Recent Developments on the Implementation of Operational Risk Capital Requirements in Europe

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Bank of Italy

Seminar on practical techniques for the management and measurement of operational risk
FSI, Basel - 24 October 2006

Agenda

- **EU Capital Requirement Directive**
  - **Transitional arrangements**
- **Guidelines on the implementation, validation and assessment of AMA and IRB approaches" (CEBS-GL10)**
  - **Governance issues**
  - **Data issues**
  - **Quantitative issues**
- **The current and future activity on op risk inside the EU:**
  - **The CRD Transposition Group and its outcomes (focus on simpler approaches)**
  - **The SON and NOVI-O**

The transposition of the new Basel Accord in the EU

14 July 2004
Commission's proposal for a Directive amending Directives 2000/12/EC & and 93/6/EC on the capital adequacy of banks and investment firms

14 June 2006
Council and European Parliament formally signed Directives 2006/48/EC and 2006/49/EC

Member States are to apply the Directive from the start of 2007, with the most sophisticated approaches being available from 2008

but...

Transitional arrangements

CRD, art. 152, Par. 8. **Until 1 January 2008** credit institutions may treat the Articles constituting the Standardised Approach set out in Title V, Chapter 2, Section 3, Subsection 1 **as being replaced** by Articles 42 to 46 of Directive 2000/12/EC as those Articles stood prior to 31 December 2006.

CRD, art. 152, Par. 11: Where the discretion referred to in paragraph 8 is exercised, the **capital requirement for operational risk under Article 75(d) shall be reduced by the percentage representing the ratio** of the value of the credit institution's exposures for which risk weighted exposure amounts are calculated in accordance with the discretion referred to in paragraph 8 to the total value of its exposures.

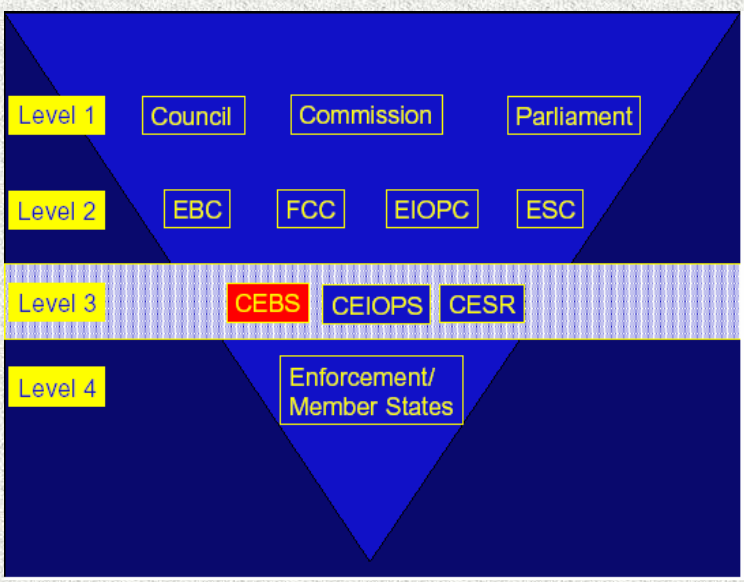
EU CRD: transitional arrangements

During 2007

Credit Risk	Op risk
100% Basel 2 (New Standard and/or F-IRB)	**100% capital requirement** (BIA or TSA)
70% Basel 2 (New Standard and/or F-IRB) **30% Basel 1** (Old Standard)	**30% capital requirement** (BIA or TSA)
100% Basel 1 (Old Standard)	**No op risk requirements**

