

CERA Module 1

Exam 2015

**In total you can reach 90 points.
In order to pass the exam you need 45 points.**

Good luck!

1. Case study – ERM-Concept mandated by the management (total 30 P)

Assume that you have been appointed for the newly created position of CRO of an insurance undertaking. One of your first tasks as requested by the management is to establish the ERM concept. The chairperson asks you to give a short overview over requirements and benefits. To this end, please tackle the following questions:

- a) Which requirements need to be met as an absolute minimum? (1 P)
- b) Name four risk management standards that could be relevant for your undertaking. (4 P) For each of the standards that you chose, derive the main stakeholder it is geared to and how this manifests itself. (8 P)
- c) The chairperson tasks you with the development of and responsibility for a risk strategy for the undertaking. What do you answer? (2 P)
- d) Which three elements would you include in a risk strategy at least? (3 P)
- e) Describe three advantages that an elaborated and communicated risk strategy brings to the undertaking. (6 P)
- f) Derive from the risk strategy three examples for the added value that risk management can bring to the undertaking's success. (6 P)

Solution (partially examples):

a) Legal/regulatory requirements

b) (sample answers given here are not exhaustive)

Solvency I – serves to protect policyholders who are the main primary stakeholders, evidenced by the focus on loss avoidance and on the continuous ability to fulfil contractual obligations

Solvency II – as Solvency I, but based on market value approach and comprehensive risk management; the additional introduction of disclosure requirements under pillar 3 are useful for various other stakeholders as well.

COSO – main stakeholder is the undertaking's management as manifested in the focus on practical implementation and designed along the value creation chain.

ISO 31000 – main stakeholders are third parties as manifested by the formal character exemplified in the issuing of a certificate.

S&P's ERM Framework – main stakeholder investors, manifested by the focus on expected future value created

SOX – main stakeholder investors, manifested by the focus on accurate and reliable financial reporting and on controls that aim to reduce the default risk.

IFRS – main stakeholder investors, manifested by the focus on accurate and reliable

financial reporting based on uniform rules that allow investors to compare the performance and financial position of undertakings and supplemented by reporting on risk management and risk exposure based on the internal risk reporting to the management.

c) I answer that as a CRO I can support the design and implementation of the risk strategy, but that the ultimate ownership rests with the management/board.

d) risk appetite; risk tolerance; nature of the risks sought; time horizon; governance structure; mitigation actions...

e) it explains how the business strategy is applied in daily business, thus laying the basis for implementing this strategy; it explains which risks are acceptable for the undertaking, thus informing decisions; it allows the design of control mechanisms; it forms a basis against which internal and external reviews can be conducted; it allows a succinct external perception, thus supporting the creation of a "brand"; it facilitates internal and external communication...

f)

A) Direct value creation: Positive contribution to value creation by either enabling the writing of profitable business, or by decreasing the capital requirements for existing business

B) Value creation by loss avoidance: Protect existing values by helping to decline or reduce unprofitable business, or by avoidance of overexposures

C) Indirect value creation by stipulating value perception of stakeholders: Contribution to market value of undertaking by creating trust of investors, supervisors, rating agencies, and other stakeholders.

2. Case study – Risk management in practice and its link to business processes (total 21 P)

As the CRO in daily business on the second line of defence you take over responsibility for the safety of the business processes in your undertaking. As typically for the business also your activities are based on recurring processes. The core elements of risk management may be condensed in a cycle with six elements.

a) Please name four of these core elements. (4 P)

b) „Market risk“ and „IT risks“ are two examples for risk management areas. Please chose one of these and give potential practical examples for those four core elements that you chose under a). (8 P)

c) Based on a practical example that you may chose freely, please explain how you would perform „risk analysis“ and “risk evaluation”. (6 P)

d) Please give examples for avoiding controls and revealing controls (each one). What is the essential difference between avoiding and revealing controls? (3 P)

Solution (partially examples):

(a) The six core elements of the risk management cycle were presented as: (i) set goals (ii) risks / identify factors (iii) assess risk and measure (iv) dealing with risks / controls (v) information and communication (vi) Monitoring.

(b) (to follow)

c) For equity risk: The analysis always comes before the review is possible if in the quantification of exposures. The company, for example, found that 10% of the investments are in stocks, and that the proportion has risen by 30% since the previous report. The second step is the evaluation only possible as a match with a limit, and allows a company-specific conclusion, for example, if the investment policy provides for a maximum of 12%, the basic risk is under control, but the trend has to be observed.

d) (examples)

Preventive controls must take place **before** the risk materialises, for example, an age check prevents the sale of alcohol to young people.

Detective controls must take place **after** the possible occurrence of the risk, e.g. an alcohol test reveals the consumption of alcohol.

3. Regulatory requirements Solvency II and ERM (total 15 P)

You as the CRO were asked by the board to give them an understanding of the corner stones of Solvency II. In your presentation please deal with the following questions.

- a) By which date will Solvency II become obligatory? (1 P)
- b) Which blocks of requirements are called the three pillars of Solvency II? Please give two key words for each pillar. (3 P)
- c) Which functions are mandatory under Solvency II? (2 P)
- d) Which are the two capital requirements in Solvency II? Which is the respective safety level? (4 P)
- e) One of the core requirements of Solvency II is the “Own Risk and Solvency Assessment” (ORSA).
 - i. Please name two of the core elements of ORSA. (1 P)
 - ii. Please examine the connection of ORSA and ERM. (4 P).

