivalents
- Second, risk-weights determined by tranche characteristics

Eight possible cases based on type of control for early amortization payouts, whether lines are committed or not, and whether retail or not.

Leading case: uncommitted retail lines with controlled early amortization payouts

## **IV. Conclusion**

Basel II's Third Consultative Paper (CP3):

- released on April 29, 2003
- public comment period ends July 31, 2003
- adoption by year-end 2003
- implementation by year-end 2006

Current securitization component is quite detailed and comprehensive.

How will it evolve?

- CP3 is now out
- Industry response? ISDA, RMA, etc.
- National implementation rules?
- Actual practice?