

# I lavori dello statistico: Swiss Re Corporate Solutions

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# What Swiss Re does

# Reinsurers are shock absorbers for large catastrophes



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## 2001: World Trade Centre

Reinsurers cover **50%~60%** of the insured losses<sup>1</sup>

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## 2005: Hurricane Katrina, Rita and Wilma

Reinsurers cover **35%** of the insured losses

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## 2010: Earthquake Chile

Reinsurers cover **95%** of the insured losses

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## 2011: Earthquake New Zealand

Reinsurers cover **70%** of the insured losses

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## 2011 Costa Concordia

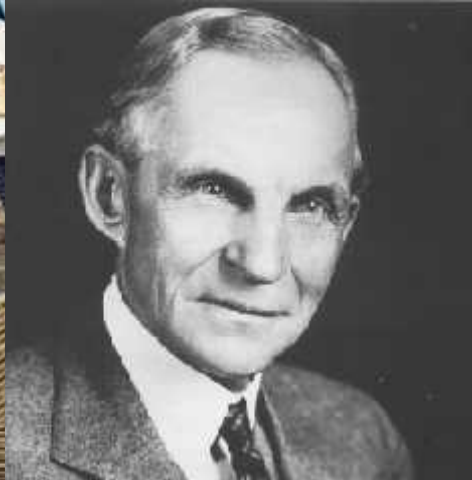
Reinsurers cover over **70%** of the insured losses

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1) Based on Holborn, 2009 Katastrophen Schäden



# Re/insurance enables entrepreneurial risk taking



«This has only been made possible by the insurers. They are the ones who really built this city. With no insurance, there would be no sky-scrapers. No investor would finance buildings that one cigarette butt could burn to the ground.»

**Henry Ford**, referring to New York City in the early 20th century



# We identify and evaluate risk

**Climate change identified as emerging risk almost 20 years ago**



An aerial photograph of an industrial facility, likely a refinery or chemical plant. The image shows several large, cylindrical storage tanks, a complex network of pipes and walkways, and several industrial buildings with white roofs. The facility is situated in a brown, arid landscape with some water bodies and roads visible in the background.

We select and take risk

Insurance of **single risks** (e.g. industrial plants) or  
entire **portfolios of risk** (e.g. motor insurance portfolio)



