

# **OPERATIONAL RISK MANAGEMENT MATURITY MODEL**



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## **1. INTRODUCTION**

In the framework of the “Solvency II” project, from the Federació de Mutualitats de Catalunya we have led participation in the QIS2 request of an important number of mutual entities, and we have realized that the calculation of the SCROp (Capital Requirement for the Operational Risk), was not sensitive to the degree of quality of the management system of the company.

And in the CEIOPS-doc-08/07 about “Pillar i Issues” (march 2007) there persisted the same non-sensitivity.

Hence we are calibrating the present model whose objective is to find a way to adapt the SCROp of “Solvency II” to the level of quality of the management system of the entity.

We are taking advantage of the QIS3 request to calibrate this model.

This model, as a sectorial model, can be useful to improve the development of “Internal Control Systems” among mutual insurers, but also among companies.

In fact, as you will see, the model is especially powerful in the case of the larger insurance companies

## **2. OBJECT**

To gather a series of proposals relative to the treatment of O.R. (Operational Risk) in the Solvency II project.

We share the opinion of CEIOPS on the importance of O.R., and the difficulty involved in the valuation of this type of risk, because of the historical absence of established frameworks to classify and quantify operational losses homogeneously.

From this perspective the CEIOPS have defined the following formula for the calculation the SCR<sub>Op</sub> for the QIS3:

SCR<sub>Op</sub>=min:

- 0.3 BSCR;
- Max:
  - $0.03 \text{ Plife} + 0.02 \text{ Pnl} + 0.02 \text{ Ph}$
  - $0.003 \text{ TPlife} + 0.02 \text{ TPnl} + 0.002 \text{ TPh}$

Nevertheless, it does not seem logical that the calculation of SCR<sub>Op</sub> is insensitive to the quality of the organization's system of management, because:

- It is not a good valuation of O.R. Insufficient indicators, only related to exposure to risk, but not related to losses, and neither to causes.
- Discourages any effort to improve the management system

We must construct a model that measures objectively the quality level of the organization's management system O.R.M.M.M. (Operational Risk Management Maturity Model):

- The Main difficulties:
  - Fixing what is understood by O.R.
  - Identification of the attributes that allow each organization to be assigned, objectively, its corresponding degree of maturity.

### **3. IDENTIFICATION OF O.R.**

This is a well-known problem with basically two causes:

- It is a residual-type concept.
- It has an expansive character.

The most widely accepted definition of O.R. is that adopted by “Basel II” and also by CEIOPS:

- "The risk of direct or indirect loss from failed or inadequate internal processes, people, or systems, or from other external events."

Really operational risk covers a very broad and varied field. But a more useful approach is to begin from well-founded concepts and identify which elements are related to the indicated concepts, rather than to limit oneself to applying a very precise definition.

The UK supervisory authority (FSA) uses many examples of operational risk but avoids definitions. It is more concerned with all the risks being controlled than with having a precise categorical classification. It is thus clear that the identification of the factors or aspects that have to be considered within what one understands by that term is complex. There contributes to this lack of clarity the fact that in a certain sense the concept of operational risk is of a residual type, and perhaps from this viewpoint we can reach a clearer concept:

- "Included in operational risk are those factors which are not directly related to the entity's core business".

For example:

- Factors directly related to the core business:
  - The technical decision for the design of the rate of premiums.
  - The design of the asset management strategy.
- Factors not directly related to the core business:
  - The edition of the tariff of premiums by the printers.
  - The issue of a policy with a clause related to other types of risk: Life instead of Accident

#### 4. STRATEGIC INDICATORS OF O.R.

These are references allowing from a qualitative to a precise quantitative valuation to be made.