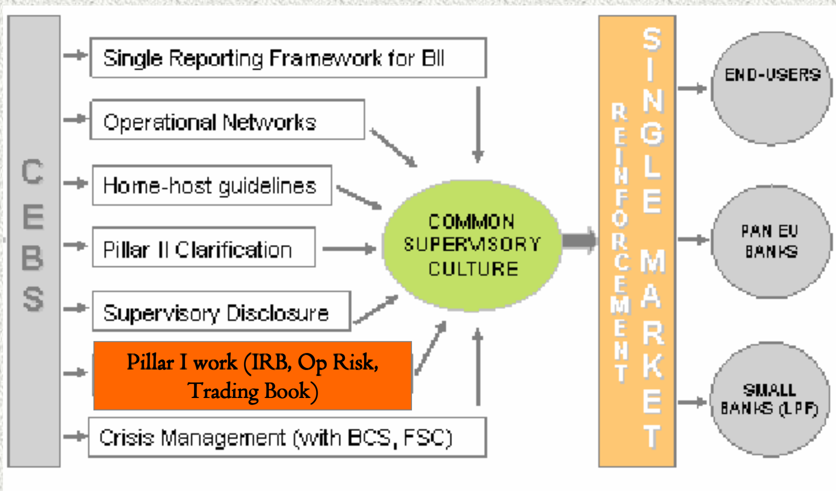
Just to remind:

The EU structure



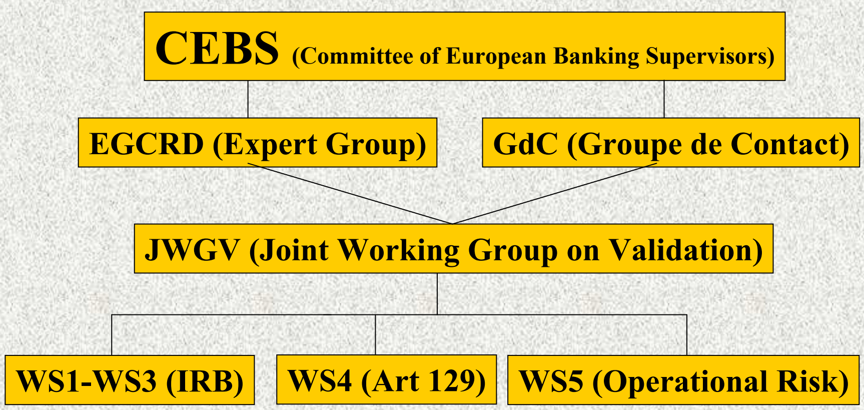
Just to remind:

The CEBS topics in agenda



Just to remind:

The CEBS structure relevant to operational risk



The objectives of the AIG and CEBS

Basel Committee AIG OR	CEBS JWGV – WS5
Sharing experiences for consistent interpreatation/implementation of the new regulation/regime	Sharing experiences for consistent interpreatation/implementation of the new regulation/regime
Identification of a "range of practices" in the AMA frameworks	Identification of "best practices" in the op risk approaches (BIA/TSA-ASA/AMA) → definition of pertinent guidelines

"Guidelines on the implementation, validation and assessment of AMA and IRB approaches" (CEBS-GL10)

1. CP10_1 – "Validation I" (produced in the first-half 2005)
   - 1st "Technical hearing" on op risk held in March
   - In consultation from July to October
   - 1st "Public Hearing" held on October 6
   - Incorporation of comments from industry
2. CP10_2 - "Validation II" (produced in the second-half 2005):
   - 2st "Technical hearing" on op risk (21 October 05)
3. CP10 final (CP10_1+CP10_2)
   - In consultation from February to March 2006
   - 2nd "Public Hearing" held on 1 March 2006
   - Incorporation of comments from industry
4. GL10 (Guidelines)
   - CEBS endorsed the document (22 of March 2006)
   - Guidelines and CP10 feedback table published on the CEBS website (4 of April) **www.cebs.org**

"Guidelines on the implementation, validation and assessment of AMA and IRB approaches" (CEBS-GL10)

Op risk relevant topics addressed in the guidelines

1. Co-operation procedure envisaged by art 129 CRD (common to IRB)
2. Partial use combinations
3. TSA: Simpler approaches topics
4. AMA: Governance issues
5. AMA: Data issues
6. AMA: Quantitative issues

GL10 - Partial Use combinations

Table 1

GROUP WIDE basis: Partial use combinations and "Consolidated capital requirement"