We transfer and trade risk



**Securitization of earthquake and hurricane risks**

# We share our knowledge on risks

Global reinsurance: strengthening disaster risk resilience

Global Reinsurance Forum

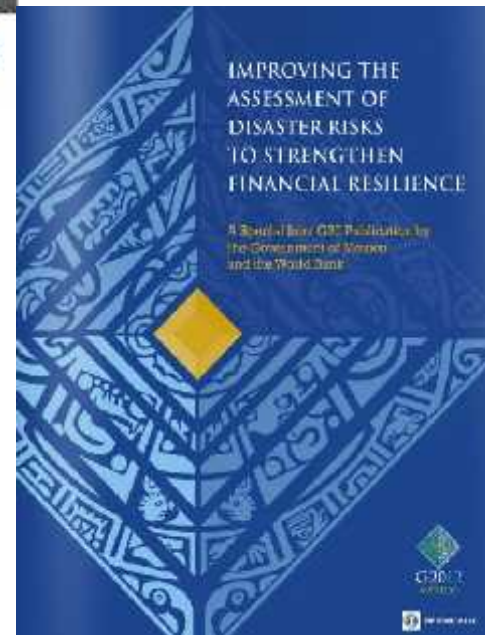


September 2014



Cyber resilience: The cyber risk challenge and the role of insurance

December 2014





# Swiss Re at a glance

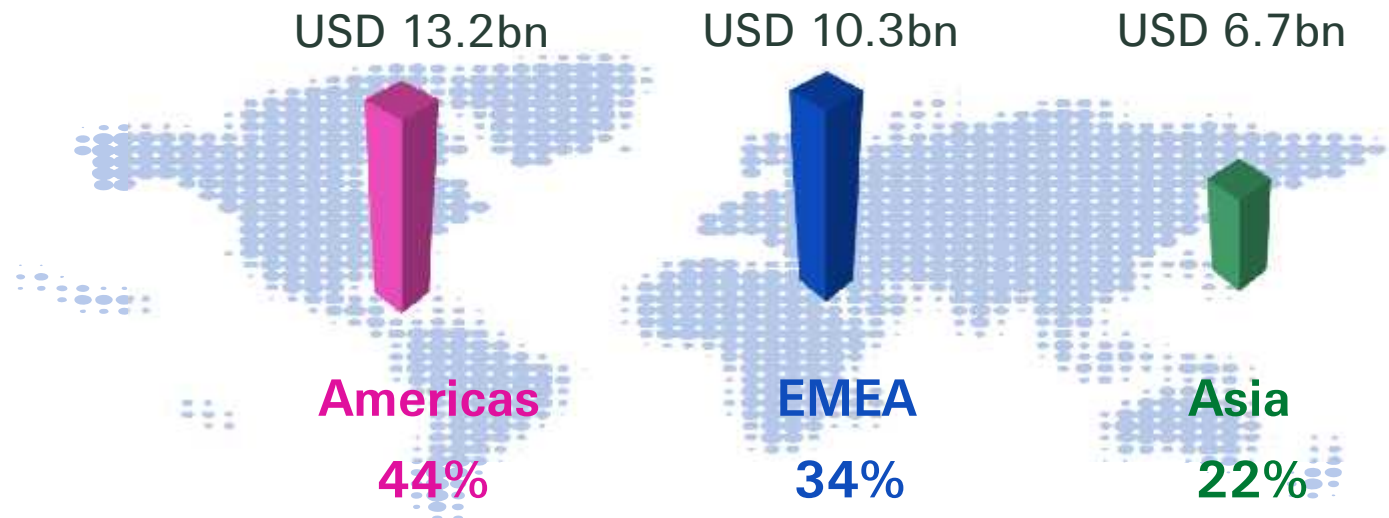
# Swiss Re Group Overview





# Swiss Re is broadly diversified

Swiss Re Group net premiums earned 2015: USD 30.2bn

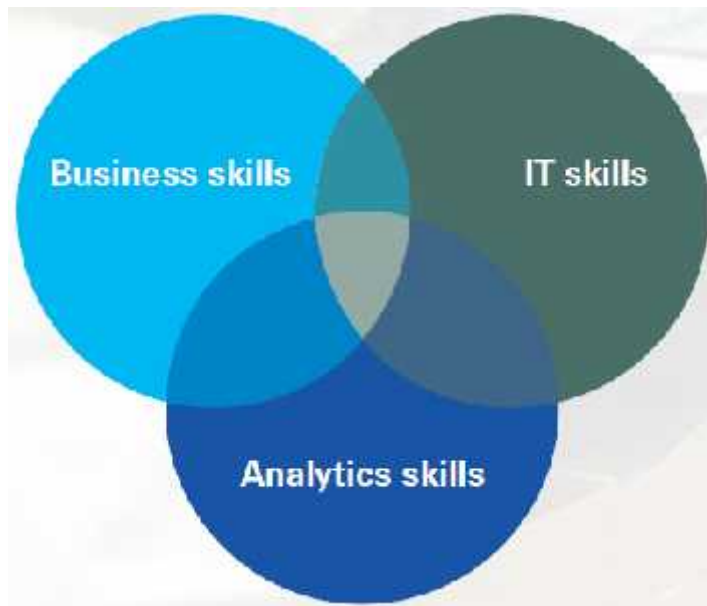


# Your opportunity



# What are the possibilities which Swiss Re offers to statisticians?

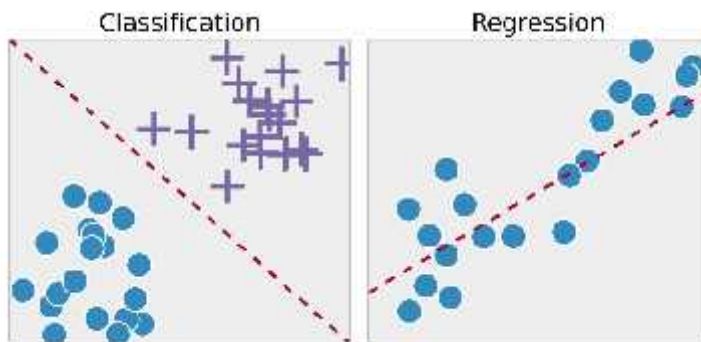
- Smart analytics is an area of innovation that will drive both evolutionary and transformational changes in knowledge economies



- At Swiss Re, we have already begun to build analytics capabilities that help us to improve the efficiency of our operations and deepen our client, market and risk insights

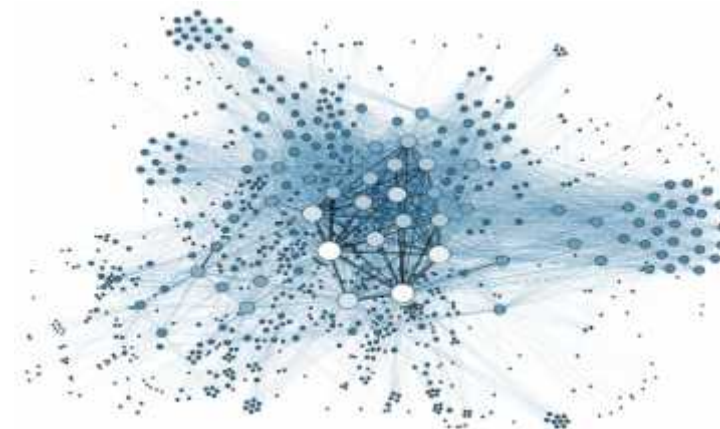
# Swiss Re needs basic analytics capabilities...