Solution (partially examples):

a) 1.1.2016 (full point), with some elements already in place since 2014.

b) Pillar 1 Quantitative Requirements: key words could be calculation of SCR, MCR, economic balance sheet; Pillar 2 Qualitative Requirements or Governance: key words could be ORSA, company governance; Pillar 3 Reporting or Disclosure and Transparency: key words could be supervisory and public reporting, RSR, SFCR, QRTs

c) risk management function, actuarial function, compliance function, internal audit function

d) SCR – Solvency Capital Requirement: Value at Risk at 99.5% over a one-year horizon

*MCR – Minimum Capital Requirement: Value at Risk at 85% over a one-year horizon
[Comments on regulatory intervention were not required to get full points, but SCR and MCR had to be spelled out.]*

e) i. (examples) calculation of the SCR over a mid-term time horizon; continuous compliance with requirements on technical provisions; assessment of the suitability of the standard formula or the internal model to the company’s risk profile; scenarios and stress tests; risk identification and assessment; should be integral part of the business strategy and taken into account in strategic decisions.

e) ii. The two have many overlaps, e.g. in the performance of risk identification and assessment from a holistic, company-wide perspective including risks that are difficult to quantify; in the multi-year view with a mid- to long-term time horizon; in the link

between risk management and strategy; in the assessment of processes, planned actions and controls; and in the coverage of solvency constraints.

The main difference is that the ORSA takes a defensive view and does not require companies to assess future chances and opportunities, while this – the two-sided view – is the hallmark of ERM.

4. Check of alternatives (total 10 P)

Suppose that you are a member of the executive committee of a company and that you have to make the following decisions regarding the risk strategy:

Decision 1: Make your choice between:

A: Due to increased sales efforts you can be sure to increase your profit by 2.4 m€.

B: You are able to get access to new potential of customers and therefore get a 25%-chance to win 10 m€ and a 75%-chance to win nothing.

Decision 2: Make your choice between:

C: You will generate a sure loss of 7.5 m€ out of a certain segment by necessary cancellations by your company.

D: If you would do that more selective you will get a 75% chance to lose 10 m€ and a 25% chance to lose nothing.

a) Evaluate the potential wins and losses of both decisions together. Could circumstances occur that the probability weighted financially better decision nevertheless would not be made? (4 P)

b) Develop possible psychological reasons for such a decision. (3 P)

c) Which general brief recommendation could you give with respect to that background for making a decision to define a risk strategy especially in a less clear initial situation? (3 P)

Solution:

a) The decisions AC and AD lead to the expected value of -5.1 m€, the decisions BC and BD to the expected value of -5 m€. The last two ones are therefore from a pure financially rational standpoint the better choice. Comparing especially AD and BC, we get for AD with 75% probability a loss of 7.6 m€ and with 25% probability a win of 2.4 m€. For BC we get with probability of 75% a loss of 7.5 m€ and with probability of 25% a win of 2.5 m€. Therefore BC is in any case the better choice.

Circumstances leading to a vote for A instead of B could be caused by reputational reasons, if the company has faced a longer period with negative results and without wins it has to be closed or set employees out in the next year. Furthermore it could turn out that the higher loss potential in D is above a critical threshold which implies that certain solvency requirements will not be fulfilled and therefore the evaluation of the options is restricted. In general financially rational, risk averse investors would choose option BC with a high

probability but a majority tends spontaneously to AD in spite of the fact that BC generates a better financial result.

b) For psychological reasons a sure win will be preferred even compared to a higher expected value. It's just the other way round in a loss situation: There is a clear adverse tendency against a sure loss. Therefore a majority might choose the combination AD.

c) With respect to the just named psychological mechanics decisions regarding the risk strategy should be made less intuitively and less spontaneously but as far as possible on the basis of a rationale and well defined reasons.

5. Categorisation of risks – Fundamentals and relevance for the implementation of ERM
(total 6 P)

In the frame of an internal training you are requested to explain to your colleagues from the „first line of defence“ the approach that you chose to categorise risks.

- a) Which fundamental attribute should the risk classification system ideally have? (2P)
- b) Develop two situations in which a risk classification system is used in your undertaking. (4P)

Solution:

a) The system has to be mutually exclusive (disjoined) and exhaustive. This means that each risk can be assigned to one and only one category.

b) (Examples) The system can be used when processing the information gathered during a risk inventory; the system can be used to structure risk-related sections on a) public b) internal and c) supervisory reporting; the system can be used by the internal audit to classify findings; the system can be used for designing the calculation of the capital requirements in an internal model; the system can be used to identify risks when developing a new product

6. Internal control system and ERM culture in practice (total 8 P)

For an external audit you should evaluate in a project team operational risks and the ERM culture of an insurance company. In order to prepare the project you were asked to work on the following topics:

- a) Operational risks: Name three examples. (3 P)
- b) Assess how the behaviour of a CEO could produce operational risks. (2 P)
- c) On that basis derive reasons why it could be difficult to avoid such a risk and how ERM culture nevertheless can help to reduce such a risk. (3 P)

Solution:

a) Misactions of single persons (for example fraud), IT outage by fire, money laundering

b) The CEO is acting very autocratic and simultaneously his decisions are less checked and not adequately evaluated from a risk perspective especially if the CEO was very successful so far.

c) Essentially the avoidance of such a risk is made difficult by the well exposed and crucial hierarchical position of the CEO. ERM culture can help by creating an environment of open and transparent communication with a common companywide understanding of ERM, ERM is established firmly as an integrated part of the company just with support by the administrative management and supervisory body especially by the CEO on all levels of hierarchy including the CEO and a broadly defined process of risk analytics is performed in a positive working atmosphere.