



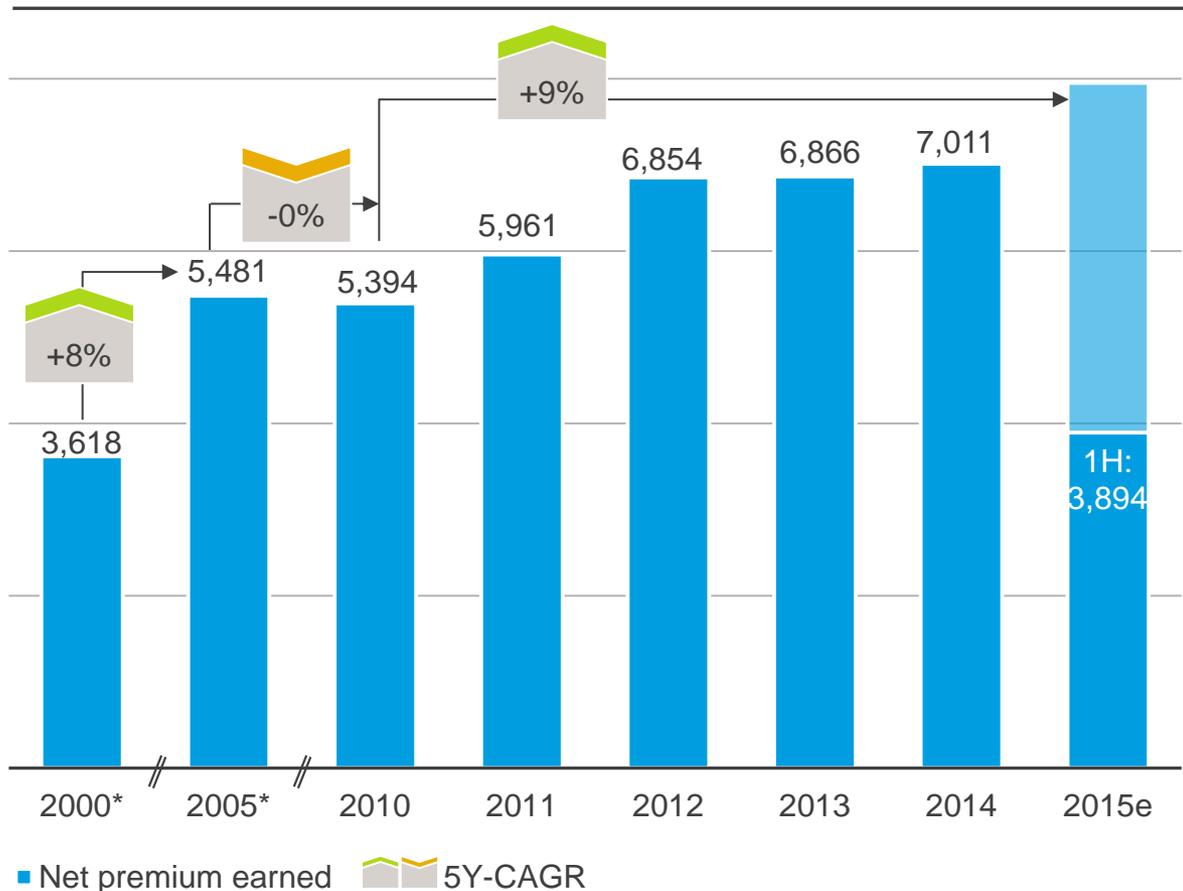
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# A dip into newer P&C opportunities

**Jürgen Gräber, Member of the Executive Board**

# Hannover Re successfully exploits market opportunities ... ... and implements growth initiatives without neglecting cycle management

P&C reinsurance net premium earned in m. EUR



- ▶ Improved diversification and reduced NatCat exposure leading to lower earnings volatility
- ▶ Cycle management combined with selective underwriting
- ▶ Past and future growth opportunities from global trends
- ▶ Increase in 2015 driven by one-offs

\* Based on previous segment reporting

# Agenda

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02 – 11 | **Cyber insurance**

