Betting against disaster

Presentation to the Finnish Actuarial Association

Robert Lindblom

ENTROPICS Asset Management AB

Established 2013

Fully owned by eight partners

SEF Entropics Cat Bond Fund launch 2015

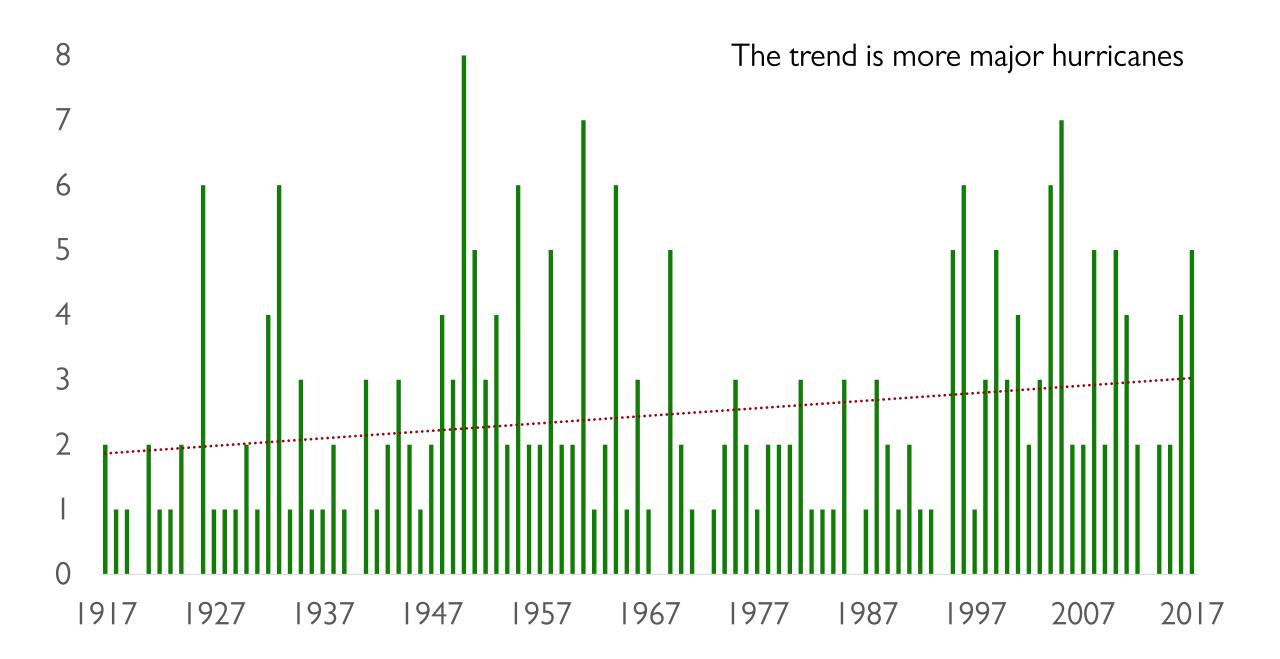
First Scandinavian, first responsible ILS manager

Hurricane Andrew 1992

26 deaths

9 of 1,176 homes in Homestead left standing\$38.8 billion damages in today's currency