There exist three types of indicators:

- Those relative to exposing the risk (E):
  - Such as volume of premiums or technical provisions (QIS3). Indicative of the volume of processes with the possibility of operational failure. They do not detect changes in the ratio of losses, and must be accompanied by such indicators.
- Those relative to losses (I):
  - E.G., N° of complaining clients. They measure events with incurred losses, and are thus not predictive, allowing only reactive action. They are typical of ex-post contexts, a necessary complement of every analysis.
- Those relative to causes (C):
  - E.G., The rotation of staff. They measure factors related to causes of failures, and are thus predictive indicators, allowing pro-active action. They are the hardest to identify, it being necessary to establish the causal relationship between indicator and loss. Very valuable, being predictive.

Additional examples of the different kinds of indicators:

- Those relative to exposing the risk (E):
  - Number of claims processed
  - Growth of sales
  - Number of important claims
  - Number of it projects underway
  - Size of outsourced contracts
  - % of the business corresponding to each supplier

- Those relative to losses (I):
  - Number of claim complaints
  - Number of budget overruns
  
- Those relative to causes (C):
  - Number of "severe" audit incidences unresolved in 2 years
  - Employee turnover
  - Number of employees, by category, needing training
  - Hours of training per employee
  - Overtime per employee
  - Number of different P.C. Configurations in use

## **5. THE CULTURE OF CONTROL AS A REFERENT OF O.R.**

The procedure consists of evaluating an organization's management system with respect to five levels of maturity:

### 1st. Traditional:

- Organizations whose management simply follows "Traditional House Style".
- Management is unaware of the need to manage O.R.

### 2nd. Awareness:

- Awareness of the benefits of O.R. Management exists, but with no implementation of systematic controls.
- Concern is limited to the management of I.O. (Internal Order), and to making procedure manuals and job descriptions available.

### 3rd. Monitoring:

- Control systems, in the main processes.
- Indicators established, even though qualitative, of the evolution of O.R. including reporting elements.

### 4th. Quantification:

- Quantitative indicators in the main processes, allowing quantitative objectives to be established.
- Risk management by means of application of the calculation routines of S.C.R. of QIS3.

#### 5th. Integration:

- Annual valuation of the O.R. of all the organization's processes.
- Active use of the O.R. Information to improve the firm's organizational processes with the aim of gaining competitive advantage.

### **6. THE BALANCED SCORECARD (B.S.C.) AS ADDITIONAL REFERENCE**

The B.S.C. is an incentives system rooted in three concepts:

- 1st. Specific organizational structure that allows the passage from a strategic formulation to everyday activity in a consistent way.
- 2nd. Introduces besides the conventional financial perspective, three additional perspectives to be applied simultaneously:
  - Clients
  - Processes
  - Human resources
- 3rd. Monitoring of all the relevant aspects.

The B.S.C. is a very effective tool to structure the introduction of important changes in the organization's culture entity. I.E., introduction of the "Culture of Control" in the different stages of the "Maturity Model".

Within the B.S.C. Framework, the process of the control of the O.R. consists of the following stages:

- Identify the company's risks
- Classify them in accordance with the established risk typology
- Select the most significant risks within each category
- Elaborate the company's risk map
- In our case, this would be concentrated to those of an O.R. Type
- Establish individualized indicators
- Establish actions based on them
- Establish incentives to the staff related with them



Associated with the objectives and indicators there need to be actions that each individual can carry out to contribute to attaining those objectives.

There is difficulty in making this association, especially because the objectives are non-financial. Here the B.S.C. can make a major contribution by means of its model of action with cause-effect relationships.

## **7. WEIGHTING COEFFICIENTS**

The desired effect is attained with the coefficient that corresponds to the organization multiplied by the SCRep of the standard formula of QIS3.

As a working hypothesis, the coefficients corresponding to each of the 5 levels of maturity could be as follows:

- 1. Traditional.....1. 50
- 2. Awareness.....1.00
- 3. Monitoring.....0.90 (with B.S.C. Incentives 0.70)
- 4. Quantification..... 0.80 (with B.S.C. Incentives 0.60)
- 5. Integration..... 0.70 (with B.S.C. Incentives 0.50)

## **8. THE ATTRIBUTES OF EACH LEVEL OF THE CULTURE OF CONTROL**

The most difficult is to identify the attributes that allow the unequivocal assignment of the maturity level that corresponds to each organization.