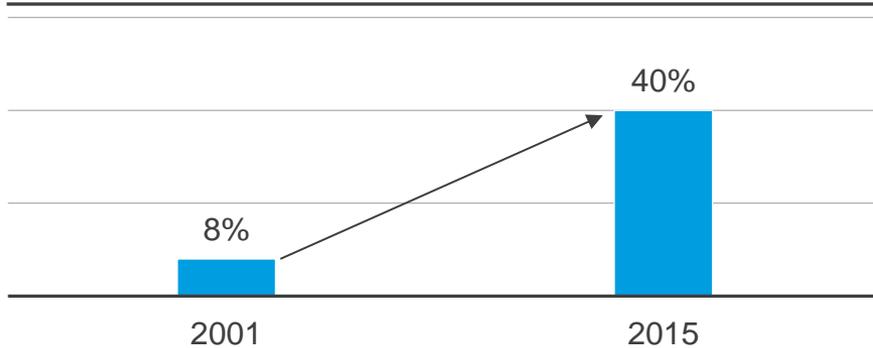
12 – 22 | Agricultural insurance

23 – 23 | Conclusion

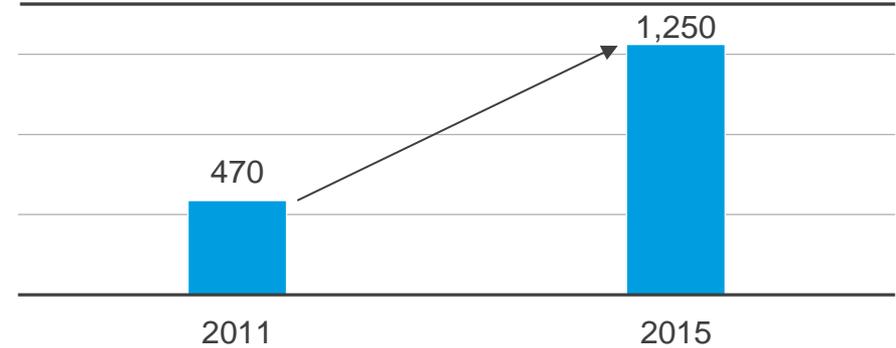
# Technological trends

## Drivers of the cyber insurance market

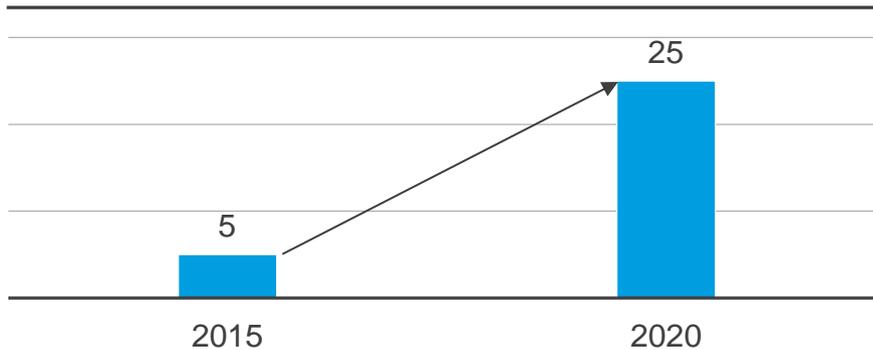
Internet society



Sold smartphones



Internet of things

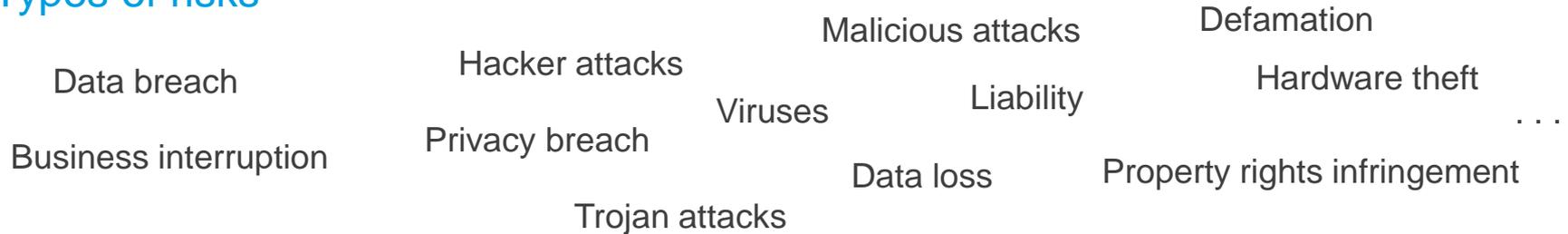


**A clear trend: always on & (hyper-) connectivity**

# An ever-growing technological dependence increases risks

## Cyber insurance - risks and coverage

### Types of risks



### Who is affected?

Everybody!