	Group level approach		
Subsidiary/Business line level approach	*Group uses BIA*	*Group uses TSA (or ASA)*[20]	*Group uses AMA*[21]
Subsidiary locally uses BIA	-	Partial use acceptable	Partial use acceptable
Subsidiary/business line locally uses TSA (or ASA)	Partial use not acceptable	-	Partial use acceptable
Subsidiary/business line locally uses AMA	Partial use acceptable	Partial use acceptable	-

Table 2

LEGAL ENTITY basis: Partial use combinations and "Solo capital requirement"

	Legal entity level approach		
Business Line/Branch approach	*Legal entity uses BIA*	*Legal entity uses TSA (or ASA)*	*Legal entity uses AMA*
Branch uses BIA	-	Partial use not acceptable	Partial use acceptable[22]
Business Line/Branch uses TSA (or ASA)	Partial use not acceptable	-	Partial use acceptable
Business Line/Branch uses AMA	Partial use not acceptable	Partial use not acceptable	-

GL10 - Governance issues

Regulators

High requirements on governance

↓

Institution

Assumption of responsaibilities in the op risk management and measurement processes

↓

Adequate awareness of Board of Directos and Senior Management on positive/negative consequences of op risk

↓

High "committment" of Board of Directors and Senior Management

↓

Common target for Regulators and Institution

Sound governance for the effective management and measurement of op risk

GL10 – Governance issues

Both the CRD and, mainly, the CEBS_GL10 require to the board of directors and senior management adequate understanding in terms of op risk and assign them specific responsabilities in terms of approval and implementation of the AMA framework.

At the current stage, the level of board of directors and senior management understanding and oversight of AMA models is generally low:

- The major gaps are in the understanding of models and related quantitative elements;
- The level of commitment on op risk within the organisation is generally low
- Key elements of operational risk management and measurement are usually delegated to sub committee

GL10 - Governance issues

Top management should realise that, given the pervasive nature of op risk, an effective op risk framework could increase the efficiency/efficacy of all the firm's processes and improve the quality of the internal control system

The following actions constitute good practices of effective involvement of top management on op risk:

- Development and communication of comprehensive, board-approved policies outlining all aspects of the bank's AMA framework, with the allocation of sufficient staff resources to effectively implement the policy;
- Development and implementation of comprehensive management reporting programmes
- Define risk appetite and tolerance
- Annual review by the full board of directors of the effectiveness of the AMA framework

GL10 - Data issues

Data are yes an input of the model …..
… but, above all, they are an output of the data collection process

Data cleaning

$$Y = f(X_1, X_2, X_3, \dots)$$

Data quality

Data identification

Data classification

GL10 – Data issues

Internal data: Identification and Classification

- Decision trees
- Procedures to collect data
- Average time to capture the losses
- Cross checking with GL

Boundaries (not addressed in GL-10)

Survey on the state of implementation of op risk in Italy

(about 30 banking groups/individual institutions - year 2005)

Procedures to collect internal data		
	Manual procedures	Automatic procedures
In the parent undertaking	73%	27%
In the whole group	71%	29%

Survey on the state of implementation of op risk in Italy
(about 30 banking groups/individual institutions - year 2005)

Average time between loss occurrence and capture	
	n. of days
Globally on the 7 ETs	150
Internal Fraud	247
External Fraud	27
Employment Practices and Workplace Safety	158
Clients, Products & Business Practices	155
Damage to Physical Assets	185
Business disruption and system failures	144
Execution, Delivery & Process Management	104

GL10 – Data issues

Boundaries

EU CRD [Par. 673 (5)]: Annex X, Part 3, 14: … The operational risk losses that are related to credit risk and have historically been included in the internal credit risk databases must be recorded in the operational risk databases and be separately identified. Such losses will not be subject to the operational risk charge, as long as they continue to be treated as credit risk for the purposes of calculating minimum capital requirements. Operational risk losses that are related to market risks shall be included in the scope of the capital requirement for operational risk.

Basel Accord [Par. 673 (5)]: Operational risk losses that are related to credit risk and have historically been included in banks' credit risk databases (e.g. collateral management failures) will continue to be treated as credit risk for the purposes of calculating minimum regulatory capital under this Framework. Therefore, such losses will not be subject to the operational risk capital charge.