For greater objectivity, it has been anticipated that the different attributes will be grouped into the following classes:

- Culture (CU):
  - Sensitivities, attitudes, and behavioural guidelines forming part of corporate governance that are signs of the organization's own identity.

- Processes (PR):
  - Systematic actions that the organization applies in carrying out its activity.
- Practical effects (EP):
  - Specific tangible consequences of a certain level of maturity.
- Experience (EX):
  - Use of a procedure for sufficient time to demonstrate its effectiveness and the qualification of the personnel.

## **9. INTERNAL CONTROL AND OPERATIONAL RISK**

- As a consequence of the suggestion concerning the present model from the “Federació de Mutualitats de Catalunya” with the support of BDO, the QIS3 includes a qualitative questionnaire on O.R. that refers to the following concepts:
  - O.R. Strategy formally established and documented.
  - Specific O.R. Management structure and monitoring committee.
  - Independent control of O.R.
  - Involvement of the board.
  - System of reporting.
  - Fostering the culture of control among the employees.
  - Use of the risk map
  - Evaluation of risks
  - Use of O.R. Indicators
  - Collecting historical O.R. data
  - Use of the scenario analysis in O.R.
  - Use of quantitative methods in O.R.
  - Validation process of the entire O.R. Management system

One sees that in most of these concepts of QIS3 the term O.R. can be assimilated into that of I.C. (Internal Control), which locates us within the spanish regulatory framework art.110 and 110.bis, of the rule of insurance spanish law.

As a rough draught, we have constructed an attribute matrix which has:

- On the x-axis, the 5 levels of maturity.
- On the y-axis, the 4 classes into which the attributes are grouped.

You can see the attribute matrix in the ANNEX I.

We have make use of QIS3 to test our model, extending appropriately the qualitative questionnaire I.A.3.

## **10. CONCLUSIONS**

As we saw at the beginning, this model, as a sectorial model, can be useful to improve the development of the “Internal Control Systems” among mutual insurers, but also among companies.

And also that, in fact, the model is especially powerful in the case of the larger insurance companies

We expect that, with respect to O.R., our participating organizations in the QIS3 will find that setting up a good system of internal control will surely allow them to save a part of the SCROp.

In the ANNEX II we can see the quantitative effect on the application of the O.R.M.M.M. to the consolidated figures of our participating organisations in the QIS3.