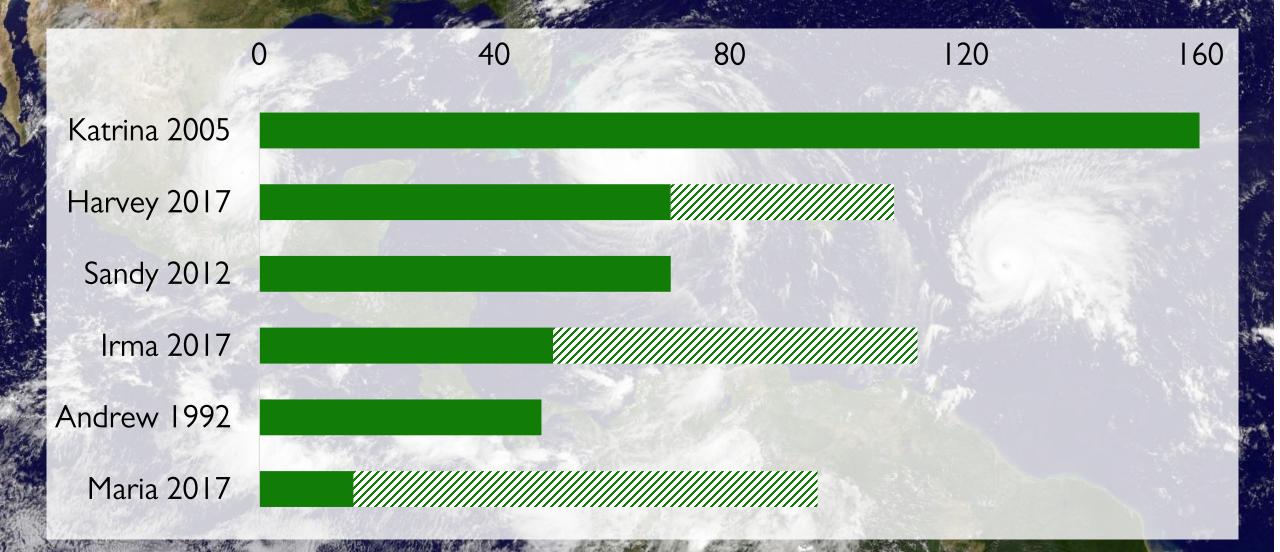
I I insurance companies went bankrupt – 930 000 lost coverage



