

BASEL II

Regulatory impact on treasury instruments

ECB MMCG, Meeting on 04.12.2007

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Introduction – Regulatory structure

	Solvency regulations	Large exposure regulations
International framework	<p>BASEL II International convergence of the capital evaluation and equity requirements of the Basel Committee on Banking Supervision (26.06.2004)</p>	<p>None</p>
EU law	<p>EU Capital Requirement Directive (CRD) Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions – recast (EU banking directive; previously 2000/12/EC) and Directive 2006/49/EC of the Council of 14 June 2006 on the capital adequacy of investment firms and credit institutions – recast (capital adequacy directive; previously 93/6/ECC) – EU Official Journal from 30 June 2006</p>	
National law	<p>Solvency Regulation (SolvV; 14.12.2006) and Minimum Requirements of Risk Management (MaRisk; 20.12.2005)</p> <p>According to a letter from BaFin dated 28.05.2007, the application of SolvV and the approval of the risk valuation procedure means that from 2007 onwards the BIZ report will no longer need to be prepared.</p>	<p>German Banking Act (KWG; 17.11.2006)</p> <p>Large Exposure and Million Loans Regulation (GroMiKV; 14.12.2006)</p>

Introduction – Depiction of quota/credit amount 1/2

1.) Equity requirements for default risks and operational risks

$$\begin{array}{|c|} \hline \text{Credit amount} \\ \hline \text{for default risks} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Credit amount for} \\ \hline \text{operational risks} \\ \hline \end{array} \leq \begin{array}{|c|} \hline \text{Available} \\ \hline \text{modified equity} \\ \hline \end{array}$$

2.) Equity requirements for market risks

$$\begin{array}{|c|} \hline \text{Credit amount for} \\ \hline \text{market risk positions} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Credit amount for} \\ \hline \text{option price risks} \\ \hline \end{array} \leq \left[\begin{array}{|c|} \hline \text{Available} \\ \hline \text{modified equity} \\ \hline \end{array} - \begin{array}{|c|} \hline \sum \text{Credit amounts} \\ \hline \text{for default risks} \\ \hline \text{and operational} \\ \hline \text{risks} \\ \hline \end{array} \right] + \begin{array}{|c|} \hline \text{Available tier} \\ \hline \text{3 funds} \\ \hline \end{array}$$

3.) Overall ratio

$$\begin{array}{|c|} \hline \text{Eligible own funds} \\ \hline \end{array} = 12.5 * \left[\begin{array}{|c|} \hline \sum \text{Credit amounts for} \\ \hline \text{default risks and} \\ \hline \text{operational risks} \\ \hline \end{array} + \begin{array}{|c|} \hline \sum \text{Credit amounts for} \\ \hline \text{market risk positions} \\ \hline \text{and option risks} \\ \hline \end{array} \right] = \text{Overall ratio}$$

The **eligible own funds** are defined as:

$$\begin{array}{|c|} \hline \text{Available modified equity} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{For securing the credit amounts for market} \\ \hline \text{risk positions and option transactions,} \\ \hline \text{utilised tier 3 funds} \\ \hline \end{array}$$

Introduction – Depiction of quota/credit amount 2/2

4.) Core capital ratio

The core capital ratio is not used to assess the adequacy of an institution's own funds (§ 2 SolvV). It is, however, required as a further quantitative indicator within the framework of disclosure (§ 325 SolvV).

