

# Natural Hazards Insurance in Europe - Tailored Responses to Climate Change Needed

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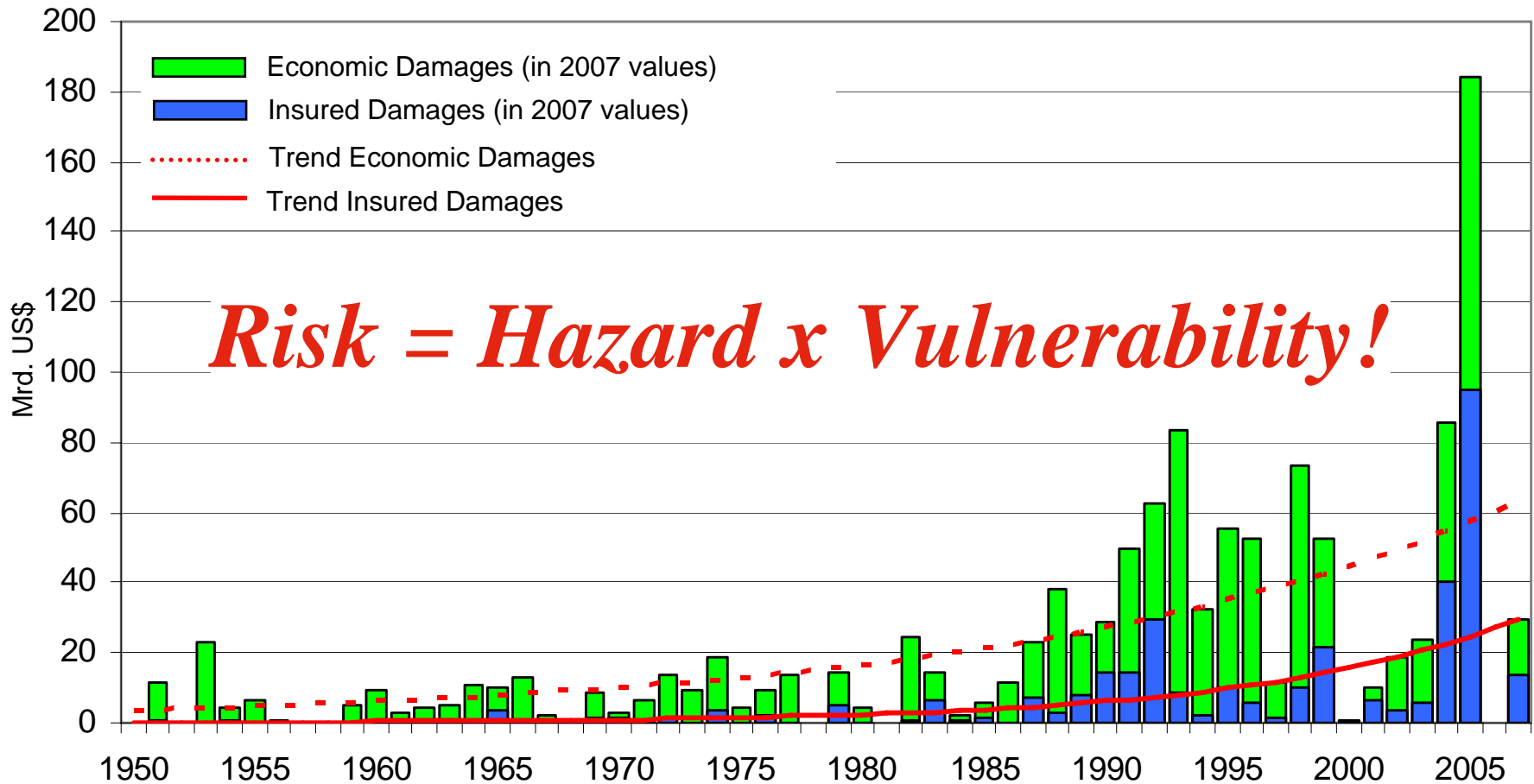
# IPCC-AR4: Trends for Extreme Weather Events