Nevertheless, for the purposes of internal operational risk management, banks must identify all material operational risk losses consistent with the scope of the definition of operational risk (as set out in paragraph 644 and the loss event types outlined in Annex 9), including those related to credit risk.

The Basel Accord provides specific relevance to the op risk management aspects

GL10 - Data issues

Critical element: quality of the data

Industry put too much emphasis on how the data are managed to get capital figures instead of how they are identified, cleansed, classified, etc..

The most perfect model built on inconsistencies data will provide perfect **but inconsistent** results

GL10 - Governance and Data issues

The quality of the data is at same time cause and effect of the quality of the governance/management components, such as:

- Effectiveness of use test
- Appropriateness of the follow-up actions
- Relevance of the reporting schema to BLs and senior management/board of directors
- Efficacy of the staff training
- Timeliness of the communication channel
- ……

The quality of the data and of the governance/management components represents the most important driver to make the op risk framework work in practice and ensure that the model is built on solid and sound basis.

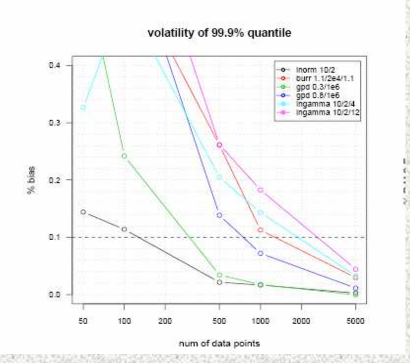
GL10 – Quantitative issues

Capital calculation

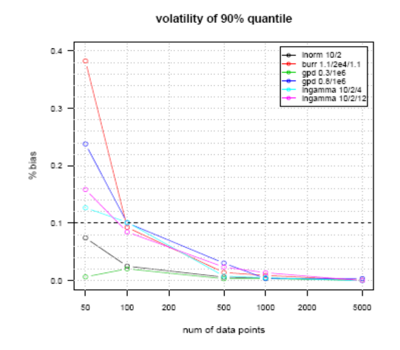
555. In order to determine an overall operational risk capital figure that is credible and justifiable, the model should be built in a way that ensures the production of results that are as stable as possible.

GL10 – Quantitative issues

"Sources of uncertainty in modelling operational risk losses"
(Giulio Mignola and Roberto Ugoccioni S.Paolo-IMI, Torino)



Percent bias of the ***99.9%*** quantile of the aggregate loss distribution as a function of the number of data points available for the estimate, for different severity distributions



Percent bias of the ***90%*** quantile of the aggregate loss distribution as a function of the number of data points available for the estimate, for different severity distributions

GL10 – Quantitative issues

Confidence level

CEBS-GL10 Par. 561. In order to generate a regulatory operational risk measure at a soundness standard comparable to a 99.9 percent confidence level, institutions can perform a direct calculation at the 99.9 percent confidence level, or they can calculate an initial measure at a lower confidence level, located in the right end of the loss distribution, and then scale it up to the 99.9 percent confidence level using appropriate methods.

GL10 – Quantitative issues

Outlier treatment

553. .. the following tools and techniques may be used.

......

✓ Qualitative criteria (based, for example, on the qualitative information relating to the data) and/or quantitative tests to detect **outliers and techniques to eliminate or mitigate their influence.**

GL10 – Quantitative issues

Outlier treatment

In models based on large losses, as EVT, the sensitivity of the parameter estimates, hence of the capital figures, to (few) largest observed losses is very high

Should the typical 20%-80% rule in the actuarial world be replaced in any case by the 1%-99% rule in the op. risk world ?

GL10 – Quantitative issues

Outlier treatment

A costraint could be imposed in the MLE function, in order to reduce the probability that a very large loss will be observed

$$MLE\ f(x)\ \ constrained\ to\ 1 - F(\theta; x^L) \leq p$$

The level of the costraint could be set equal to the largest observed loss in the external databases

GL10 – Quantitative issues

Allocation

The CRD states that, when an EU parent institution amd its subsidiaries intend to use an AMA on a group-wide basis, their application shall include a description of the methodology that will be used to allocate the operational risk capital to the different entities of the group.

