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# How Societies Manage Risks: Economic, Legal, and Cultural Context

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# Agenda

- Introduction
- Nuclear liability
- The World Trade Center loss





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# Introduction

Risk, prevention, and liability caps

October 24th, 2018

# Statements about risk

1) Risk management has been there for ages.

2) Modern society trades off:

- *innovation vs. risk avoidance,*
- *liability vs. collective risk sharing,*
- *equity vs. practicable claims settlement.*



# Prevention and mitigation of accidents

More or less visible, e.g.

- Dikes
- Fire brigades
- Safety codes
- Insurance (and its regulation)
- Legal system

Problem: How much prevention/protection is enough?

- Hard to decide for novel risks

# Types of risk

*risk vs. uncertainty*

Frank H. Knight, Economist, USA, 1921

*small worlds vs. large worlds*

Leonard J. Savage, Statistician, USA, 1954

*known unknown vs. unknown unknown*

Donald H. Rumsfeld, Politician, USA, 2002

D. H. Lawrence, Poet, UK, ca. 1915

Ibn Yamin, Poet, Persia, 13<sup>th</sup> cent.

*insurable vs. uninsurable*



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# Liability ... and its restrictions

The ideal (under the rule of law):

- Accountability, *polluter-pays principle*

The reality:

- Who would take a *large-world* risk if one is fully liable?

How liberal societies cope:

- Let (all) people innovate
- Spread certain risks on many shoulders, e.g. via public funds
- Lax or limited liability, limited company, insolvency



## (almost / partly) uninsurable risks

- Certain natural hazards:  
storm surge Netherlands, earthquake Japan, hurricane Florida
- War etc.
- NBC (nuclear, biological, or chemical) weapons
- Terrorism
- Software errors
- Nuclear liability







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# Nuclear Liability

Public-private partnership for (restricted) liability

October 24th, 2018

# The setting

- Complex framework of operator liability, public guarantees ... and possibly insufficient limits
- Trend towards increased operator liability (no fault), but slow

## Background:

- Nuclear energy is of “national interest” in many countries
- Private operators don’t build/run plants if they are fully liable
- The public shall believe that mayor accidents are *impossible* (at least with the locally used technology)



# Layers of protection per event: high end

Germany (in principle unlimited liability, in € billions)

- 0.256            xs            0            insurance
- 2.244            xs            0.256      operators' pool
- unlimited        xs            2.5        operator (self-insured)

USA (Price-Anderson Act, in \$ billions)

- 0.45            xs            0            insurance
- 11-12            xs            0.45      operators' pool
- unlimited        xs            ≈12        at discretion of Congress



# Layers of protection per event: international “standard”

*2004 Protocol to Paris convention on Nuclear TPL* (minimums, in € billions)

- 0.7    xs        0            operator (or its insurance)
- 0.5    xs        0.7        country of plant
- 0.3    xs        1.2        pool of signatory countries

The UK plans to pass its (medium) layer to operators

Problems:

- No protection xs € 1.5 billion required
- Protocol not yet in force, ratification by EU upcoming – for several years
- Protection still a magnitude lower in many countries



# Adequacy of guarantees

- Loss potential in populated areas: controversial, say € 500-5.000 (!?) billion
- Operators won't be *able* to pay that, governments possibly won't be *willing*
- Consumers can't protect themselves by insurance

Bottom line: The risk is on many shoulders in an undesirable way

*Would full TPL insurance be feasible?*

In principle (probably) yes, but:

- this would involve the whole financial market – in (re)insurance about \$ 12 billion per event seems to be the maximum placeable amount
- many (re)insurers are not keen on business in “political” areas





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# The World Trade Center loss

Successful risk management “after the event”

October 24th, 2018

# Main facts

- Four airliners hijacked, used as missiles
- WTC's Twin Towers destroyed, Pentagon damaged
- About 3.000 people killed, 250 seriously insured
- Many victims highly paid and married (matters for compensation)
- Insured loss about \$40 billion
- Economic damage \$1.000 (?) billion



# Potentially responsible (i.e. suable)

- Airlines (UA, AA)
- Airports, security firms
- The authorities, the City of New York
- Police, fire brigade
- Motorola
- Terrorist groups
- Members of the Saudi-Arabian government
- ...





# Sources of compensation

Not mutually exclusive:

- Own insurance covers
- Tort system (by suing someone)
- Government programs
- Charity



# Measures taken by government

- Quick
- Unorthodox
- 3 steps



# 1. Ensuring survival of institutions

*Air Transportation Safety and Stabilization Act (ATSSA):*

in force 11 (!) days after the attack

- Exclusive jurisdiction: Southern New York
- Retroactive (!) liability cap for U.S. institutions: according to existing TPL covers
- Tax breaks for victims
- *Victims Compensation Fund (VCF)*



## 2. Channeling of benefits through VCF

The VCF was not compulsory, but came with incentives ... and conditions:

- Claims regulation within 3 years
- Compensation according to loss of income, onus of proof relaxed
- Stricter rules for very high incomes
- Awards for noneconomic loss capped
- No punitive damages
- Own insurance (Life, WC) deducted (*contradicts* legal practice)
- Waiver of legal actions for damage



### 3. Creation of an atmosphere of solidarity and patriotism

The (re)insurance industry feared *adverse selection*,  
i.e. that very well-off victims would ignore the VCF and go to court.

Plausible scenario: years of legal proceedings, constant negative press, ...,  
social self-destruction with huge economic consequences

Instead:

- Mayor Rudy Giuliani: *We're going to rebuild. ... Do things. Go to restaurants.*
- Strong spirit of national solidarity – rather than revenge, opportunism

# Key figures

- 97% of affected families opted for the VCF, average compensation \$3 million
- VCF saved \$2 billion (>20%) by deducting insurance benefits
- Only 70 families went to court, received \$7 million on average (i.e. not much more – after deduction of legal fees)



## Bottom line

- In administrative and economic terms, the U.S. coped well with the 9/11 attack.
- Measures taken were unorthodox, partly *unfair* – but very *effective*.
- Impressive, though perhaps singular, example of a society's ability to take action post crisis – by *briefly breaking* its own rules.



# Thanks

For details see paper.

Feedback welcome, now or later.

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# Questions

# Comments

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