### What types of cyber insurance are there?

#### First party (own losses)

- ▶ Data and system recovery
- ▶ Network interruption
- ▶ Cyber breach remediation & notification expenses
- ▶ Cyber extortion

#### Third party (losses caused to third parties)

- ▶ Privacy protection liability
- ▶ Network security liability
- ▶ Media liability

# Cyber insurance

## Standard coverage - first party

### ▶ Data & system recovery

- Covers costs to re-secure, replace, restore or recollect data, applications or systems which have been corrupted or destroyed

### ▶ Network interruption

- Covers loss of income and associated extra expense arising out of the interruption of business due to a network security breach (internal, external [DDoS, active hacking, malware])

### ▶ Cyber breach remediation and notification expenses

- Notification cost
- Emergency hotline or call centre expenses
- IT forensics expenses
- Identity theft and credit monitoring expenses
- Public relations cost
- Legal defence cost

### ▶ Cyber extortion

- Covers extortion payments and associated expenses arising out of a cybercriminal threat to release, encrypt, destroy sensitive information or interrupt the company's network unless consideration is paid

# Cyber insurance

## Standard coverage - third party

### ▶ Privacy protection liability

- Protection from losses arising out of the failure to protect sensitive personal or corporate information, i.e. breach of privacy and security obligations under federal, state, local or foreign statutes, rules or regulations

### ▶ Network security liability

- Covers liability arising out of the failure to protect your network, i.e. unauthorised access or unauthorised use (internal & external) of your systems, or inability of access e.g. due to a (distributed) denial of service attack or transmission of malware

### ▶ Media liability

- Protection against claims arising out of the releasing, gathering and the communication of confidential information
- Coverage against copyright or trademark infringement, violation of privacy, libel, slander, plagiarism or negligence arising out of various ways of electronic publishing, transmission and distribution of internet content

# Gaps in the coverage of traditional insurance classes

	Property	BI	General liability	Crime	D&O	Cyber cover
Policy trigger:	Physical Damage	Physical Damage	Actual fault	Criminal Act	Breach of duty	Loss of data/ network failure
Direct and indirect financial loss	✗	✗	✗	✗	✓	
Hacking	✗	✗	✗	✓	✗	
Data theft	✗	✗	✗	✓	✗	
Privacy liability	✗	✗	✗	✗	✗	
BI following a DDoS/Hacking	✗	✗	✗	✗	✗	
Reconstruction of network, data, software...	✗	✗	✗	✓	✗	
Liability following physical loss of data	✗	✗	✗	✗	✓	
Contractual liability towards PCI	✗	✗	✗	✗	✗	
Costs following loss of data	✓	✓	✗	✗	✓	
Costs following a data security breach	✗	✗	✗	✗	✗	
Costs for external security specialists	✗	✗	✗	✗	✗	
Costs for legal advice	✗	✗	✓	✗	✓	
Public relation expenses	✗	✗	✗	✗	✓	
Extortion money	✗	✗	✗	✗	✗	



## Public starts taking notice

### Ashley Madison hack highlights cyber extortion risks

Business Insurance, By Donna Mahoney, 1 September 2015

### 2014: THE YEAR IN CYBERATTACKS

Newsweek, By Sharone Tobias, 31 December 2014

### Millions of Anthem Customers Targeted in Cyberattack

The New York Times, By Reed Abelson and Matthew Goldstein, 5 February 2015

### Hacking Experts Call Sony Cyber Attack

#### 'Unparalleled And Well Planned Crime'

Business Insider UK, By Lisa Richwine and Jim Finkle, Reuters, 7 December 2014

### Home Depot's 56 Million Card Breach Bigger Than Target's

'Unique, Custom-Built Malware' Eliminated From Retailer's Systems After Five-Month Attack on Terminals  
THE WALL STREET JOURNAL, By Robin Sidel, Updated: 18 September 2014

### Cyberattack that hit Target a widespread threat to consumers

"...More than 1,000 US businesses have been affected by the cyberattack that hit the in-store cash register systems at Target, Supervalu, and most recently UPS Stores..."

