European Actuarial Academy: CERA-Exam 2013 Module 1

1. (6 points) Name three important elements of the definition of culture as relevant in the context of ERM

   - qualitative term
   - free and above of mathematics, models, reports etc
   - equal to ist practice
   - holistic
   - way of dealing with risks
   - determines how ERM is getting into practice
   - companywide common understanding
   - ensures sustainable value and substance of ERM and therefore the overall success of ERM

2. (8 points) Justify the relevance of ERM culture by naming three positive and three negative elements that should be achieved/avoided in order to ensure that ERM works well and evaluate briefly the potential impact of having these elements in place.

   positive elements: proportionality, holistic view to be enabled, open/transparent communication, enabling of positive working climate, common companywide understanding of ERM; impact: all this is a precondition for enabling ERM to add value, ERM will be looked at a positive part of the company which is helped by putting the right effort to the quality/size of the risks
   negative elements: bureaucratism, formal approach to ERM as a whole and models, reports (tick boxing) etc specifically, thinking in silos, models as fetish, misaction of single persons as operational risk easier to happen; impact: dealing with risks might be done without taking into account the real relevance of them, each department manages only their own risks not seeing their impact on the whole company and/or connection to risks of other departments, models are looked at as being the reality

3. (8 points) Describe a typology of ERM culture and the advantages/disadvantages of using such a typology.

   Description see slide 14 (Wolfstein)
   Advantages: enables distinction and classification, clarification by idealised description, makes target setting in terms of ERM culture to be improved easier
   Disadvantages: typology could eventually be too strict, not enough types to reflect reality leaving out some aspects, too „black and white" not reflecting a concrete situation of a company

4. (14 points) "Risk management is just compliance and overhead and does not help to run our business" – comment shortly on this statement from the sales director of Fullsteam Life Insurance plc. give one example that might have driven the sales director to make this statement, and give two examples how enterprise risk management contributes to the economic success of the company.

elements for successful answers include:

- **Risk management that is only done in order to comply with external obligations (e.g. regulatory) would bring the full benefit of better informed, risk-aware decisions.**
- **ERM is looking the company as a whole, adopting the perspective of both risk and return.**
- **Examples for the value creation mechanisms mentioned in section 3.3 (slide 17: Pralle)**

5. (10 points) Describe in plain words what is meant by diversifying risk factors and explain how this concept can contribute to economic value creation in an insurance company.

- **Diversification is the effect that two risk factors that are not fully correlated do not add up when they are combined. The risk that a company is running when accepting two diversifying risks is lower than the sum of the individual risks.**
- **The amount of capital needed to hold a risk at a given level of security is lowered by diversification. Therefore, a company could do either more business with the same amount of capital, or run the same volume of business as before diversification, but using less capital. In both cases, the return per capital ratio increases by diversification.**

6. a) Give an example for a possible categorization of risks. (3 points)
b) Describe two situations where such a risk categorization can be used by a company (6 points)
<u>Possible answer:</u>

a) ***Market – health – default – life – non-life – operation (Solvency II standard model) (3 P)***

b) ***Situation 1: The categorization can be used during the risk identification process to sort the identified risk. Similar risks are thus grouped together. (3 P)***
Situation 2: For the internal risk reporting by the risk management function to the board, the chosen risk categorization can serve as a way to structure the report. **(3 P)**

7. Pick a concrete example of a risk that has both an upside and a downside. Explain of what these hazards and opportunities exactly are made up in your example. (7 points)
<u>Possible answer:</u>
Example (1 P): Fast growth of newly launched product.
Opportunities (3 P): make profit; improve/secure market position; exploit economies of scale, e.g. costs per policy becoming lower than planned
Hazards (3 P): Product might have "soft spot" meaning customers are selecting against the company; liquidity issues could arise linked to higher sales commissions than planned having to be paid in short term; diversification benefit could be impacted

8. Describe two possible ways to handle the risk of adverse claims development, i.e. name the underlying principle and its concrete implementation in this case. (6 points)
<u>**Possible answer:**</u>
- Use the principle of reduction (1.5 P) by purchasing proportional reinsurance cover (1.5 P).
- Use the principle of acceptance (1.5 P) by ensuring that the risk is included in the risk appetite (1.5 P).

9. (11 points) The most common elements of risk management standards can be summarized as a "risk management cycle" with six components. Please name (a) (at least) three of these and (b) give two practical examples for two of these (in total four).

(a) The six components of the risk management cycle (simplified from COSO) are: Objective setting, Event identification, risk assessment / measurement, risk response / control activities, information and communication, monitoring.
(b) (i) <u>Objective setting</u>: Objectives for a company might be (1) achieve a profit of X mEUR, (2) be among the best rated insurance companies (AAA) (ii) <u>Event identification:</u> (1) Large claims always set profit at risk – earthquake for non-life and pandemic for life, (2) Weaknesses in the system of governance might spoil ERM rating. (iii) <u>risk assessment / measurement:</u> (1) identify risk exposure to as well as expected frequency of earthquakes, (2) Inspect exposure to asset defaults (e.g. equity) and return periods for total defaults from market statistics (iv) <u>risk response / control activities:</u> (1) do not write business in geographic regions with earthquake probability of x % (2) buy reinsurance (v) <u>information and communication:</u> (1) have regular reports on equity exposure to the CIO, (2) have regular trainings for underwriters on seismologic active regions; (vi) <u>monitoring:</u> (1) have regular reviews by internal audit (2) implement back testing on loss events to evaluate if risk management measures taken would have identified this

10. (6 points) You are the CRO of a life insurer and have to report to the board about the progress of your Solvency II project which is organized along the three pillars of Solvency II. Please give for at least two different pillars in total 6 bullet points you would have on your project's agenda.

Pillar 1 valuation and capital requirements: Set up a Solvency II balance sheet, calculate SCR, calculate MCR, have action plan for approval for ancillary own funds; Pillar 2: Assure compliance to "fit and proper" requirements; have all Solvency II functions ready (risk management, actuarial, compliance, internal audit), implement ORSA, have written policies; Pillar 3: Dry Run for Regular Supervisory Reporting (RSR), have draft for Solvency and Financial condition report (SFCR), have accounting policy for Quantitative Reporting Templates (QRT).

11. (5 points) Please name at least three risk management standards. The most famous have board (members') involvement as key requirement – please give two examples.

ERM standards dealt with in lecture 5 are e.g. Solvency I, Solvency II, Basel II / III, SOX, COSO, S&P ERM standard, ISO 31000, German MaRisk (VA). Examples for management involvement: Solvency II requires the board e.g. (1) to approve the most important polices especially for risk management and (2) having ORSA as it's own process; S&P ERM standards has as one element "take risk management into account in decision making"; SOX requires the senior management to certify the accuracy of financial information.