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ST9 and CERA



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The UK Actuarial Education Structure

- Four stages:
 - Core Technical (CT)
 - Core Applications (CA)
 - Specialist Technical (ST)
 - Specialist Applications (SA)
- Early subjects designed to give theoretical grounding...
- ...and designed to test knowledge
- Later subjects about application of knowledge in complex scenarios...
- ...and operation in particular regimes

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CA & CT Completion

- Completion of the CA and CT examinations gives technical skills needed to be an actuary...
- ...so there is an option to register as an Associate at this stage
- This is a generalist actuarial qualifications...
- ...and holders are referred to as actuaries

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SA & ST Completion

- Completion of two STs and one SA examination mean qualification as a Fellow...
- ...but there is a possibility of another qualification before this

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ST9

- New enterprise risk management course
- Gives the Chartered Enterprise Risk Actuary (CERA) designation to anyone of at least Associate level...
-so you can be a CERA without being a Fellow...
- ...although Fellows are free to take ST9 to become CERAs

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CERA

- International qualification
- Established by the 14 Actuarial Associations worldwide
- The UK Actuarial Profession was the 2nd (after the SoA) to gain CERA accreditation...
- ...which is an arduous process!
- CERA intended to be
“...the most comprehensive and rigorous demonstration of ERM expertise available.”

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ST9 and CERA

- ST9 is not CERA
- Knowledge for CERA is contained in the CTs, CAs and ST9...
- ...so ST9 “fills in the gaps”...
- ...and does contain the bulk of the knowledge specific to CERA

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The Structure of ST9

- Very broad subject
 - External risk frameworks
 - The ERM process
 - Risk classification
 - Risk measurement
 - Quantitative analysis of time series
 - Modelling techniques
 - Responses to risk
 - Economic capital
 - Case studies

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ST9 – External frameworks

- Mandatory (e.g. Basel II, Solvency II)
- Advisory (e.g. COSO, ISO 31000)
- Proprietary (e.g. credit rating agencies)

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ST9 – The ERM Process

- Stakeholders
- Context
- Risk appetite
- The risk management function
- Strategy
- Control cycles

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ST9 – Risk Classification and Identification

- Full taxonomy
 - Important to ensure consistent risk language
- Range of identification techniques discussed
 - After deciding how to refer to and classify risks...
 - ...working out which risks you face is key

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ST9 – Risk Assessment

- Volatility, VaR, Tail VaR etc
 - Discuss various calculation methods...
 - ...but also pros and cons
- Unquantifiable risks
- Time horizon for calculation

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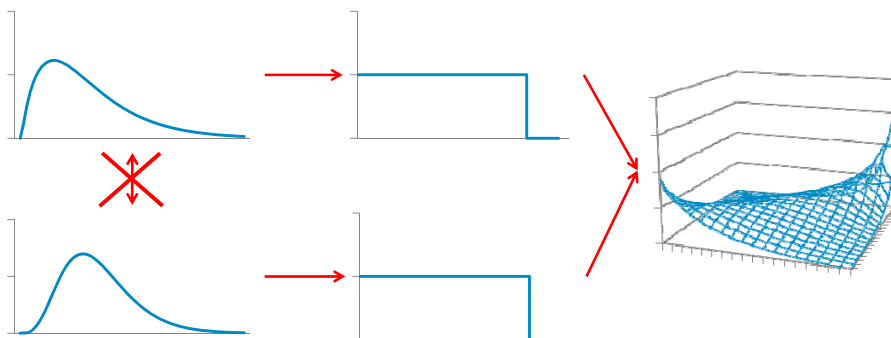
ST9 – Models and Quantitative Analysis

- Degree to which modelling possible
- Different approaches
 - Stress testing
 - Scenario analysis
 - Stochastic modelling
- Measures of association
- Multivariate distributions and copulas
- Modelling time series
- Fitting data to models and distributions
- Specific models for market and credit risk
- Extreme value theory

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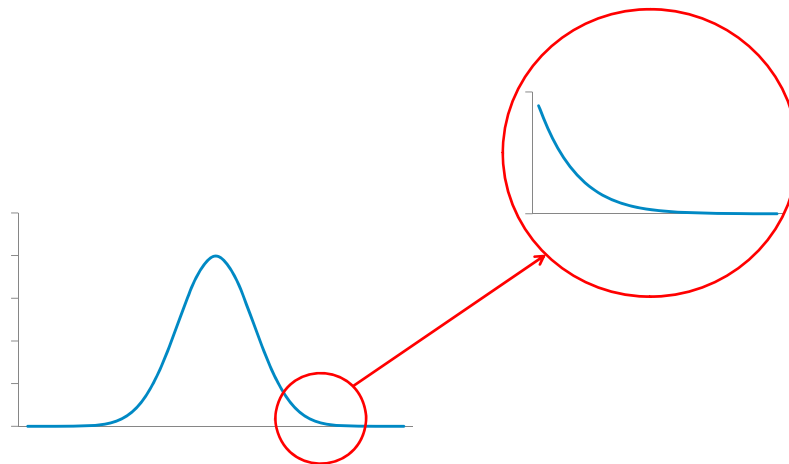
ST9 – Copulas

$$F(x,y)=C(F(x),F(y))$$



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ST9 – Extreme Value Theory



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ST9 – Responses to Risk

- General Approaches
 - Transferring
 - Modifying
 - Diversifying
 - Hedging
 - Accepting (including residual risk)
- Specific approaches for market and credit risks...
 - ...including credit derivatives

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ST9 – Economic Capital

- What is it?
- How is it calculated?
- How is it allocated across a firm?

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ST9 – Case Studies

- Difficult to carry out case studies of when risks managed well...
- ...so most case studies of failures!

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Who needs ST9/CERA?

- All actuaries!
- Useful for any actuary managing risk...
- ...who wants to expand area of influence beyond traditional actuarial fields
- Also useful as the central risk function becomes more important...
- ...and an appropriate qualification is needed