The Boston Globe, By Nicole Perloth, New York Times, 23 August 2014

### Exclusive: EBay initially believed user data safe after cyberattack

REUTERS, By Jim Finkle and Deepa Seetharaman, 23 May 2014



# Development of cyber insurance market in the US and Europe

## US<sup>1)</sup>

### Regulatory activities

- ▶ Pioneer in cyber security
- ▶ Since 2003, increased regulatory activities in relation to data protection and cyber security

### Premium

- ▶ Estimated GWP in 2014 ~USD 1.5 bn. gross
- ▶ Expected growth rate: ~38%
- ▶ Penetration rate: ~34%

## Europe<sup>2)</sup>

### Regulatory activities

- ▶ First EU data protection guideline (Data Privacy Protection Directive) in 1995
- ▶ In 2013, tightening of directive due to inconsistent laws in EU, stricter notification rules and penalties
- ▶ Implementation of new EU directive, most likely in 2016

### Premium

- ▶ Estimated GWP by 2018: ~USD 900 m.
- ▶ Expected growth rate: ~50%
- ▶ Penetration rate: ~2%

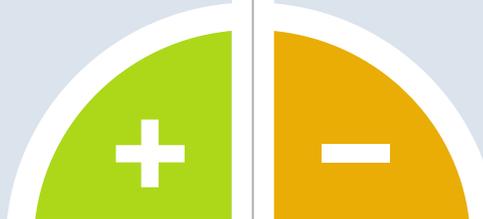
**Rest of World (RoW):** increasing awareness creating new demand

1) AON, Insurance Risk Study 2014

2) Der Cyber-Versicherungsmarkt in Deutschland, 2014, Springer Verlag, Marsh UK Cyber Security 2015