The CEBS-GL10 states at Par. 597:

1. The methodology must allocate capital from the group level downwards to subsidiaries that are involved in the consolidated AMA calculation process (not possible allocate AMA capital to non-AMA compliant subsidiaries)
2. The methodology should be sound and rational, and it should be implemented fairly, consistently and with integrity
3. Institution are strongly encouraged to move towards risk sensitive allocation mechanisms
4. The allocation mechanism should be a significant component of the assessment of the application by the home supervisor and relevant host supervisors.

The EU structure relevant to operational risk (from December 2005)

Commission Services

CRD Transposition Group (CRDTG)

A web-page has been set up by the Commission Services to provide the basis for queries and responses. On the web-page interested parties are able to ask questions by putting their queries into a standardised form. A dedicated mailbox is available for those questions (Markt-Capital-Review-CRD@cec.eu.int)

Simpler approaches on op risk: selected CRDTG answers

Items to be included into "other operating income"

Area:	Directive 2006/48/EC, Annex X, Part 1, point 5
Issue:	Calculation of the indicator for the Basic Indicator Approach to operational risk
Question number:	91
Date of question:	31 May 2006
Publication of answer:	11 September 2006
Question:	The relevant indicator for calculation of operational risk capital charge should be expressed as the sum of the elements listed in Table 1. Could you provide any examples of items which should be included into "other operating income"?
Answer:	The following are examples of items that could, under the IAS/IFRS framework, be included in 'other operating income': • Rental income from investment property (IAS 40.75 (f) (i)); • Lease income from operating leases (IAS 17.50). When considering the items for inclusion in 'other operating income' for the purposes of Directive 2006/48/EC, credit institutions have to take into account the qualifications of paragraphs 7 and 8 of Annex X and ensure that the elements included do not go beyond what is foreseen therein. For these reasons it is considered, for example, that income from tangible assets measured using the revaluation and fair value model (IAS 16.39; IAS 40.76 (d)) should not be included in 'other operating income' when determining the relevant indicator for the calculation of the operational risk capital requirement.

Simpler approaches on op risk: selected CRDTG answers

Gross Income definition under IAS

Area:	Directive 2006/48/EC, Annex X, Part 1, points 5 to 9
Issue:	Operational risk income indicator – use of IFRS/IAS
Question number:	60
Date of question:	30 March 2006
Publication of answer:	7 July 2006
Question:	According to point 9, when credit institutions apply IFRS and IAS they should calculate the relevant indicator on the basis of data that best reflect the definition expressed within the framework established by the Directive 86/635/EEC. In that context, please explain what would be the adequate treatment of the following items: - realised profits/losses from the sale of financial assets at fair value through profit and loss account which are not in the trading book (Fair Value Option); - impairments of available-for-sale financial assets; - realised profits/losses from derivatives and embedded derivatives; - realised profits/losses from hedging; - difference between "revaluation of trading items" mentioned in paragraph 8 and revaluation of items in the trading book.

Gross Income definition under IAS

Mapping table (included for illustrative purposes only)

It should be clarified that the following table is not intended to provide an interpretation of the Directive or of IAS/IFRS. In order to determine the appropriate treatment of the items listed in the question – which stem from an IAS/IFRS context – the Framework for consolidated financial reporting (FINREP) has been used as a tool to map the items of Table 1 of Annex X, Part 1 and the IFRS framework. More precisely, the items included in Table 1 were mapped to the items of the line 'Financial & operating income and expenses' of the FINREP Consolidated Income Statement.