Most hurricanes affect fewer people



Two or three 2017 hurricanes among top 5 losses

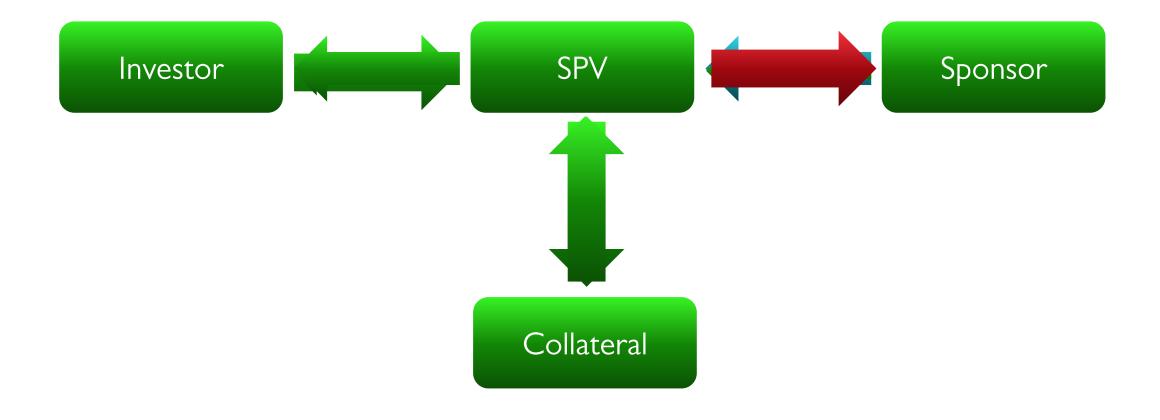


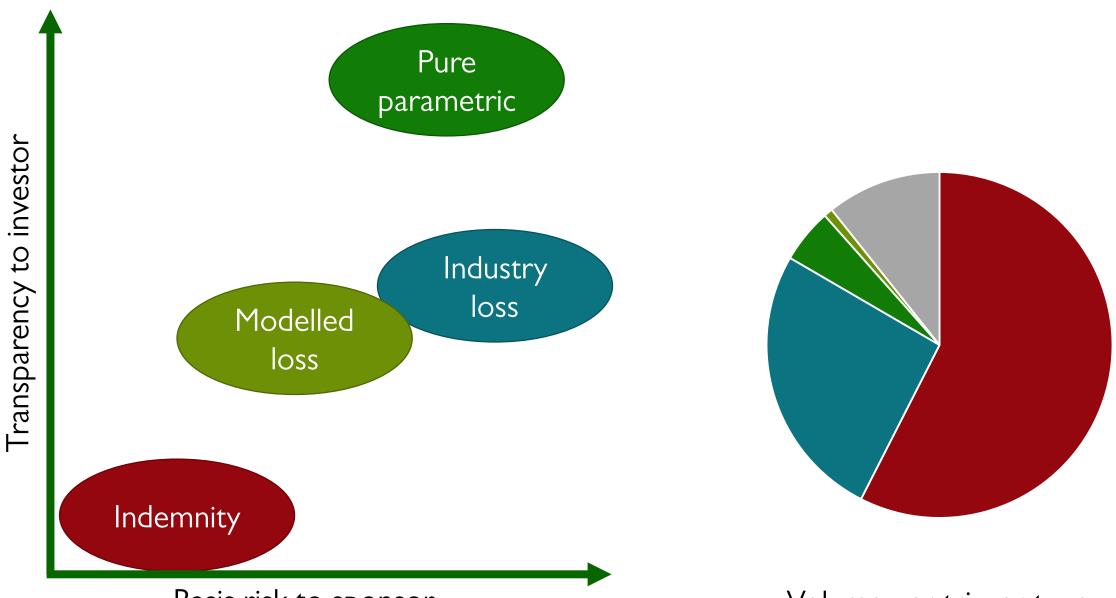


Corporate floating rate note

with different risk





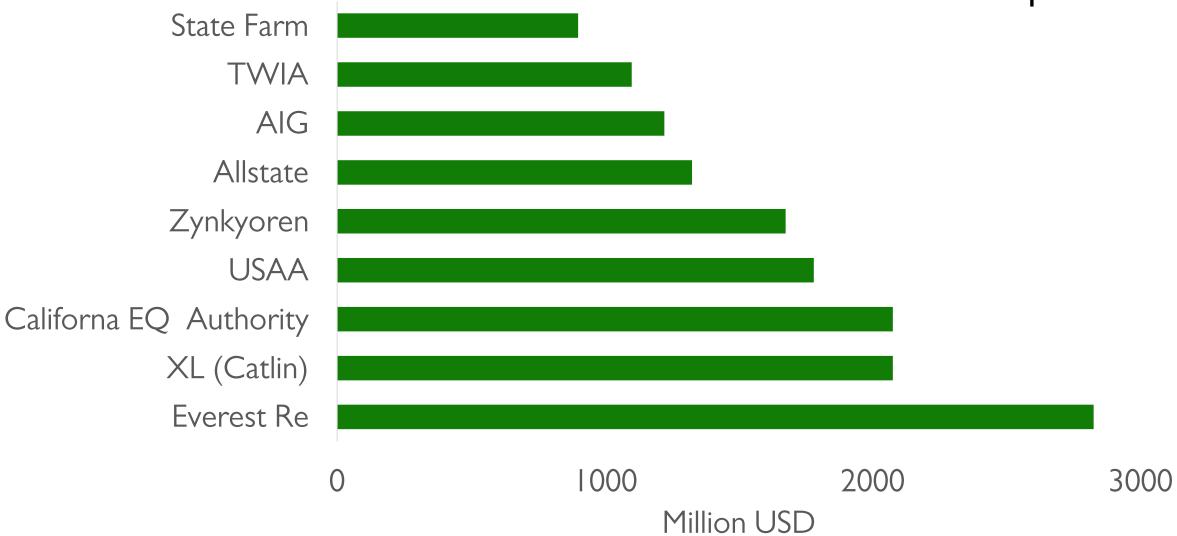


Basis risk to sponsor

