Professional opportunities in risk in the Finance Industry

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Intro slide?

- Plus
- Good risk, bad risk

- Growth in importance of risk –
- Marsh
- Risk directors
- Enterprise-wide risk
- Measure and manage
- Risk assessment not measurement

Traditional areas - Risk and economic capital

- Risk
  - Market risk instruments: cash, equities
  - Credit risk: portfolios; stress tests
  - Insurance: pricing (and banks)

- Economic capital allocation

New challenges – Regulatory capital

- Banks (Basel II/Capital Requirements Directive): Pillar 1
  - Market: 99% x 10 days holding period
  - Credit: 99.95% x 12 months
  - Operational risk: 99.9% x 12 months
- Insurance (FSA/Solvency 2)
  - Individual Capital Assessment: 99.5% x 12 months
- Risk exposure and risk capital
  - Pillar 2 (supervisory review), Individual Capital Guidance
  - Economic capital
- Regulatory challenge.

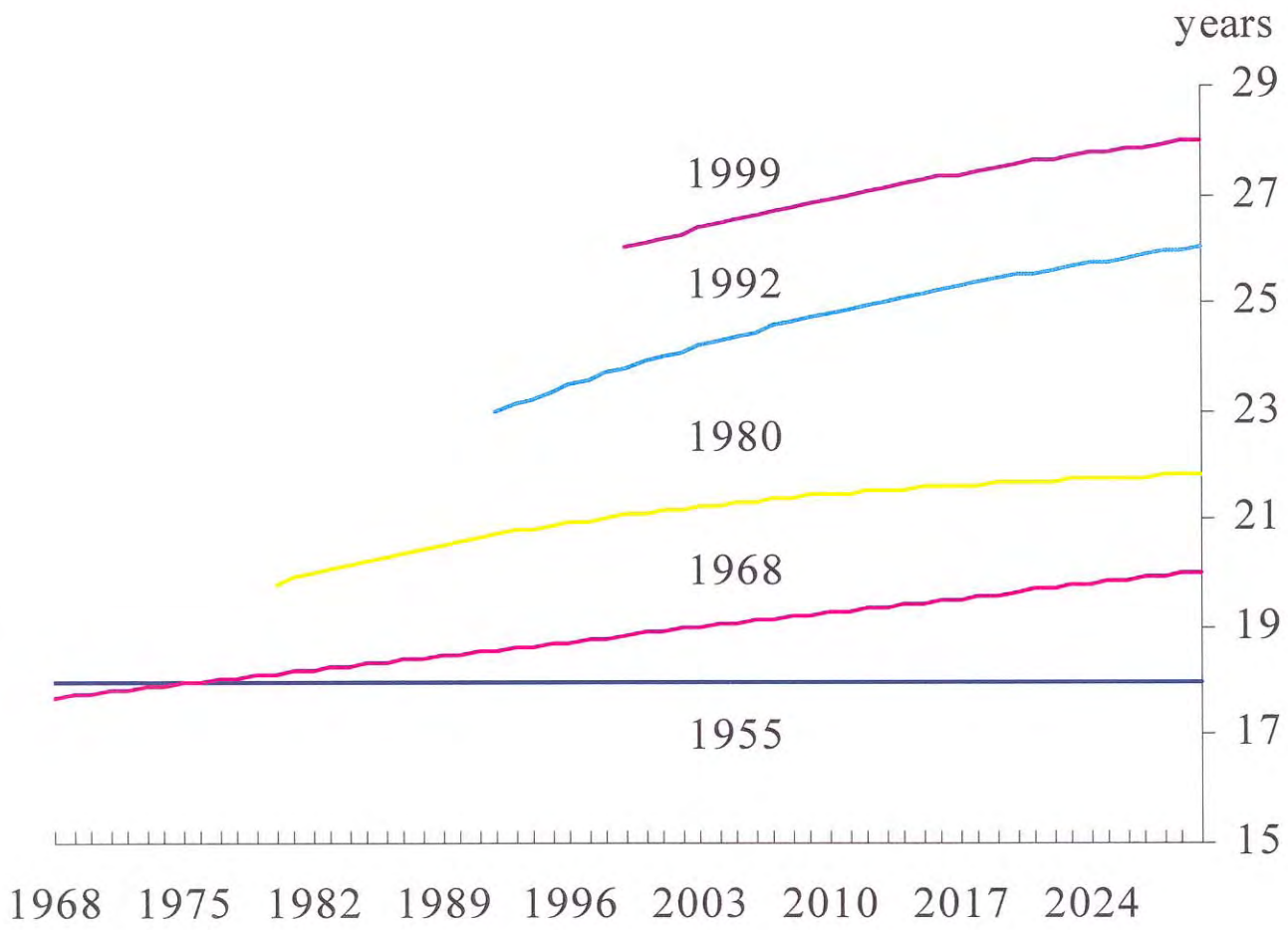
Risk and loss

- Data sets - homogeneity and heterogeneity
- Which data?

