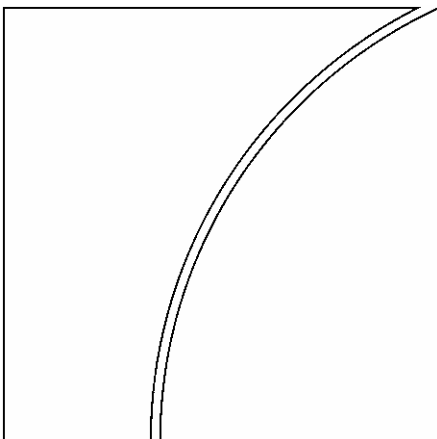Basel Committee
on Banking Supervision

Modifications to the capital
treatment for expected and
unexpected credit losses
in the New Basel Accord

30 January 2004

BANK FOR INTERNATIONAL SETTLEMENTS

Table of contents

Modifications to the capital treatment for expected and unexpected credit losses in the New Basel Accord

Introduction

In its 11 October 2003 press release, the Basel Committee on Banking Supervision (the Committee) announced its intention to move to a UL-only risk weighting construct. The Committee requested comments on this revision, and received 52 comment letters. Respondents generally welcomed the Committee's solution and agreed that it will align regulatory capital more closely with the concepts underpinning banks' economic capital modelling processes. Many commenters, however, requested the Committee to provide more detailed information on the new framework.

Responding to such requests, the Committee, at its meeting on 14 and 15 January 2004, took decisions on a number of questions arising from the move to the UL-only construct. The purpose of this paper is to provide information on the concrete modifications that have been decided. In summary, for the IRB approach, expected losses will be removed from the risk weight functions. However, banks will be required to compare their actual provisions with expected losses. Any shortfall should be deducted equally from Tier 1 and Tier 2 capital and any excess will be eligible for inclusion in Tier 2 capital subject to a cap. Therefore, the current treatment of general provisions will be withdrawn from the IRB approach. The Committee is not intending to make any related changes to the standardised approach. Where banks are partly on the standardised approach and partly on the IRB approach, an element of general provisions may be retained in Tier 2 capital.

Issues relating to securitisations are discussed in a separate paper. It should also be noted that a number of components remain subject to change depending on the Committee's decision on calibration or other reviews.

1. Revisions to the risk weight functions

As a result of the decision to focus solely on UL in the risk weights, the EL portion will now be removed from the risk weight functions. Accordingly, IRB risk weight functions are to be adjusted in the following manner.

Corporate portfolio – removal of EL from the risk weight function and a change in the way to express the maturity adjustment

Under the Committee's third consultative paper (CP3), maturity effects are accounted for by multiplying the sum of "one-year EL" and "one-year UL" by a maturity adjustment factor calibrated to produce the amount equal to the sum of "one-year EL" and "UL with the longer maturity". Under a UL-only approach, the task is simpler and requires only transforming "one-year UL" to the "longer maturity UL". This necessitates a change in the maturity adjustment function from:

$$b\,(PD) = (0.08451 - 0.05898 \times \log\,(PD))^2$$

in CP3 to:

$$b\,(PD) = (0.11852 - 0.05478 \times \log\,(PD))^2$$

This is not a change in the substance of the maturity adjustment, but the same adjustment in substance expressed on a different base.

Then, together with the deduction of LGD×PD, the capital requirement can be denoted by:

$$\text{Capital requirement (K)} = \text{LGD} \times (N [(1 - R)^{-0.5} \times G (PD) + (R / (1 - R))^{0.5} \times G (0.999)] - PD) \times (1- 1.5 \times b(PD))^{-1} \times (1 + (M - 2.5) \times b (PD))$$

Supervisory slotting criteria approach for specialised lending

Since the supervisory slotting criteria approach directly provides the risk weights, there is now a need to decompose those into the UL portion and EL portion.

The assumptions used to develop the original risk weights are used to deduce the EL and UL portions of this portfolio. This results in the risk weights proposed in CP3 broken down as follows.