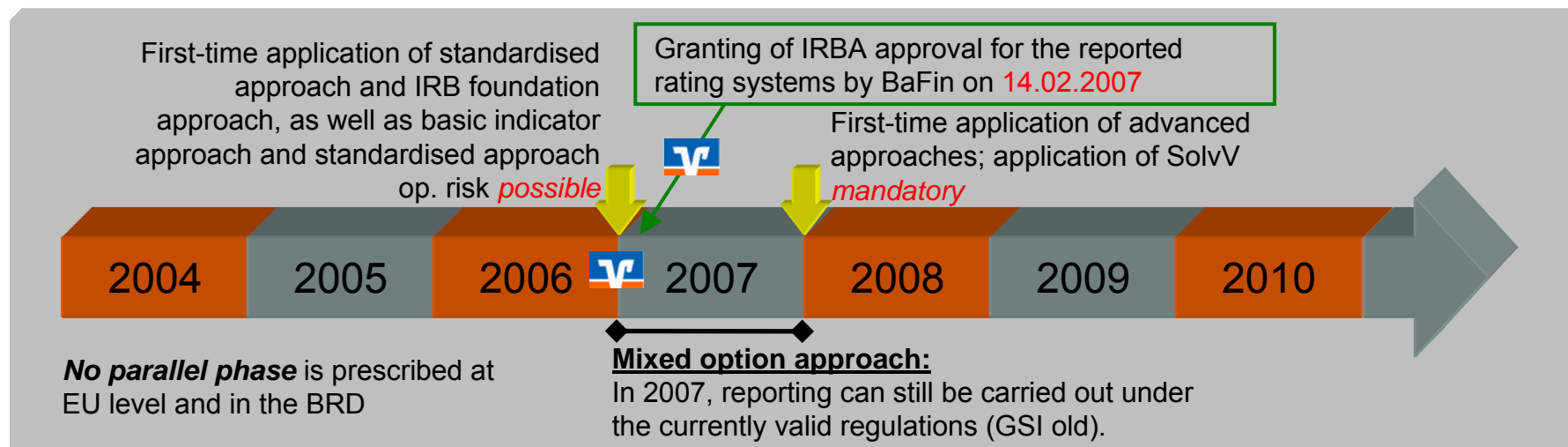
$$\begin{array}{c} \text{Core capital} \\ \hline 12.5 * \left[\begin{array}{l} \sum \text{Credit amounts for} \\ \text{default risks and} \\ \text{operational risks} \end{array} + \begin{array}{l} \sum \text{Credit amounts for} \\ \text{market risk positions} \\ \text{and option risks} \end{array} \right] = \text{Core capital ratio} \end{array}$$