# Conclusion

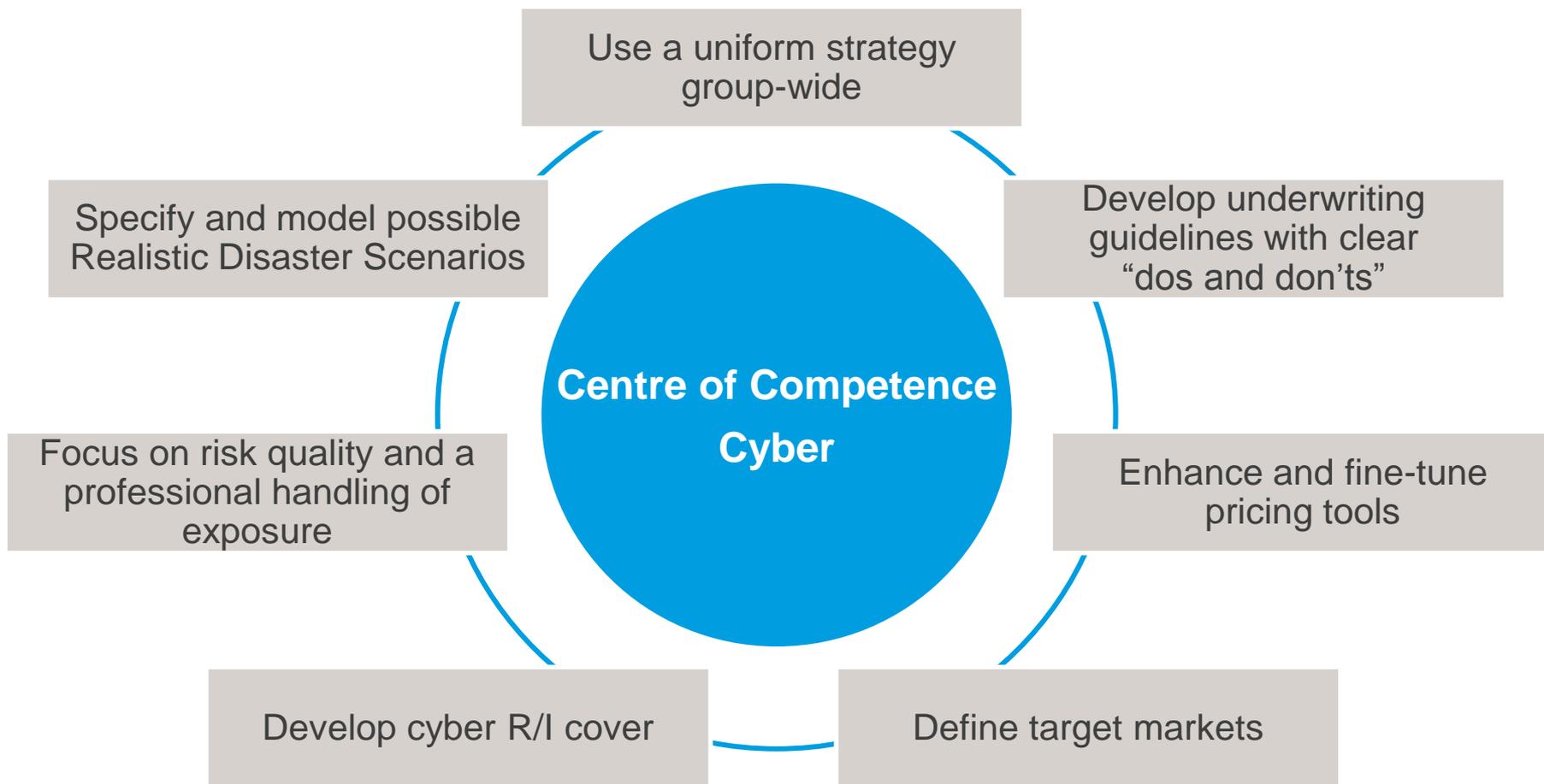
- ▶ US is pioneer in cyber security but still has a way to go - strong growth potential
  - ▶ Most European companies do not buy cyber insurance yet - very strong growth potential
    - Implementation of a new EU directive in 2016?
  - ▶ Rest of World offer stronger growth potential
- ▶ Available capacity (still) exceeds demand (single risk/limit)
  - ▶ Continual development of attacks
  - ▶ Premium adequacy not proven yet



**Hannover Re sees more opportunities than risks in cyber business**

# HR's approach to realise cyber business opportunities

Establish ourselves as a skilful and preferred business partner in cyber reinsurance



# Agenda

somewhat  
different

02 – 11 | Cyber insurance

**12 – 22 | Agricultural insurance**

23 – 23 | Conclusion

# Growing population and food demand with less arable land ... ... make agriculture a constant challenge

## Types of risks

Frost      Sickness      Disease      Pests      Equipment      Pricing      Wind  
Drought      Heavy rainfalls      Wind      Viruses      ...  
Heat

## Who is affected?

Governments      Farmers      ...      Everybody!