For SL exposures except for HVCRE:

CP3

Category	Strong	Good	Satisfactory	Weak	Default
Risk weights	75%	100%	150%	350%	625%

New risk weights

Category	Strong	Good	Satisfactory	Weak	Default
UL portion	70%	90%	115%	250%	0%
EL portion	5%	10%	35%	100%	625%

For HVCRE:

CP3

Category	Strong	Good	Satisfactory	Weak	Default
Risk weights	100%	125%	175%	350%	625%

New risk weights

Category	Strong	Good	Satisfactory	Weak	Default
UL portion	95%	120%	140%	250%	0%
EL portion	5%	5%	35%	100%	625%

At national discretion, supervisors may allow banks to apply lower risk weights:

CP3

Category	Non-HVCRE Strong	Non-HVCRE Good	HVCRE Strong	HVCRE Good
Risk weights	50%	75%	75%	100%

New risk weights

Category	Non-HVCRE Strong	Non-HVCRE Good	HVCRE Strong	HVCRE Good
UL portion	50%	70%	70%	95%
EL portion	0%	5%	5%	5%

8% of the risk-weighted assets calculated from the above EL risk weights will be included in the overall EL of the bank.

Residential retail exposures

A change will be made in the capital requirement formula to remove the EL portion as follows:

Capital requirement (K) = LGD × (N[(1 - R)^-0.5 × G(PD) + (R / (1 - R))^0.5 × G(0.999)] – PD)

Qualifying revolving retail exposures

The coefficient of the EL deduction in the risk weight function needs to be changed from 0.75 to 1.0 to fully remove the EL portion. Accordingly, the risk weight function can be expressed as follows:

Capital requirement (K) = LGD × (N[(1 - R)^-0.5 × G(PD) + (R / (1 - R))^0.5 × G(0.999)]-PD)

Other retail exposures – removal of EL from the risk weight function and a minor change in correlation

A change will be made to the capital requirement formula as follows:

Capital requirement (K) = LGD × (N[(1 - R)^-0.5 × G(PD) + (R / (1 - R))^0.5 × G(0.999)] - PD)

In addition, as a result of decomposing the original CP3 risk weight functions into EL and UL, the risk weight for "other retail" decreases as PD increases in certain PD zones. A modest adjustment to the correlations is needed to remove this effect. The correlation coefficients will now be changed from 0.02 to 0.17 in CP3 to 0.03 to 0.16.

Correlation (R) = 0.03 × (1 - EXP(-35 × PD)) / (1 - EXP(-35)) +

$$0.16 \times [1 - (1 - EXP(-35 \times PD))/(1 - EXP(-35))]$$

The table below sets out the risk weights on the two bases.

Table: Risk weights of other retail under CP3 and after the adjustment

PD	CP3 0.02 ≤ Rho ≤ 0.17	Revised 0.03 ≤ Rho ≤ 0.16	Difference from CP3
0.03%	4.80%	4.45%	-0.35%
0.05%	7.14%	6.63%	-0.51%
0.10%	11.98%	11.16%	-0.81%
0.25%	22.50%	21.15%	-1.35%
0.40%	30.03%	28.42%	-1.61%
0.50%	34.05%	32.36%	-1.69%
0.75%	41.79%	40.10%	-1.69%
1.00%	47.28%	45.77%	-1.51%
1.07%	48.52%	47.09%	-1.43%
1.50%	54.21%	53.37%	-0.84%
2.00%	57.95%	57.99%	0.04%
2.50%	59.90%	60.90%	1.00%
3.00%	60.80%	62.79%	2.00%
4.00%	61.00%	65.01%	4.01%
5.00%	60.44%	66.42%	5.98%
6.00%	59.89%	67.73%	7.84%
7.00%	59.68%	69.26%	9.58%
8.00%	59.92%	71.08%	11.16%
10.00%	61.70%	75.54%	13.85%
15.00%	70.43%	88.60%	18.17%
20.00%	79.83%	100.28%	20.45%

This has the effect of reducing the risk weights for lower PDs and increasing them for higher PDs. The overall impact is expected to be minimal.

Treatment of equity exposures under the PD/LGD approach

Under the PD/LGD approach, the risk weighting function for corporate loan exposures will be applied to the equity exposures. The portion of the capital charge that corresponds technically to the one-year EL-charge for corporate loans would be deducted 50% from Tier 1 and 50% from Tier 2. Provisions or write-downs for equity exposures (if any) will not be recognised as an offset for EL in determining provision excesses or shortfalls. Provisions made for assets other than equities would continue to not be available for offset against the EL on equity exposures. In addition, the same maturity adjustments that will be applied to corporate loans will also be applied to equity exposures (with a five year maturity as in CP3).

The CP3 regarded all capital charges on equity exposures as UL. The approach described here does not intend to change this characterisation, but is chosen just to reduce complexity by making the equity treatment similar to the treatment of corporate loans.

Other exposures

The risk weights for "other assets" will be kept at 100% and the whole amount will be treated as UL.