Introduction – Principles and time schedule

SolvV remains true to the basic rule: equity ratio $\geq 8\%$

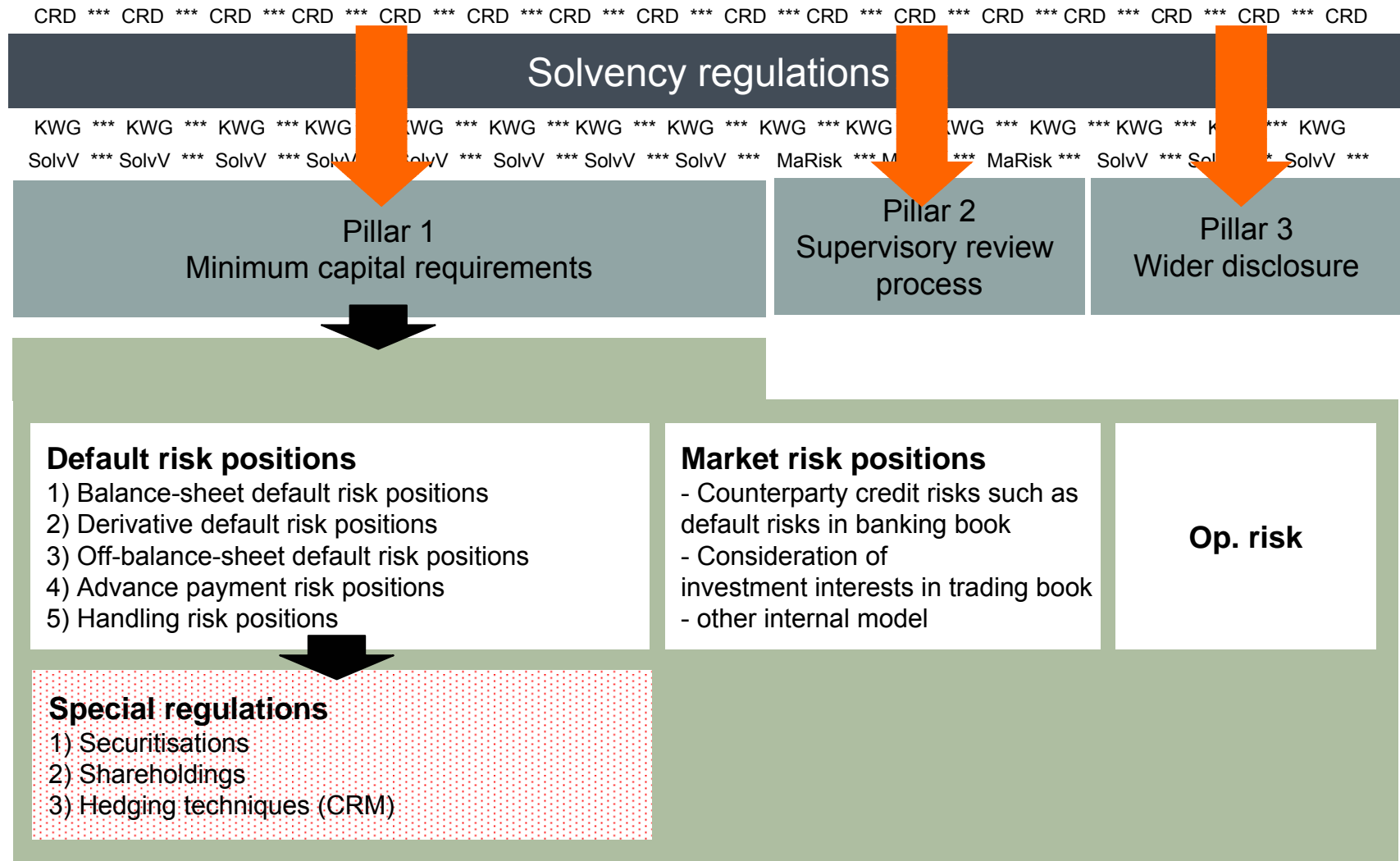
$$\frac{\text{equity}}{\text{risk - weighted position value}} \geq 8\%$$

SolvV is concerned mainly with ascertaining the risk-weighted position value. In addition to the overall credit amount for default risks, this value also encompasses the credit amounts for market risks and the operational risk.