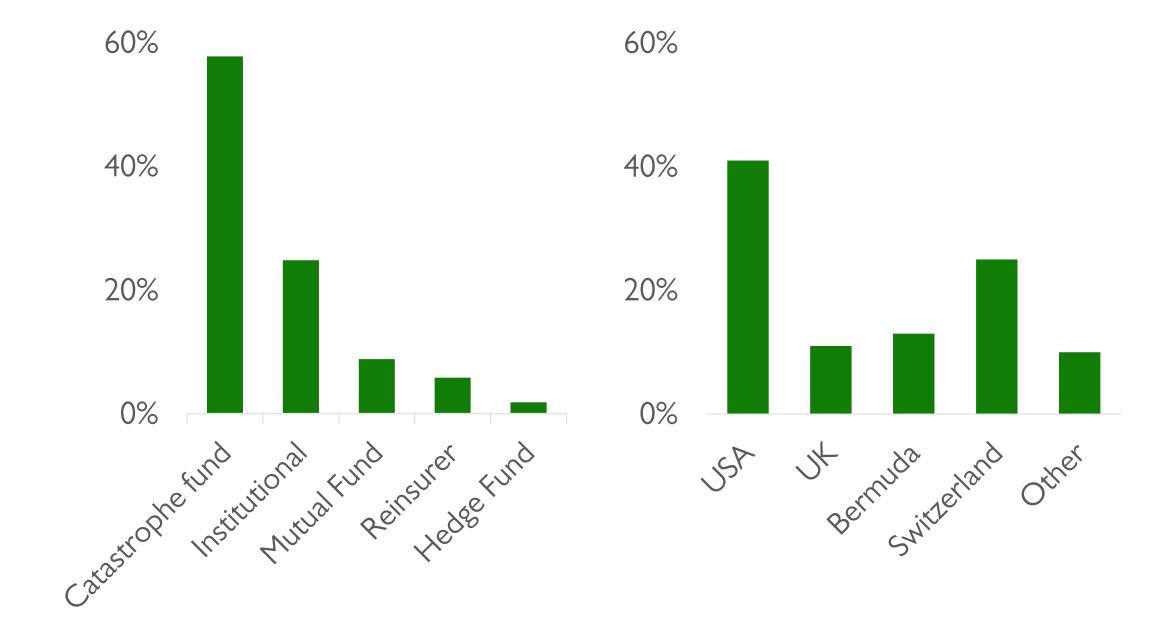
Volume per trigger type

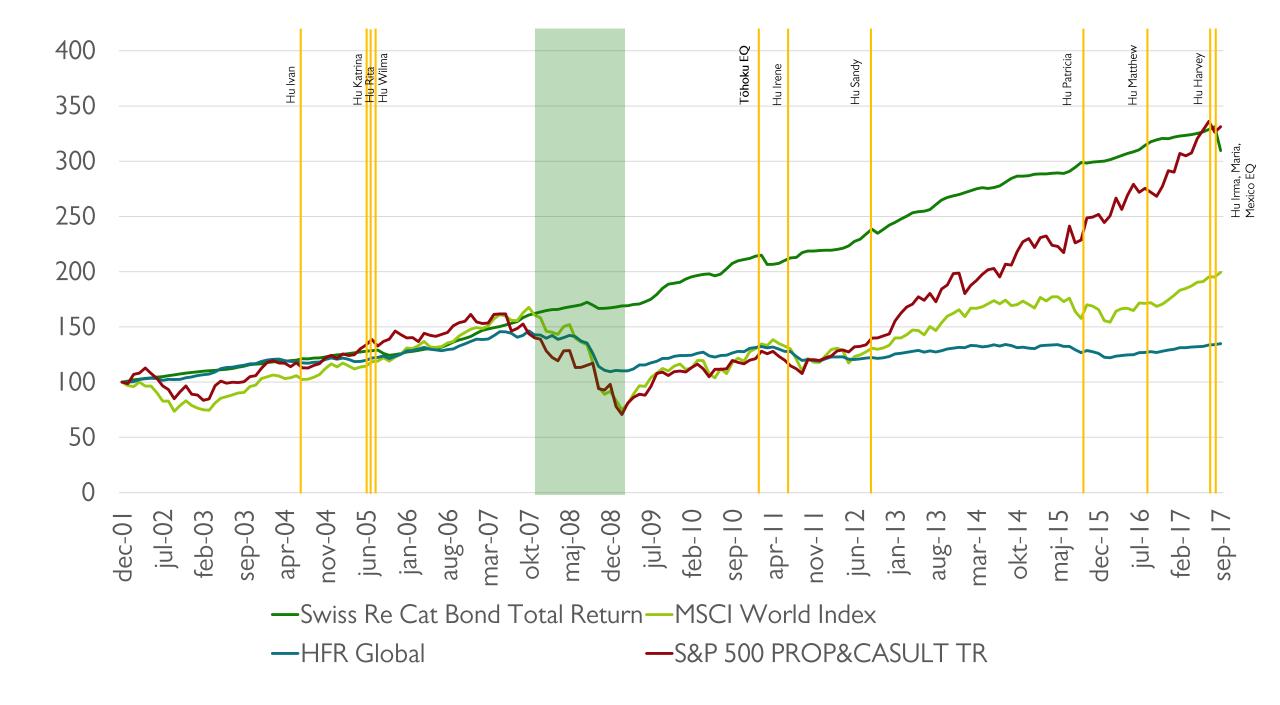
| Total reinsurance market \$605 Bn | Alternative capital \$95 Bn |
|---|--------------------------------|
| Traditional reinsurance capital \$516 Bn | S51 Bn Cat bonds \$26 Bn |
| | Sidecars ILVV \$7 Bn \$5 Bn |