- **Descriptive analytics**: you can analyse large amount of data and extract hidden patterns and correlations



- **Predictive analytics**: you can use past or present data to make inferences about the future using modelling techniques such as classification, clustering, regression, time series analysis, neural networks and so on...



- **Visualisation**: explore more data across multiple problem dimensions comes the challenge of presenting the findings in a way that users can understand intuitively





## ... and Big Data techniques

- The ability to explore a problem without having a predefined structure or data model becomes increasingly important

Data	Small sample	Large sample	Big Data
	Dimensionality	Low	High
Type	Structured	Unstructured	
Source	Swiss Re internal, Open, Commercial, Partners, Clients		

- Data Mining
- Text Mining
- Machine Learning



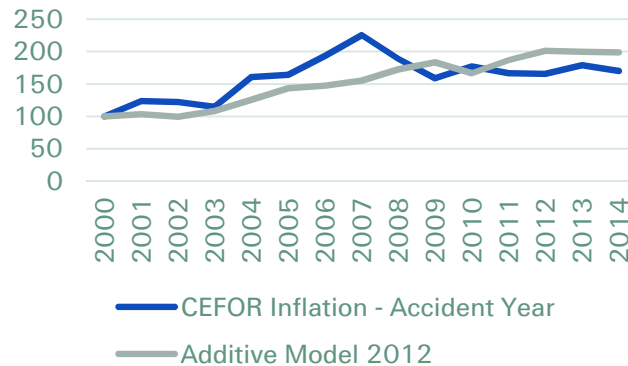
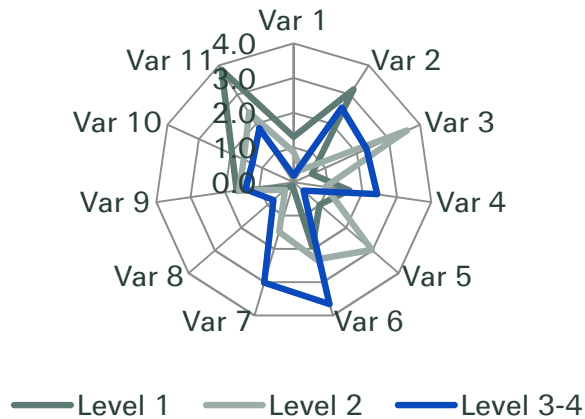
# Swiss Re and SMID (Statistica Matematica e trattamento Informatico dei Dati)

- Andrea Mazza, one of the SMID students who is working for Swiss Re
- University
  - SMID student from 2012 to 2015, bachelor degree 110/110 cum laude
  - ETH student, master degree in “Statistics: Data Science” ongoing
- Swiss Re
  - 6-months internship from February to July 2015
  - 60% temporary employee as Business Analyst Marine ongoing

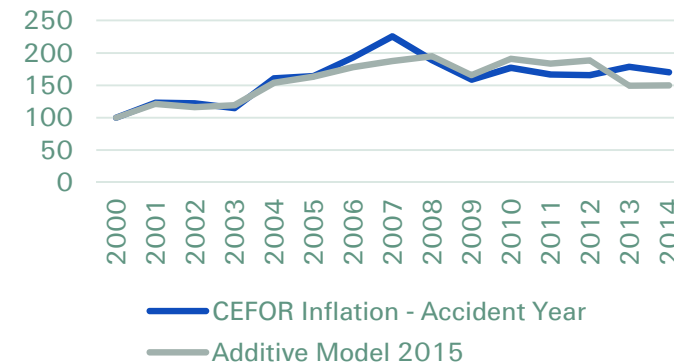
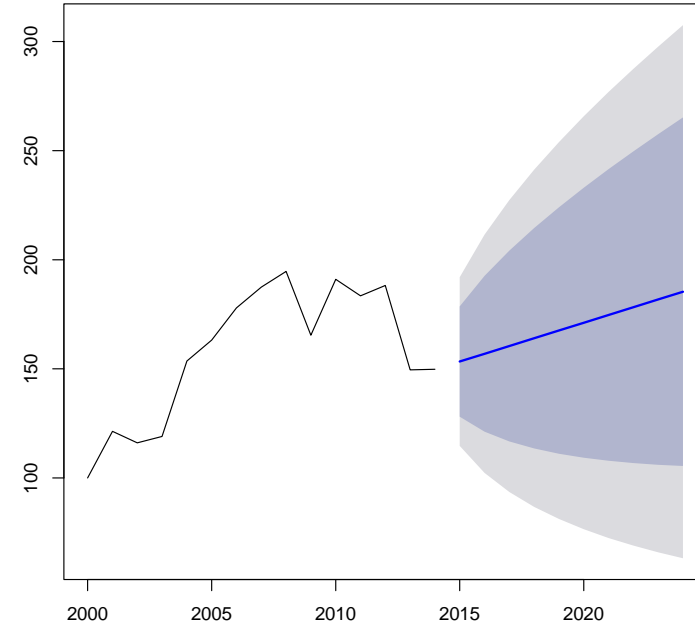