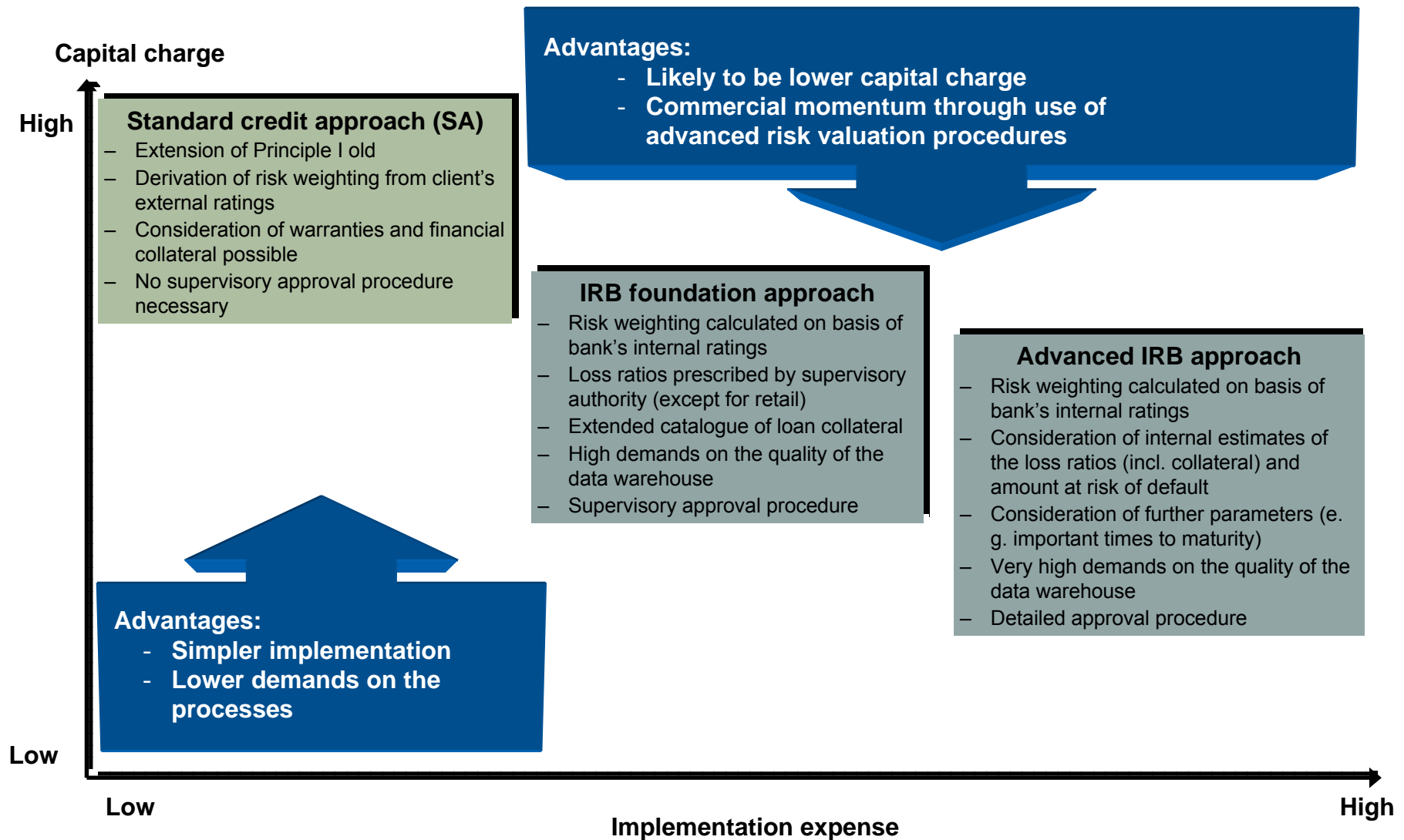


The report in accordance with SolvV must be submitted by the AG and the group on each reporting cut-off date in each Bundesbank calendar quarter. The submission deadline for the AG is the 15th business day in the subsequent month, for the group the last business day of the subsequent month.

Solvency regulations – Three-pillar model



Different approaches under SolvV – Credit risk



Treasury trading instruments: New vs. old solvency regulatory impacts

Assumption: IRB Bank

Open-market operations

Unsec. assets (depot)

Sec. assets (liqui-reserve)

→ Governments

→ Banks, corporates

→ Securitisation position (ABS)