**Table SPM.2.** Recent trends, assessment of human influence on the trend and projections for extreme weather events for which there is an observed late-20th century trend. {Tables 3.7, 3.8, 9.4; Sections 3.8, 5.5, 9.7, 11.2–11.9}

Phenomenon <sup>a</sup> and direction of trend	Likelihood that trend occurred in late 20th century (typically post 1960)	Likelihood of a human contribution to observed trend <sup>b</sup>	Likelihood of future trends based on projections for 21st century using SRES scenarios
Warmer and fewer cold days and nights over most land areas	<i>Very likely<sup>c</sup></i>	<i>Likely<sup>d</sup></i>	<i>Virtually certain<sup>d</sup></i>
Warmer and more frequent hot days and nights over most land areas	<i>Very likely<sup>e</sup></i>	<i>Likely (nights)<sup>d</sup></i>	<i>Virtually certain<sup>d</sup></i>
Warm spells/heat waves. Frequency increases over most land areas	<i>Likely</i>	<i>More likely than not<sup>f</sup></i>	<i>Very likely</i>
Heavy precipitation events. Frequency (or proportion of total rainfall from heavy falls) increases over most areas	<i>Likely</i>	<i>More likely than not<sup>f</sup></i>	<i>Very likely</i>
Area affected by droughts increases	<i>Likely in many regions since 1970s</i>	<i>More likely than not</i>	<i>Likely</i>
Intense tropical cyclone activity increases	<i>Likely in some regions since 1970</i>	<i>More likely than not<sup>f</sup></i>	<i>Likely</i>
Increased incidence of extreme high sea level (excludes tsunamis) <sup>g</sup>	<i>Likely</i>	<i>More likely than not<sup>f,h</sup></i>	<i>Likely<sup>i</sup></i>