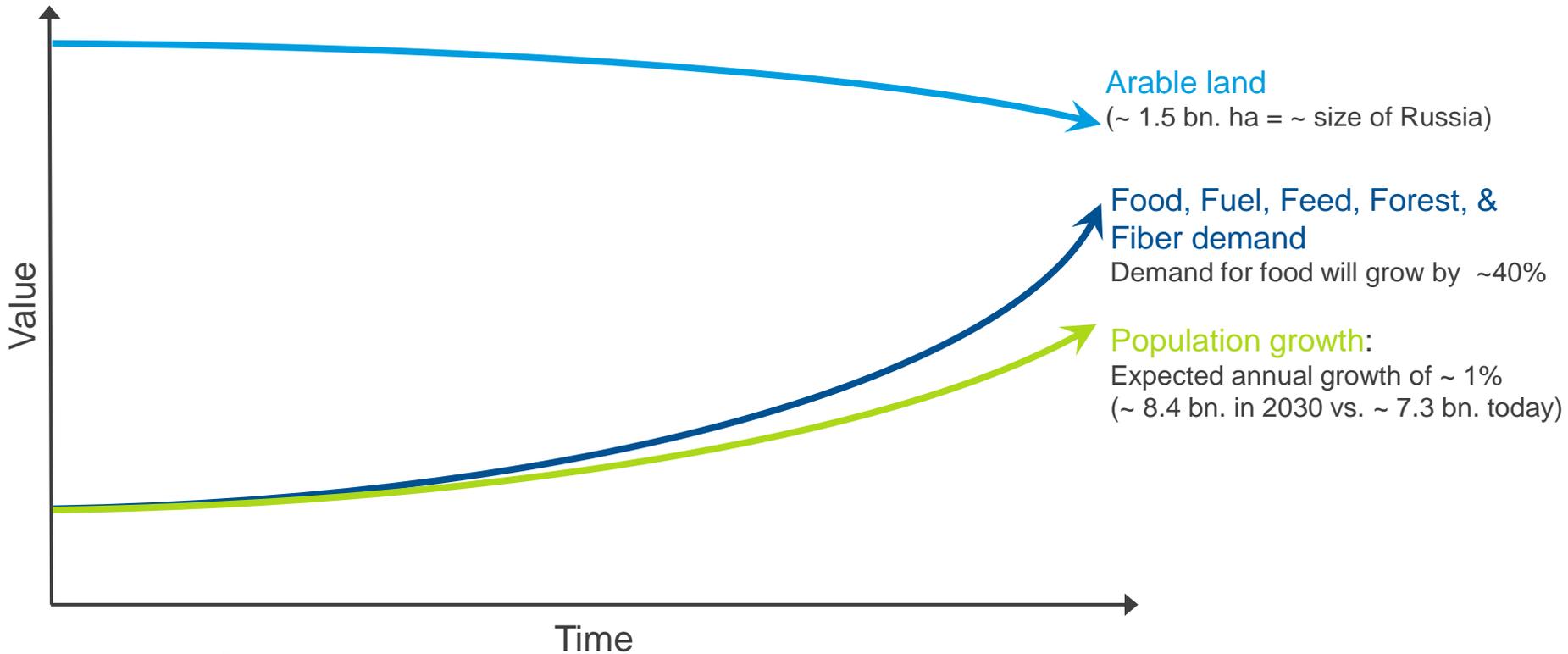
## What types of agricultural insurance are there?

- ▶ Single-risk insurance
  - One peril or risk (e.g. hail)
- ▶ Named (peril) insurance
  - Two or more risks, mostly with hail as basic
- ▶ Farm package insurance
  - A combination of guarantees for crops and farm infrastructure
- ▶ Multiple Peril Crop Insurance (MPCI)
  - Losses from natural causes (e.g. wind, drought, frost, rain, pests, disease, etc.)
- ▶ Revenue Insurance Plans (e.g. Crop Revenue Coverage (CRC), Income Protection (IP), etc.)
- ▶ Index insurance (e.g. weather, yield, NDVI (Normalized Differenced Vegetation Index), etc.)

# Our global food supply is faced with enormous challenges

By 2050, 9 bn. people require 70% - 80% more food (>1000 calories per day/person)

## Envisioned development of future demand vs. land



Source: Worldbank, FAO, Geohive

**Risk transfer is necessary to protect the capital investment in agriculture**

# Agricultural business - a global megatrend

As world population & income rise, the race is on to meet changing nutritional needs

## 4. There is a need and a trend to invest in, diversify and intensify agriculture

- Capital is moving into the agricultural sector in emerging markets
- Technical modernisation requires considerable investment
- Countries worldwide are interested in gaining food self-sufficiency

## 3. The natural resources are limited

- Land and water scarcity
- Changing weather and increasing pollution

On the supply side, environmental pressures and increasing urbanisation are putting further strain on already limited resources.

## 1. Global population is growing by 210,000 people every day

- Strongest population growth in Asia
- People increasingly live in urban centres
- Life expectancy is increasing

In 1985, meat consumption in China was 20 kg per person per year. By 2000, it had increased to 50 kg. Further increases are projected.