Repo/Sec. lending

→ Bilateral repos

→ Tri-party repos

Central counterparty

Liquidity provider

→ Credit facilities

→ Facilities as securitisation position

	banking book		trading book	
	GSI old	SolvV	GSI old	SolvV
Open-market operations	0% RW	0% RW	0% RW	0% RW
Unsec. assets (depot)	Depends on the customer group (0%, 20%, 50%, 100%)	Depends on the internal rating (PD, LGD, M)	Internal market risk model or standard procedure	Internal market risk model or standard procedure
Sec. assets (liqui-reserve)	Depends on the customer group (0%, 20%, 50%, 100%)	Depends on the internal rating (PD, LGD, M)	Internal market risk model or standard procedure	Internal market risk model or standard procedure
→ Governments	Depends on the customer group	Depends on the external issue rating	See above	If worse than BB-, regulated as with banking book
→ Banks, corporates				
→ Securitisation position (ABS)				
Repo/Sec. lending	Backing the repo object or the counterparty credit risk	Included using CRM techniques (incl. haircuts)	Backing positive difference with corresponding credit weighting	Included using CRM techniques (incl. haircuts)
→ Bilateral repos	0% RW	0% RW	0% RW	0% RW
→ Tri-party repos				
Central counterparty	0% RW	0% RW	0% RW	0% RW
Liquidity provider	Orig. time to mat. <1y. → 0% CCF >1y. → 50% CCF	75% CCF		
→ Credit facilities		100% CCF		
→ Facilities as securitisation position				



Treasury trading instruments: New vs. old solvency regulatory impacts

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banking book

Component unchanged

Component **changed**

Complexity ++

Cost of equity -/+

Component **changed**

Complexity ++

Cost of equity -/+

Component **changed**

Complexity +++

Cost of equity ++

Component **changed**

Complexity ++

Cost of equity +

Component unchanged

Complexity

Cost of equity 0.00 €

Component **changed**

Complexity (+++)

Cost of equity ++

trading book

Component unchanged

Component unchanged

Complexity ++

Cost of equity -

Component unchanged

Complexity unchanged

Cost of equity unchanged

Component **< BB-/chang.**

Complexity +++

Cost of equity ++

Component **changed**

Complexity ++

Cost of equity +

Component unchanged

Complexity

Cost of equity 0.00 €

Calculation of the RWA under SA and IRBA for banking book transactions

Calculation of the risk-weighted assets (RWA):

SA: $RWA = \text{position value}^* \times RW$

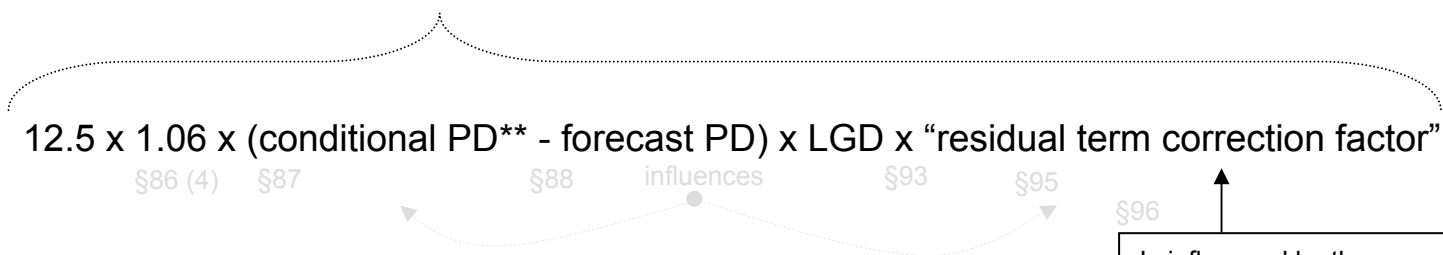
§24 §48 §26ff

Overall: Depends on borrower and its external rating

IRBA: $RWA = \text{position value}^* \times RW$

§84 §99 §85

Individual: Depends on a diversity of variables within a *risk weighting function*



Is influenced by the "decisive residual term":
 5 y. with shareholdings
 0.5 y. with repo/loan
 1 y. with verity risk
 2.5 y. with other

* Position value = calculation basis x conversion factor
 §49/§100 §50/§101

** incl. the economic correlation and incl. the correlation deduction for SMEs
 §89f §91

NEW: Change in the treatment of lending commitments

Under **SA**, open commitments must be taken into account with the following conversion factors:

- immediately callable credit lines 0%
- not immediately callable credit lines with an original term to maturity of no more than 1 year 20%
- not immediately callable credit lines with an original term to maturity of more than 1 year 50%

After calculation with the relevant conversion factor, the credit-related risk weighting is carried out.