50 % of issued volume by 10 of 58 known sponsors



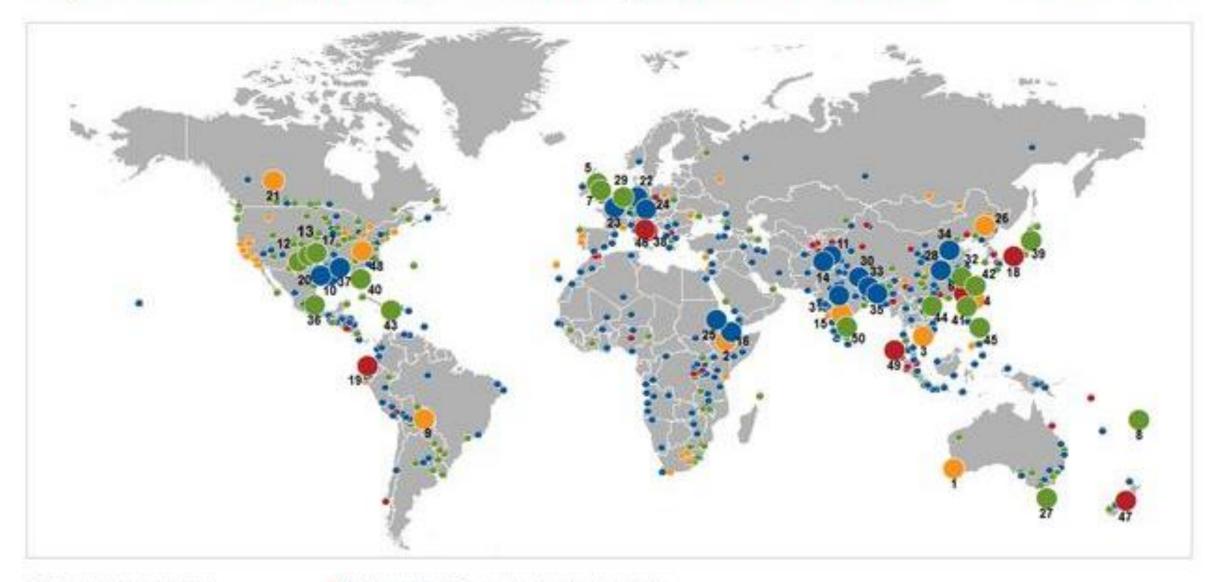
Investor demographics





Topics Geo - World map of the 50 major loss events 2016



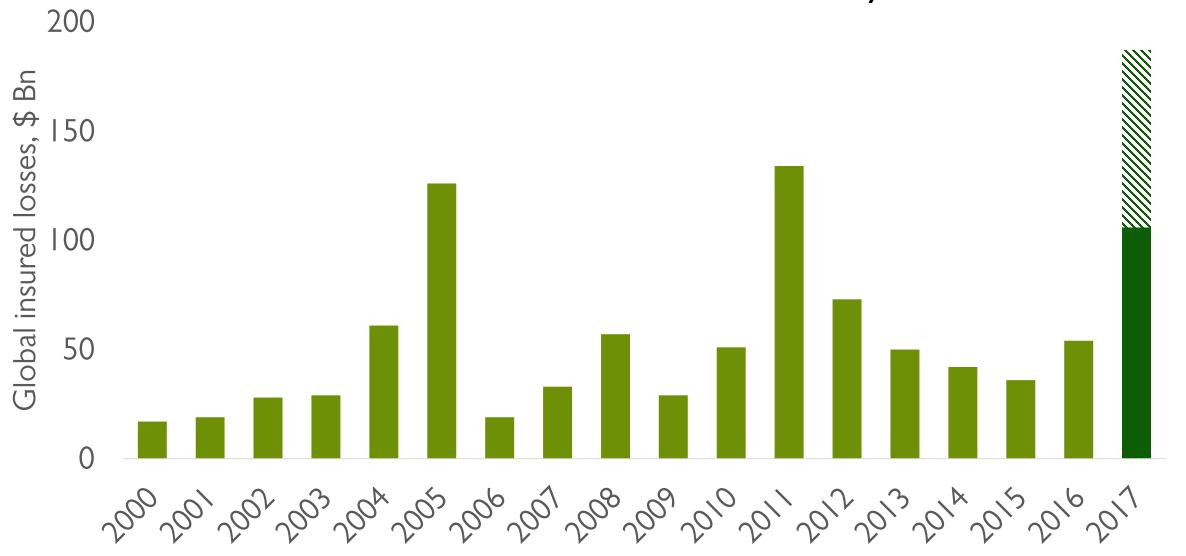


350 natural hazard events, thereof

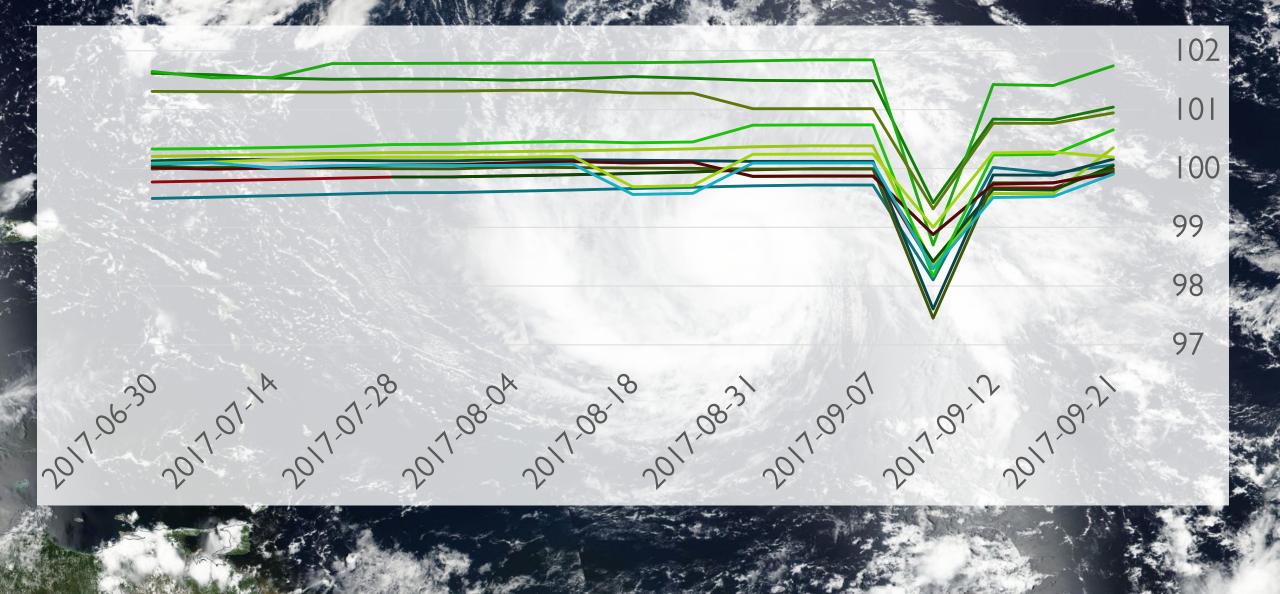
S0 major events (details overleaf)

- · Geophysical events: Earthquake, tsunami, volcaric activity
- Meteorological events: Tropical storm, extratropical storm, convective storm, local storm
- Hydrological events: Flooding, mass movement
- Climatological events: Extreme temperatures, drought, wildline

2017 is one of the costliest years ever



Evidence of a hardening market



In summary

The sponsor's perspective

Fully colletarized reinsurance, no concern of counterpart credit risk

Diversifying sources of capacity

Cat bond typically 3 – 5 years gives price stability

The investor's perspective

Uncorrelated to traditional asset classes

Historically good risk adjusted returns

Risk premium calculated above risk free rate give protection against raising interest rates



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