# Great Weather Catastrophies 1950 – 2007

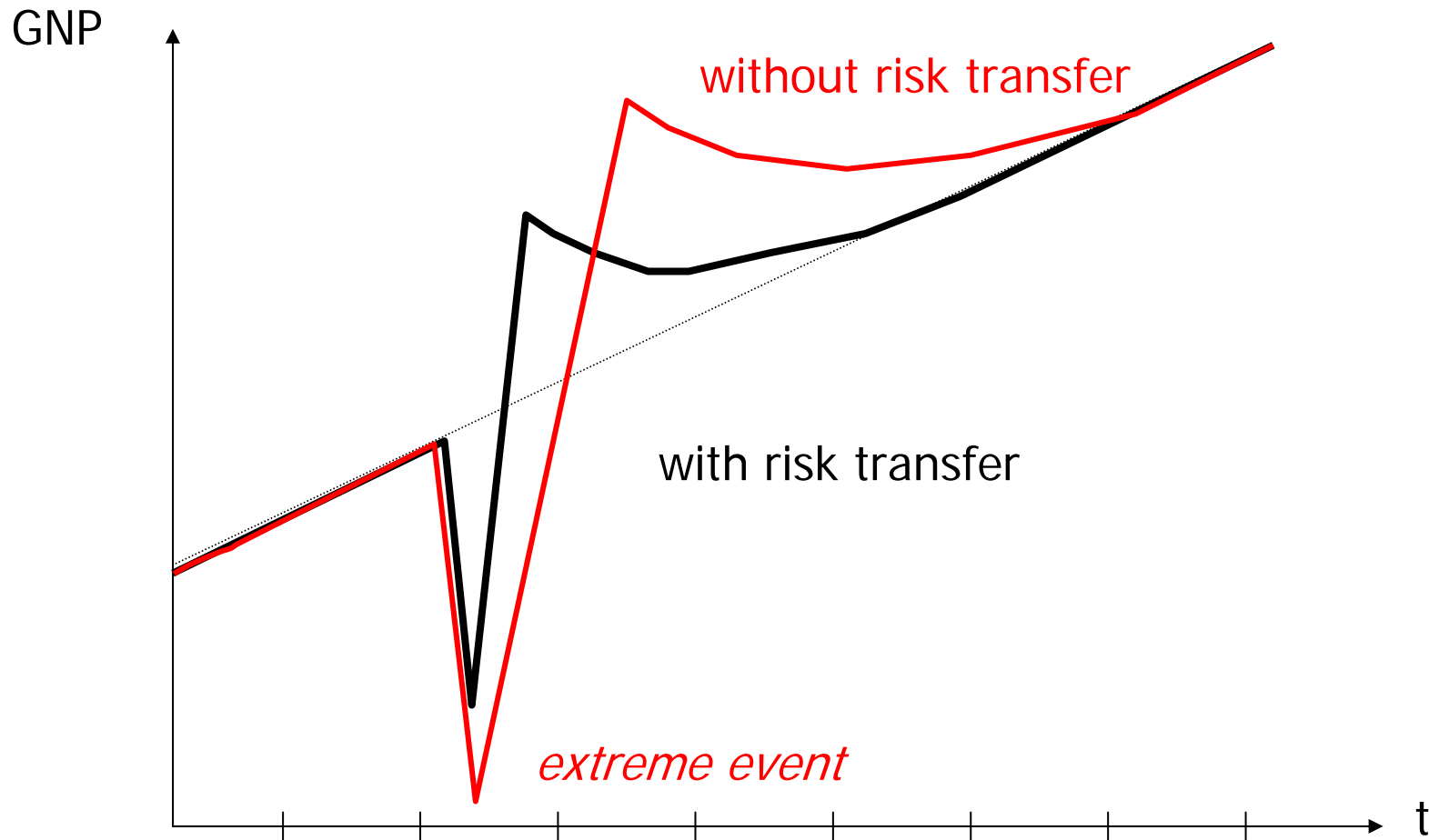
## *Economic and Insured Damages*



# Dual Role of Insurance

- **Income smoothing**

# Macroeconomic income smoothing



# Dual Role of Insurance

- **Income smoothing**
- **Incentives to avoid moral hazard and adverse selection (“incentivizing prevention”)**

# EC-Strategy for Adaptation to Climate Change in the Financial Services Sector

- 'Innovative solutions on the financial services and insurance markets'
- 'Further integration of these solutions into the framework of EU financial services policy'
- 'Review of the risk structure of existing public and private disaster funds including the EU's solidarity funds'

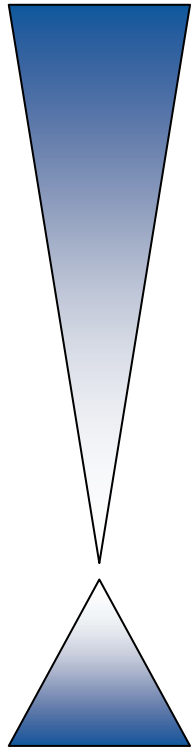
*Common market  
phraseology*

# Financial Risks of Natural Hazards

- *Financial Risks of Natural Hazards* (FRNH) are micro- and macroeconomic disruptions caused by the occurrence of natural hazards (such as: earth quakes, subsidence, land slides, avalanches, snow pressure, storms, hail, heavy rain, flood and storm tides)
- *FRNH Transfer Systems* are *any* private, public or combined private and public (PPP) institutions for the compensation of (optimal residual) economic loss caused by the occurrence of natural hazards

# Stylized Models for FRNH-Transfer

Regulation  
(ex ante)



**Model 1 (M1): (Regional) public monopoly insurer of natural hazards**

**Model 2 (M2): Compulsory insurance of *all* natural hazards**

**Model 3 (M3): Compulsory inclusion of (*all*) natural hazards into general house owner insurance („*coupling of contracts*“)**

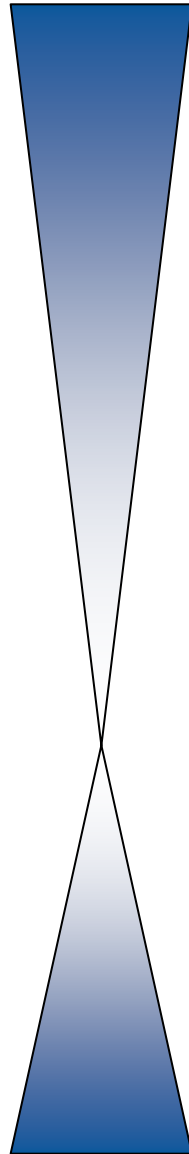
**Model 4 (M4): „Free-market“ natural hazard insurance **with ad hoc-governmental relief programs****