Under **FIRB**, open commitments must be taken into account with the following conversion factors:

- 0% if the institution has granted the credit line as non-binding or if the institution has an unconditional right of cancellation without notice or
 - a deterioration in the debtor's creditworthiness leads directly to the cancellation of the credit line that was granted, and if the institution actively monitors the debtor's
 - financial situation and the internal control and monitoring systems make it possible for the institution to recognise a deterioration in the debtor's creditworthiness situation immediately,
- otherwise 75%

After calculation with the relevant conversion factor, the credit-related RWA calculation is carried out; the self-assessed probability of default (PD) must be taken into account.

Overview: Percentage capital relief for each hedging instrument

The following table represents, in simplified form, the percentage capital relief of the various hedging instruments under IRBA.

- Financial collateral and guarantees lead to very high regulatory relief.
- Assignments of receivables and charges on property lead to medium regulatory relief.
- Asset collateral lead to low regulatory relief.

Supervisory collateral category	Deductions from the value of the collateral and/or the guarantee	CRM technique	Percentage RWA reduction [before] and after consideration of the fluctuation factors
Guarantees	→ Adjustment due to currency mismatch: 8% (→ Adjustment due to term mismatch, possibly up to 99.98%)	Substitution of the guaranteed part of the receivable with the risk weighting of the guarantor	[0% to 100%] 0% to 100% (Extent of relief effect depends on the PD of the borrower and guarantor)
Financial collateral	→ Adjustment due to value fluctuation: $25\% \times \sqrt{2}^{**} = 35.25\%^{***}$ → Adjustment due to currency mismatch : $8\% \times \sqrt{2}^{**} = 11.3\%$ (→ Adjustments due to term mismatch, possibly up to 99.98%) * maximum with shares ** possibly plus adjustment in the event of non-daily revaluations *** with a liquidation period of 20 days.	Reduction in the LGD for the secured part of the receivables from 45% to 0%	[100%] 53.5% to 100% (Extent of relief effect depends on the deduction)
Assigned receivables	→ Adjustment due to overcollateralisation level: $1 - 1/1.25 = 20\%$	Reduction in the LGD for the secured part of the receivables from 45% to 35%	[22.2%] 17.8%
Recognised charges on property	→ Adjustment due to overcollateralisation level: $1 - 1/1.4 = 28.6\%$	Reduction in the LGD for the secured part of the receivables from 45% to 30%	[33.33] 23.8%
Asset collateral	→ Adjustment due to overcollateralisation level : $1 - 1/1.4 = 28.6\%$	Reduction in the LGD for the secured part of the receivables from 45% to 40%	[11.1%] 7.9%

Bilateral repo transaction

- In order to ascertain the equity requirement for repo transactions, detailed information about the underlying factors for determining the relevant regulatory haircut are required.
- If no detailed information about the underlying factors is available, a “worst-case haircut” must be used, which in turn leads to a higher cost of equity (exercise care with basket trades).