Items in Table 1	*Corresponding FINREP items*	*Treatment for the calculation of the relevant indicator*
1. Interest receivable and similar income	Interest income	Inclusion[2]
2. Interest payable and similar charges	Interest expenses	Inclusion[2]
	Expenses on share capital repayable on demand	No inclusion
3. Income from shares and other variable/fixed yield securities	Dividend income	Inclusion
4. Commissions/fees receivable;	Fee and commission income	Inclusion
5. Commissions/fees payable;	(Fee and commission expenses)	Inclusion
6. Net profit or loss on financial operations	Realised gains (losses) on financial assets & liabilities not measured at fair value through profit or loss, net	Partial inclusion, if included in regulatory trading book[23]
	Gains (losses) on financial assets and liabilities held for trading, net	Inclusion
	Gains (losses) on financial assets and liabilities designated at fair value through profit or loss, net	Partial inclusion, if included in regulatory trading book[23]
	Gains (losses) from hedge accounting, net	Inclusion
	Exchange differences, net	Inclusion[4]
7. Other operating income.	Gains (losses) on derecognition of assets other than held for sale, net	No inclusion[5]
	Other operating income	Inclusion[26]
	Other operating expenses	No inclusion[7]

Gross Income definition under IAS

Some questions…..

1. Does the definition of Gross Income under IAS match the original Gross Income definition?

2. Is the interpretation of the content of the FINREP items which are component of the Gross Income consistent across the EU member states ?

3. Is this really an issue?

Simpler approaches on op risk: selected CRDTG answers

Meaning of income derived from insurance

Area:	2006/48/EC, Annex X, Part 1, point 8(c)
Issue:	Meaning of "income derived from insurance"
Question number:	22
Date of question:	20 February 2006
Publication of answer:	12 April 2006
Question:	According to point 8, income derived from insurance shall not be used in the calculation of the indicator. What does this item cover: i) Ancillary activities of banks in terms of insurance brokerage? ii) Income arising from insurance damage policies?
Answer:	The purpose of point 8 is to exclude items which are not 'normal business' for the firm in question, so that the income indicator more properly reflects the business of the firm. Ancillary activities of the firm, such as insurance broking, are part of the normal activities and so should be included in the income indicator. On a consolidated basis, where there are insurance activities in other legal entities in the group, premiums receivable for insurance cover written should not be included (consistent with the fact that insurance business is not one of the identified business lines in Part 2 of Annex X) in the consolidated income indicator. Payments receivable as a result of claims under insurance policies purchased by the firm (including those policies to cover operational risk losses) should not be included in the income indicator.

Simpler approaches on op risk: selected CRDTG answers

ASA calculation

Area:	Annex X, Part 2, point 6-7
Issue:	Operational risk: alternative standardised approach
Question number:	141
Question category:	1
Date of question:	10 August 2006
Deadline for answer:	20 October 2006
Question:	According to point 6, the relevant indicators for retail banking and commercial banking business lines should be calculated as average over three years of the total nominal amount of loans and advances multiplied by 0.035. That means that there will be only one figure for each of these business lines which should be multiplied by appropriate percentage for this business line and that will be the capital requirement for this business line. According to changes made to the CRD by lawyers/linguists in points 1 and 2, for other business lines in accordance with Standardised approach the capital requirement should be calculated as average over three years of the sum of the aggregate capital charge calculated each year across the business lines. Do we understand correctly that the capital requirement, under the Alternative standardised approach, is the sum of the capital requirements calculated according to point 6 for retail banking and commercial banking business lines and of the capital requirement calculated according to points 1 and 2 for other business lines?

Simpler approaches on op risk: selected CRDTG answers

TSA calculation method example

Business line	STEP 1 Relevant Indicator per year: Year X-2	Year X-1	Year X	TSA regulatory coefficients	STEP 2 Weighted amounts per year: *Anno t-2*	*Anno t-1*	*Anno t*
Corporate finance	10	10	10	18%	1,80	1,80	1,80
Trading and sales	20	-60	30	18%	3,60	-10,80	5,40
Retail banking	20	20	30	12%	2,40	2,40	3,60
Commercial banking	20	15	10	15%	3,00	2,25	1,50
Payment and settlement	10	-40	10	18%	1,80	-7,20	1,80
Agency services	20	15	0	15%	3,00	2,25	0,00
Asset management	0	20	30	12%	0,00	2,40	3,60
Retail brokerage	-10	10	20	12%	-1,20	1,20	2,40