**Model 5 (M5): Tax-financed governmental relief funds**

State relief  
(ex post)

# FRNH-Transfer Systems in Europe

Switzerland	Dual system of private and public insurance with monopoly character. In all cantons, fire insurance and insurance against atmospheric damage is mandatory for all buildings and household content (at replacement value) with an excess of 10% per incident of damage or at least 200 CHF with a maximum value of 1000 CHF (approx. 680 Euros). Reinsurance is provided via two pools of direct insurers with compulsory membership. The pool system for cantonal property insurance offers unlimited cover whereas the private insurance pool for atmospheric damage only provides coverage for up to 25 billion CHF (17 billion Euros). The public insurers and the KGV link the risk transfer with the maintenance of the emergency services (fire service) and have the right to participate in Federal State Planning and Land Use Planning. <b>Insurance density is almost 100% in Switzerland.</b>	M1/M2
Spain	Legal obligation to insure against damaged caused by natural hazards and other 'unusual events' (terrorist attack, political unrest). Premiums are collected by private insurers as an add-on premium in building, contents, accident, life and occupational incapacity insurance and are passed on to the so-called Consorcio de Compensación de Seguros (Consorcio) which is a state monopoly insurer. The Consorcio is subsidised by an unlimited government guarantee. The insurance density is high, depending on the density in the individual sectors, up to 80%. Insurers' excess is usually around 10%.	M2
France	Mandatory inclusion of all 'uninsurable' natural hazards (not including storm, frost, hail and snow load) in all contents insurance contracts by way of a uniform surcharge of 12% on the insurance premium with a low excess (e.g. 380 Euros per incident of damage to buildings and cars). Reinsurance is offered at a fixed cost through the state Caisse Centrale de Réassurance (CCR) with an unlimited state guarantee. High insurance density of close to 100%.	M2
Great Britain	Pure private insurance with risk-based individual premium calculation. High market penetration (75% of private buildings, 95%-100% of mortgage credits) through coupling of natural hazard insurance and fire insurance which is required when taking out a mortgage to secure credit.	M3
Germany	Pure private insurance with individual premium calculation in the case of flood damage (ZÜRS). <b>Insurance against storm and hail is prevalent (95%). However, insurance density against other natural hazards is under 10%.</b> German banks regularly require fire insurance for mortgages but no insurance against natural hazards. If an extreme event occurs ad-hoc relief is often provided for emergency and reconstruction. Victims of damage do not, however, have a legal right to this government relief and it is subsidiary to the provisions of private insurance.	M4
Austria	Insurance against storm, hail and snow load is fully private contracts without government regulation. <b>Additional coverage</b> against other natural hazards (flooding, avalanche, landslides, etc.) is possible but <b>rarely used (&lt; 15%)</b> . Since 1986 Austria has had a government disaster fund financed by tax-payers. Victims of damage do not have a legal right to access this fund. It covers approximately 50% of damages (on average) if the claimant is not privately insured.	M5