DZ BANK Treasury										RWA Calculator Repos				DZ BANK = Pensionsge	
Marktwert des in Pension gegebenen Wp		11,000,000 €													
Erhaltener Geldbetrag		10,000,000 €													
Whg erhaltener Geldbetrag = Whg gegeb. Wp?		1													
Underlying eines Pensionsgeschäftes Emittent nach § 155 Satz 1 Nr. 7 bis 13 (Unternehmen und Rest)										erhaltene Sicherheit					
Schuldverschreibung															
maßgebliche Bonitätsbeurteilung		Restlaufzeit	regulatorischer Wertschwankungsfaktor	Hc	BMG _A	C _A	BMG _{unbesichert}	BMG _{besichert}	gewichtete LGD _{EMG}	RW					
langfristig	Ratingnote														
	AAA bis AA-	bis 1 Jahr	1%	0.71%	11,077,782 €	10,000,000 €	1,077,782 €	10,000,000 €	4.3781%	1.5478%					
		1 J bis 5 J	4%	2.83%	11,311,127 €	10,000,000 €	1,311,127 €	10,000,000 €	5.2162%	1.8441%					
		> 5 J	8%	5.66%	11,622,254 €	10,000,000 €	1,622,254 €	10,000,000 €	6.2812%	2.2206%					
	A+ bis BBB-	bis 1 Jahr	2%	1.41%	11,155,563 €	10,000,000 €	1,155,563 €	10,000,000 €	4.6614%	1.6480%					
		1 J bis 5 J	6%	4.24%	11,466,690 €	10,000,000 €	1,466,690 €	10,000,000 €	5.7559%	2.0349%					
> 5 J		12%	8.49%	11,933,381 €	10,000,000 €	1,933,381 €	10,000,000 €	7.2907%	2.5775%						
kurzfristig	BB+ bis BB-	alle	15%	10.61%	12,166,726 €	10,000,000 €	2,166,726 €	10,000,000 €	8.0139%	2.8332%					
	A-1	bis 1 Jahr	1%	0.71%	11,077,782 €	10,000,000 €	1,077,782 €	10,000,000 €	4.3781%	1.5478%					
	A-2 bis A-3	bis 1 Jahr	2%	1.41%	11,155,563 €	10,000,000 €	1,155,563 €	10,000,000 €	4.6614%	1.6480%					
Akte															
in gängigen Aktienindex einer Wertpapier- oder Terminbörse einbezogen			15%	10.61%	12,166,726 €	10,000,000 €	2,166,726 €	10,000,000 €	8.0139%	2.8332%					
an einer Wertpapier- oder Terminbörse gehandelt			25%	17.68%	12,944,544 €	10,000,000 €	2,944,544 €	10,000,000 €	10.2363%	3.6189%					

Central counterparty (1/2)

- In accordance with § 1 para. 31 KWG, no own funds are to be deposited for SA and IRBA positions vis-à-vis central counterparties that are set up by means of a closed transaction or collateral furnished for the purpose (§ 49 para. 2 no. 7 and § 100 para. 10 SolvV)
- A central counterparty is a company which, in contracts of sale within one or more financial markets, acts as an intermediary between the buyer and the seller to serve as contracting partner for both of them, and whose receivables from counterparty default risks vis-à-vis everyone involved in its systems are sufficiently collateralised on a day-to-day basis.

- At present, the following business partners are approved as central counterparties:
 - EUREX AG (including Eurex GC Pooling)
 - LCH Clearent

Central counterparty (2/2)

- The following companies have been earmarked for audits in respect of their classification as central counterparties:
 - SIS Swiss Financial Services Group AG (Switzerland),
 - Japan Government Bond Clearing Corporation (Japan),
 - Keler Central Depository and Clearing House (Hungary),
 - Natural Gas Exchange Inc. (Canada),
 - Tel Aviv Stock Exchange Ltd. (Israel),
 - Canadian Depository for Securities Limited (Canada),
 - Moscow Interbank Currency Exchange (Russia),
 - Bolsa de Mercadorias & Futuros (Brazil),
 - LCH.Clearnet (United Kingdom),
 - Tokyo Financial Exchange Inc. (Japan),
 - Taiwan Stock Exchange Corporation (Taiwan/Republic of China),
 - Mercado a Termino de Rosario S.A. (Argentina),
 - Fixed Income Clearing Corp (USA)

- The audit is carried out in three stages:
 1. Checking the correct name of the company involved,
 2. Audit for criterion 1, i.e. identification of the types of transactions for which the company operates as a central contracting partner,
 3. Audit for criterion 2, i.e. identification of the types of transactions for which the company operates as a central contracting partner and is sufficiently collateralised.