



SUSTAINABILITY & THE ROLE OF THE ACTUARY

New challenges, opportunities and approaches

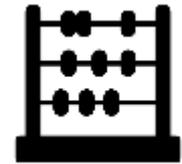
Jérôme Crugnola-Humbert (Switzerland, France)

30 June 2022

Introduction – a natural evolution

The role of actuaries and their work has expanded over time

- From pricing and reserving
- To economic valuation, capital modelling, ERM, Big Data etc.



Climate and sustainability are the natural next step

- Finance is a key part of the sustainability transition
- Actuarial work will be affected in many ways



Sustainability is a great opportunity for the profession to grow

However:

Climate and sustainability services require to develop new ways of working, approaching issues, and collaborating with others



A forward-looking approach

Looking to the past	... the present	... the future
Methodology	Statistics	Market-consistency	Forward-looking
Underlying worldview	<i>'Tomorrow can be extrapolated from yesterday'</i>	<i>'Today's financial markets include all relevant information'</i>	<i>'Tomorrow will be different and must be explored holistically'</i>
Examples	Mortality tables, non-life triangles ...	Economic balance sheet	Climate risk scenarios
Professional judgement involved	Statistical models, historical data, discount rates ...	Market references, ultimate rates ...	Generally higher e.g. integrated assessment models

A multi-stakeholder framework

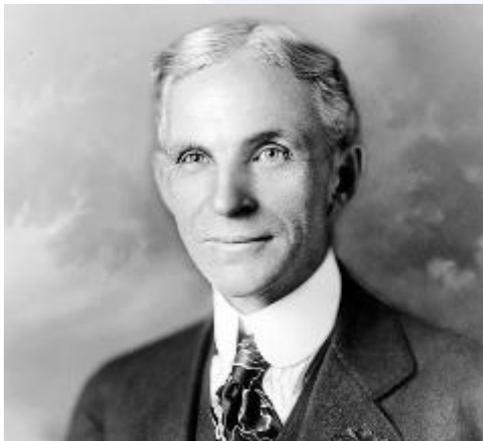


Sources: Wikipedia

Milton Friedman
(1912-2006, economist)

“There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits”

Single-stakeholder approach, focus on shareholder capital



Henry Ford
(1863-1947, industrialist)

“My ambition is to employ still more men, to spread the benefits to the greatest possible number, to help them build up their lives and their homes”

Sustainability requires a **multi-stakeholder** framework: clients, employees, society, investors, nature etc.

Double materiality of sustainability (risks and impacts)

A reverse pillar journey

Many topics (e.g. Solvency) developed from models to risk management to reporting



Climate and sustainability often proceed in **reverse** : disclosures first, ERM in progress, and quantitative requirements further on the horizon

The 'Tragedy of the Horizon'

Typical 1-year horizon

- ✓ Financial statements
- ✓ Solvency risk horizon
- ✓ Most non-life contracts

Key risk & profitability management tool but ...

- ... hinders innovation (e.g. longer coverage, 'build back better' claims etc.)
- ... annual repricing/exclusion can lead to protection gaps and uncertain future sales
- ... regulators may step in and mandate coverage (e.g. California wildfires)

Need to consider longer business horizons



Mark Carney (then-Governor of Bank of England), 2015

Non-stationarity and non-linearities

Climate, biodiversity and other risks are **emerging risks**

Need to develop forward-looking approaches beyond statistical & stationary models

The underlying physical phenomena involves planetary limits and **tipping points** beyond which positive retroaction can trigger irreversible and non-linear change

2022 IPCC report warned to expect **either massive physical or massive transition risk**

Greenland icesheet



Amazon rainforest



Siberian permafrost



Sources: Wikipedia

Conclusion – how (not) to approach sustainability



Still from Thelma and Louise, 1991 © MGM

Q: What will happen to this car?

- This could be misconstrued as a political question, so I would rather not answer
- I need statistical evidence. Let's repeat the experience and fly more cars off the cliff
- Given the physical laws of gravity, this will lead to damage to property and loss of lives

“The thinking goes that because we know so little about climate risk, let’s be tentative in our actions — or even do nothing at all. This is completely wrong, in my view. This is a major problem and it needs to be tackled now.”

Janet Yellen, United States Secretary of the Treasury