2.   Treatment of counterparty credit risk

If a bank holds credit revaluation reserves (reserves which account for the credit quality of the counterparty) for its exposures subject to counterparty credit risk and the amount is reflected as a reduction in the capital account on the bank's balance sheet, then the amounts are eligible to be included in the provision excess/shortfall assessment. Revaluation reserves, however, are sometimes built to cover model or liquidity risk or even administrative costs. Only the portion of the reserves explicitly covering the counterparty credit deterioration can be eligible to cover EL.

In addition, if the supervisor is satisfied that the credit risk of the counterparty is adequately taken into account in the assessment of the replacement cost of a trading book exposure, and the amount is reflected as a reduction in the capital account on the bank's balance sheet, then there should be no EL charge. Supervisors can choose to extend this treatment to a banking book exposure subject to counterparty credit risk (such as OTC derivatives). In both cases, if the supervisor is not satisfied, then there should be an EL charge.

3.   Calculation of provision excess or shortfall in the IRB approach

The Committee proposed in October 2003 that the recognition of excess provisions should be capped at 20% of Tier 2 capital components. Many commenters noted that this would provide perverse incentive to banks. The Committee accepted this point and has decided to convert the cap to a percentage (to be determined) of credit risk-weighted assets.

In order to determine provision excesses or shortfalls, banks will need to compare the IRB measurement of expected losses (EAD x PD x LGD) with the total amount of provisions that they have made, including both general, specific, portfolio-specific general provisions as well as eligible credit revaluation reserves discussed above. As previously mentioned, provisions or write-offs for equity exposures will not be included in this calculation. For any individual bank, this comparison will produce a "shortfall" if the expected loss amount exceeds the total provision amount, or an "excess" if the total provision amount exceeds the expected loss amount.

Shortfall amounts, if any, must be deducted from capital. This deduction would be taken 50% from Tier 1 capital and 50% from Tier 2 capital, in line with other deductions from capital included in the New Accord.

Excess provision amounts, if any, will be eligible as an element of Tier 2 capital. The Tier 2 eligibility of such excess amounts is subject to limitation at supervisory discretion, but in no

case would be allowed to exceed a percentage (to be determined) of credit risk weighted assets of a bank.

The existing cap on Tier 2 capital will remain, Thus, the amount of Tier 2 capital, including the amount of excess provisions, must not exceed the amount of Tier 1 capital of the bank.

4.   Treatment of a hybrid between the standardised and IRB approaches

Banking groups which are partly on the standardised approach and partly on IRB, either on a transitional basis during roll-out (as described in CP3, para 226-227), or on a permanent basis if the part on the standardised approach is immaterial (CP3, para 228), should follow the steps described below to calculate the regulatory capital ratios.

The first step would be identifying the amount of general provisions for the standardised part and for the IRB part. The next step would be to calculate how much of those would fall under the limits.

More concretely:

- General provisions would be split proportionately based on credit risk weighted assets calculated under the standardised approach and the IRB approach. However, if both the choice of approach and establishment of general provisions are on an entity-by-entity basis, the booking location of general provisions should be used. If a bank has a transparent internal allocation methodology that meets transparent supervisory standards that are determined at national discretion, the banks may be allowed to apply such internal methodology in lieu of the proportional risk weighted asset approach.

- Once the allocation of the general provision has been determined, the amount of general provisions that can be included in Tier 2 capital for the portion of the institution on the standardised approach is limited to 1.25% of the risk weighted assets that were calculated under the standardised approach.

- Provisioning "shortfall" or "excess" for the portion of the bank under the IRB approach would be calculated as (1) the general provisions allocated to that portion of the bank, plus (2) all other provisions established within that portion of the bank, minus (3) the EL charge for the IRB portion of the institution. The amount of excess provisions included in Tier 2 capital for the part of the bank on the IRB approach must not exceed a percentage (to be determined) of credit risk weighted assets determined under the IRB approach.

The final expression of the capital ratio would then become:

Tier I + Tier II (without GP) + *GP for Std part* +(-) *excess (shortfall) for IRB part*
-->=8%
Credit RWA for Std part + Credit RWA for IRB part + Market RWA + Operational RWA

The Committee is also interested in ensuring that the combination of the limits mentioned above for a bank partly on the standardised approach and partly on the IRB approach does not provide an adverse incentive against finishing its planned transition to the IRB approach. For example, the Committee may consider imposing an overall cap on the amount of general provisions and excess provisions allowable in Tier 2 capital for the whole banking organisation.

6