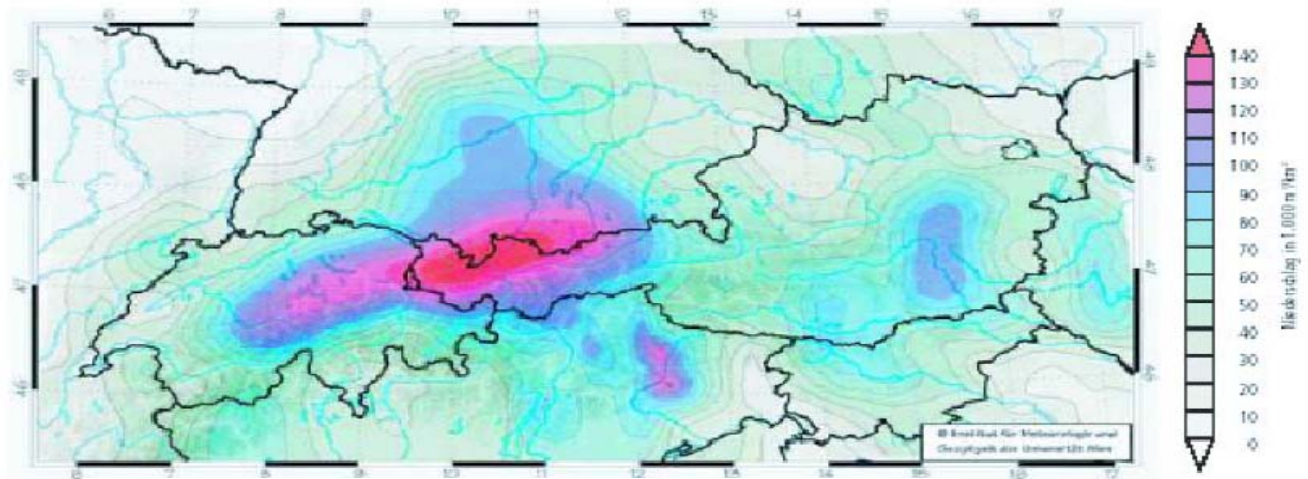


# Case Study: Comparison of FRNH Transfer Systems

*... Three countries, three systems, one extreme event*



Zugbahn des Tiefs "Norbert", Infrarot Satellitenbild vom 22.08.2005, 12:00 Uhr



Karte: Heavy precipitation on 4,5 days in the northern alps (Upper Bavaria, Tirol, Grisons)

Source: Bayerisches Staatsministerium für Umwelt, Gesundheit und Verbraucherschutz, 2005

# Comparison of FRNH-Transfer Systems

## Questionnaire in Tyrol and Upper Bavaria

### Tyrol:

- ▲ N = 218
- ▲ 72 affected by the heavy rain event of 2005
- ▲ Private households

### Upper Bavaria:

- ▲ N = 305
- ▲ Private households

## Official sources

### Tyrol:

- ▲ Tyrolean state government
- ▲ Tyrolean Insurance et al.

### Upper Bavaria:

- ▲ Bavarian Ministry of Environment, Health and Consumer Protection
- ▲ Bavarian Chamber of Insurance
- ▲ German Insurance Association
- ▲ Prevention foundation of Switzerland

# Comparison of FRNH-Transfer Systems

- Damage cover through state and private measures

	Tyrol	Grisons	Upper Bavaria
State measures	53,3% <sup>a</sup>	100% <sup>b</sup>	22% <sup>a</sup>
Private measures	12,8%		18,3%

a: Transfer at depreciated value; b: Transfer at replacement value

→ ***Micro- and macroeconomic disruptions are better absorbed by public monopoly insurance than by disaster funds or 'free market' insurance with ad hoc governmental relief***

# Comparison of FRNH-Transfer Systems

- **Premia**

	Tirol	Grisons	Upper Bavaria
Rate (same object)	>1‰ <sup>a</sup>	0,3‰ <sup>b</sup>	>1‰ <sup>b</sup>

a: Fixed sum insurance; b: Transfer at replacement value

- **Incentives for prevention**



## Die GVZ fördert Objektschutz-Massnahmen gegen Hochwasser

### Präventionsprojekt zum Jubiläum 200 Jahre GVZ

Steht Ihr Haus in der Nähe eines Gewässers, in Hanglage oder in einer Senke? Könnten Überschwemmungen zu Gebäudeschäden führen? In vielen Fällen lässt sich solches mit einfachen Massnahmen am Gebäude verhindern. Und weil das im Interesse aller ist, übernimmt die GVZ 30 Prozent der Kosten.

Stellriemen und Überhöhungen von Eingangswegen oder Zufahrten sind baulich einfache und wirksame Objektschutzmassnahmen gegen eindringendes Wasser und Überschwemmungen. Solche Massnahmen dürfen die angrenzenden Liegenschaften nicht zusätzlich gefährden.

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# Conclusion

- **Natural Hazards Insurance should balance risk transfer and incentives for prevention (“dual role”)**
- **Common market policy for the transfer of FRNH is a ‘nirvana’; true choice is between regulation (ex ante) and state relief (ex post)**
- **Regulation (ex ante) outperforms state relief (ex post) in best practices**

**Thank you for listening!**