  CAUSE → EVENT → EFFECT/LOSS
  CAUSE → EFFECT → IMPACT/COST

  CAUSE → PERIL → LOSS
- Indicators

Actuarial projections of male life after 60



Source: Continuous Mortality Investigation, Actuarial Profession. Data are for United Kingdom policy holders of Actuarial Profession members.

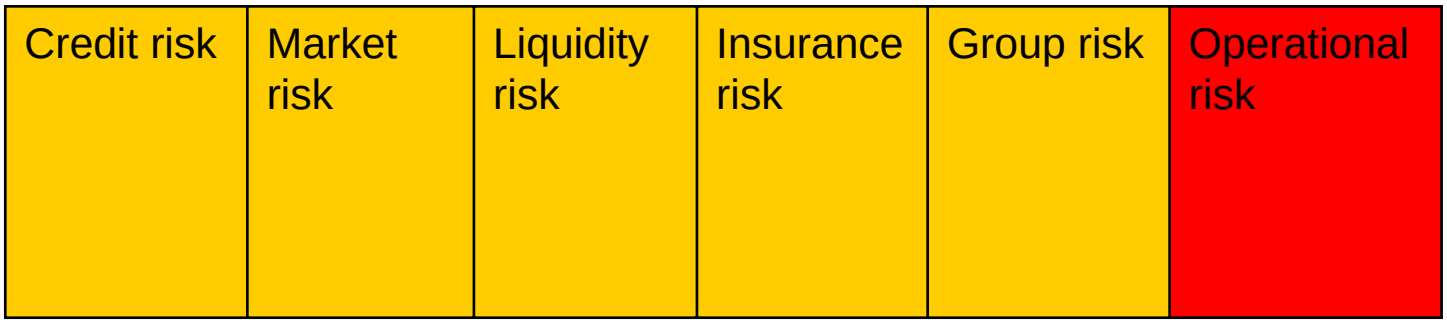
The operational risk challenge

The nature of operational risk

- “The risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.”

  NB People and external events
- OR is different from other risks:
  - It is not transaction-based
  - Its impact can only be bounded to a limited extent
  - It cannot (to date) be traded
  - It is not discreet, but pervades other categories of risk

  . . .


Credit risk
Market risk
Liquidity risk
Insurance risk
Group risk
Operational risk

Credit risk	Market risk	Liquidity risk	Insurance risk	Group risk	Operational risk
Operational controls	Operational controls	Operational controls	Operational controls	Operational controls	

Loss data distributions

- Data quality – incomplete; subjective reporting
- Hard/soft losses
- Near misses
- Data quantity
- And anyway, are losses what we should be counting?

Frequency and severity – Traditional view of ORM

High (3) Frequency	3	6	9
Med (2)	2	4	6
Low (1)	1	2	3
	Low (1) Severity	Med (2)	High (3)

Frequency and severity - modern ORM

High (3) Frequency		n/a	n/a
Med (2)			n/a
Low (1)			
	Low (1) Severity	Med (2)	High (3)

Scenarios

- [Scenarios = stories]

- 99.9% [=OR = 1 in 1000 years; 99.5 = insurance = 1 in 200 years]
- = 1 in 200 years?
- = 1 in 200 chance this year?
- Maths vs humans

Combined scenarios – 1

Contract certainty

Due to a wording dispute a major claim is conceded.

Syndicate exposed to further unexpected claims in respect of similar policy wordings.

Staff levels not sufficient to process claims; staff over-worked.

Senior claims manager leaves – replacement not found for 12 months

[Source: Lloyd's 2007 ICAS guidance]

Combined scenarios - 2

Loss of underwriting team

Loss of largest team to competitor.

Profitable niche market, therefore high recruitment costs and long lead time → significant loss of profits.

Poor document maintenance → inability to fully service claims.

[Source: Lloyd's 2007 ICAS guidance]

BP Texas oil refinery

- Failure of alarm system
- Lack of adequate back-up or additional indicators or safety devices
- Inadequate control board display
- Lack of supervisory oversight
- Lack of trained personnel
- Operator fatigue (12 hour shifts x 29 days)
- Personnel trailers too close to hazardous materials

Indicators

- Links to causes – and controls
- Mostly numeric (generally used on a RAG basis for risk management purposes) – but can be subjective, or even binary
- One type of loss event can have many causes
- One cause can lead to many types of loss event
- Is there a direct link between the size of an indicator and the size of a resulting loss?
- Indicators do point to *potential* risk of loss

Job spec.

- Mathematician
- Economist
- Behavioural scientist
- Causal scientist
- Chaos theorist

. . . combined

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