# Andrea's statistical studies in Swiss Re and IUMI (International Union of Marine Insurance)

## Spider chart Qualitative analysis

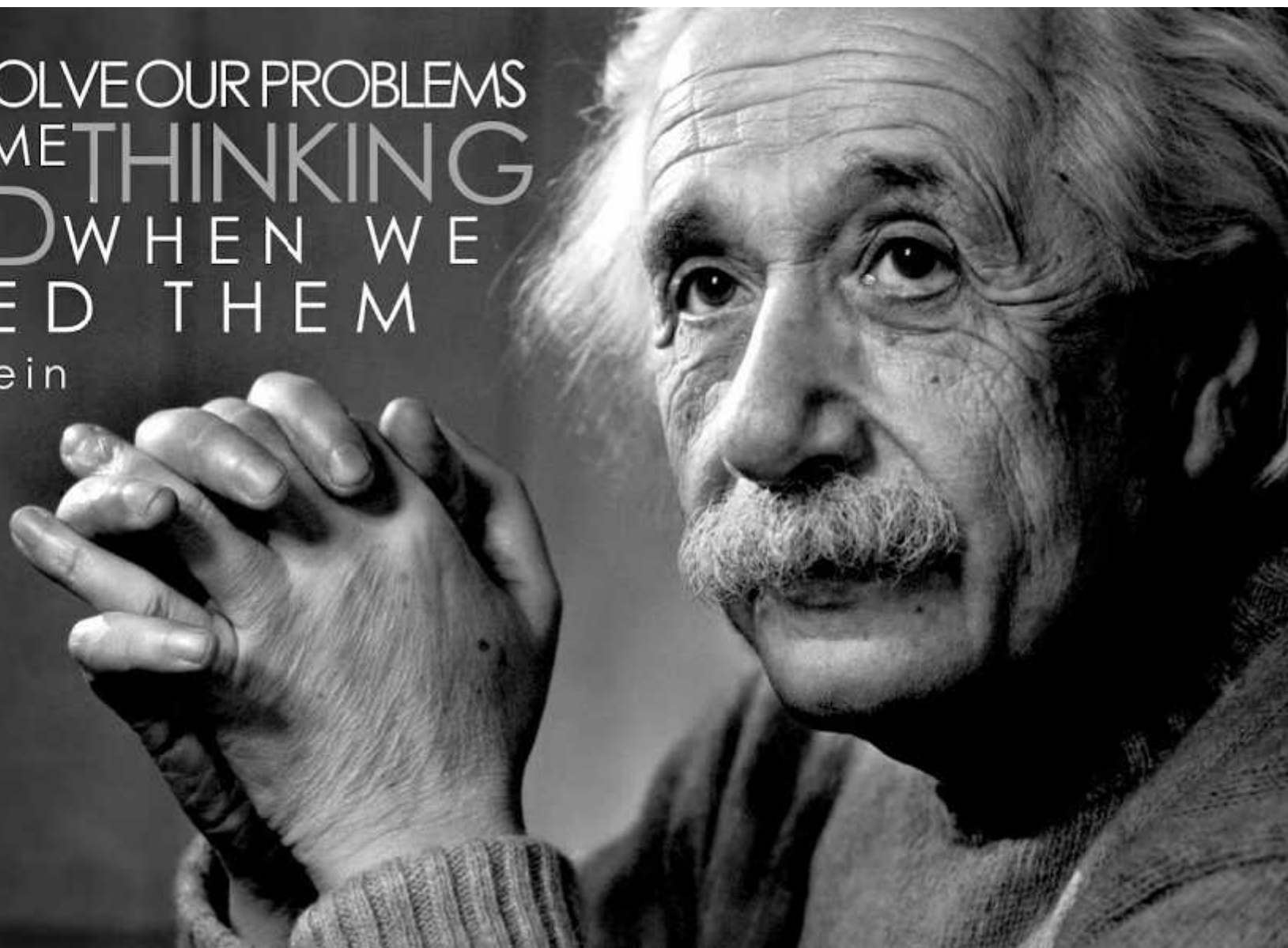


## Additive Model Index - Forecast





WE CANNOT SOLVE OUR PROBLEMS  
WITH THE SAME THINKING  
WE USED WHEN WE  
CREATED THEM  
-Albert Einstein



# Thank you!



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