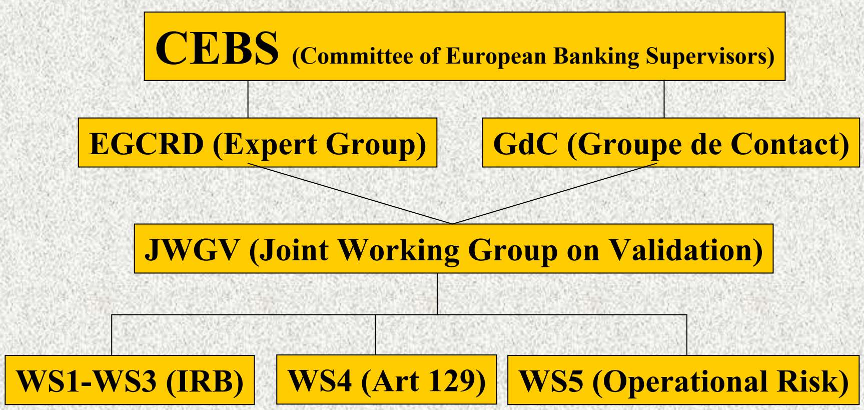
STEP 3		
Algebric sum of weighted amounts		
14,40	-5,70	20,10
Correction for negative values		
	0,00	

STEP 4		
Final weighted amounts		
14,40	0,00	20,10

STEP 5
TSA capital requirement
11,50

Step 1	Calculate gross income per year per business line (3 times 8 cells) ; amounts can be positive or negative
Step 2	Multiply the 24 cells by the corresponding weighting factors ; amounts remain positive or negative
Step 3	Add the weighted amounts vertically (per year) taking into account the positive and negative signs.Negative total weighted amount for a year are brought to zero
Step 4	On the basis of the 3 steps, select the weighted amounts for the three years (amounts can be positive or zero)
Step 5	Calculate the TSA capital requirement by adding the 3 years and dividing by 3

The CEBS structure relevant to operational risk (till April 06)



The CEBS structure relevant to operational risk (from June 06)

SON

Objectives

- Focused on the first EU cross border banking groups
- Identification of similar approaches and good practices to the identified common issues
- Identification of a range of pragmatic approaches to the identified common issues
- Proposal to the GdC to refer identified issues as appropriate to the other expert groups

SON

Priority to be discussed

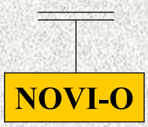
1. Home-host general co-operational issues
2. Identification and priorisation of IRBA and AMA validation issues
3. Pillar 2
4. Reporting

SON

Priority to be discussed

1. **Home-host general cooperational issues**
   a. College of supervisors
2. **Identification and priorisation of IRBA and AMA validation issues**
   a. local versus home models (allocation issues)
   b. use of external data
   c. use test
3. Pillar 2
4. Reporting

The CEBS structure relevant to operational risk (from June 06)



Objectives

- exchange information on technical issues related to validation issues
- suggest areas where further input from CEBS is deemed necessary/useful
- where deemed necessary, contribute to surveys of good supervisory and/or market practices concerning validation issues and suggest to the EGCR any further possible action following the outcomes of such surveys

NOVI-O

Priority to be discussed

1. Allocation mechanism
2. Use and weight of the four elements
3. Techniques/procedures to determine capital figures
4. Relation of the internal audit function to the op risk management processes

The big challenge for line side supervisors during their validation activities

- assessing that the framework of each bank is built on sound basis
- avoiding that banks with similar op risk profiles hold different capital figures.

This is a tricky objective as **not only** banks are implementing rather different frameworks but **also** because the window of information of each regulator is limited to the few, supervised, banks

Risk of partial/wrong assessment of the quality of the op risk framework of supervised banks

The big opportunity for line side supervisors during their validation activities

… sharing the information on governance/data/quantitative components of the supervised banks and on the validation methods/criteria

Helpful for:

- increasing the awareness on the ways industry implement op risk frameworks
- identifing the drivers and the rationale of different op risk profiles, frameworks and capital figures
- providing bigger certainty to the supervisory assessments

Thanks for your attention

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