## **11. BIBLIOGRAPHY**

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# ANNEX I: OPERATIONAL RISK MANAGEMENT MATURITY MODEL MATRIX

Operational Risk Management	MATURITY LEVELS				
	Traditional 1--	Awareness 2--	Monitoring 3--	Quantification 4--	Integration 5--
<b>Culture (CU)</b>	<ul style="list-style-type: none"> <li>•1 CU 1.- No culture of control</li> <li>• 1 CU 2.- No action of the Board on either I.C. or R.M.</li> </ul>	<ul style="list-style-type: none"> <li>•2 CU 1.- The Board mandate for the implantation of I.C. and R.M.</li> <li>•2 CU 2.- Management promotes I.C. in specific actions.</li> </ul>	<ul style="list-style-type: none"> <li>•3 CU 1.- The benefits of I.C. and R.M. are recognized and expected.</li> <li>•3 CU 2.- In accordance with the Board's mandate, top management demand periodic reports on I.C.</li> </ul>	<ul style="list-style-type: none"> <li>•4 CU 1.- Use of the I.C. reports by top management for decision making.</li> <li>•4 CU 2.- Setting strategic goals relative to risk tolerance levels.</li> </ul>	<ul style="list-style-type: none"> <li>•5 CU 1.- The Culture of Control integrated into the ethical code.</li> <li>•5 CU 2.- Culture of Control extended throughout the organization, "proactive" focus.</li> </ul>
<b>Processes (PR)</b>	<ul style="list-style-type: none"> <li>•1 PR 1.- Absence of formally established management processes.</li> <li>•1 PR 2.- No implantation plan for I.C. and R.M. processes</li> </ul>	<ul style="list-style-type: none"> <li>•2 PR 1.- System of internal order with all the process manuals and job descriptions.</li> <li>•2 PR 2.- Analysis of separation of tasks and conflict of interests.</li> </ul>	<ul style="list-style-type: none"> <li>•3 PR 1.- Minimal establishment of indicators and controls in the 7 main processes.</li> <li>•3 PR 2.- Warning system and actions to correct causes of error.</li> </ul>	<ul style="list-style-type: none"> <li>•4 PR 1.- Systematic process for the calculation S.C.R. QIS3.</li> <li>•4 PR 2.- Management of the business considering risks</li> <li>•4 PR 3.- Process of periodic quantification of the O.R.</li> </ul>	<ul style="list-style-type: none"> <li>•5 PR 1.- Process of information on all the processes with indicators of losses and causes.</li> <li>•5 PR 2.- Valuation of O.R. VaR or TailVaR.</li> </ul>
<b>Practical Application (AP)</b>	<ul style="list-style-type: none"> <li>•1 AP 1.- No application of risk management.</li> <li>•1 AP 2.- No analysis made of O.R.</li> </ul>	<ul style="list-style-type: none"> <li>•2 AP 1.- Appointment of a person responsible for I.C. and application of resources.</li> <li>•2 AP 2.- The process database is accessible to all involved.</li> </ul>	<ul style="list-style-type: none"> <li>•3 AP 1.- Qualitative methods of O.R. analysis.</li> <li>•3 AP 2.- Minimal application to the 7 main processes: (Subscription, Emission, Benefits, Invoicing, Investments, Reinsurance, Signature Authorizations)</li> </ul>	<ul style="list-style-type: none"> <li>•4 AP 1.- Preparation and annual revision of a Risk Map.</li> <li>•4 AP 2.- Measurement of all risks.</li> <li>•4 AP 3.- Decision making based on the evolution of the Risk Map.</li> </ul>	<ul style="list-style-type: none"> <li>•5 AP 1.- Implementation of qualitative and quantitative methods, and creation of historical databases.</li> <li>•5 AP 2.- Quantitative processing of the information with mitigating strategic goals.</li> </ul>
<b>Experience (EX)</b>	<ul style="list-style-type: none"> <li>•1 EX 1.- Neither the principles nor the language of O.R. have ever been applied.</li> <li>•1 EX 2.- No experience in R.M., I.C., or O.R. processes.</li> </ul>	<ul style="list-style-type: none"> <li>•2 EX 1.- Limited to a few collaborators.</li> <li>•2 EX 2.- Experience in processes is limited to the administration department.</li> </ul>	<ul style="list-style-type: none"> <li>•3 EX 1.- Development and implementation of processes of management and control with the aid of outside advisers.</li> </ul>	<ul style="list-style-type: none"> <li>•4 EX 1.- Personnel with the capacity to implement processes of risk management and control.</li> <li>•4 EX 2.- Support of outside advisers but under the initiative of in-house personnel.</li> </ul>	<ul style="list-style-type: none"> <li>•5 EX 1.- All staff with the capacity to implement processes of risk management and control.</li> <li>•5 EX 2.- The entire organization involved in the evolution of risks.</li> </ul>



**ANNEX II : QUANTITATIVE EFFECT OF THE APLICATION OF THE O.R.M.M. TO THE QIS3 QUALITATIVE REQUEST**

<u>S.C.R.</u> <u>Components</u>	<u>Standard</u> <u>formula</u>	<u>O.R.M.M.</u>				
		<u>1° Traditional</u>	<u>2° awareness</u>	<u>3° Monitoring</u>	<u>4° Quantification + BSC</u>	<u>5° Integration+BSC</u>
SCRmkt	43.000	43.000	43.000	43.000	43.000	43.000
SCRnl	12.000	12.000	12.000	12.000	12.000	12.000
SCRop	3.000	4.500	3.000	2.700	1.800	1.500
S.C.R.	50.000	51.500	50.000	49.700	48.800	48.500