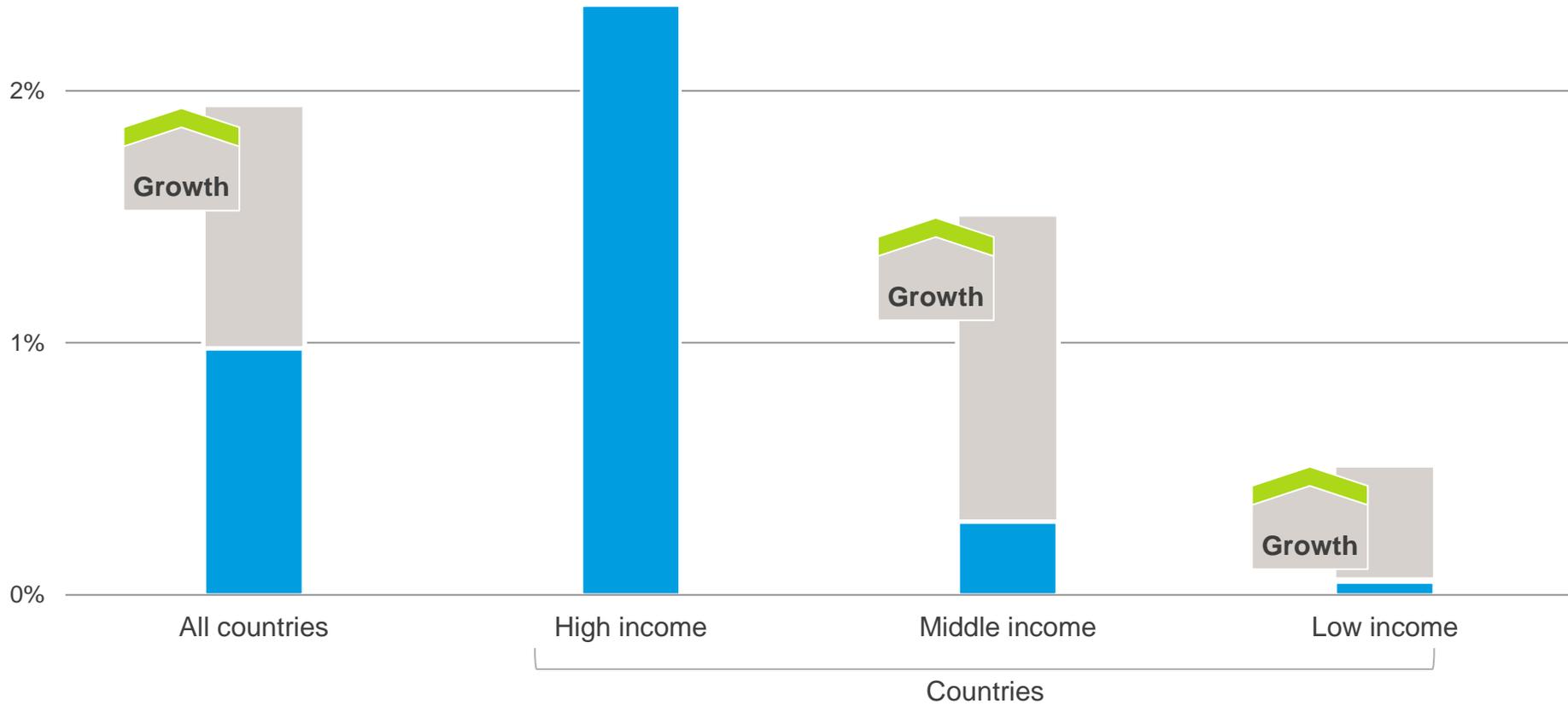
## 2. High economic growth is bringing large part of population out of poverty (Mexico, Brazil, China, India, etc.)

- What is more, the food consumption pattern is changing increasing the consumption of meat and healthy, high quality food (organic)

# High growth potential of insurance premium in... ...emerging markets from USD 3.9 bn. (2009) up to USD 15 - 20 bn. (2025)

## Agriculture insurance premium vs GDP

in %



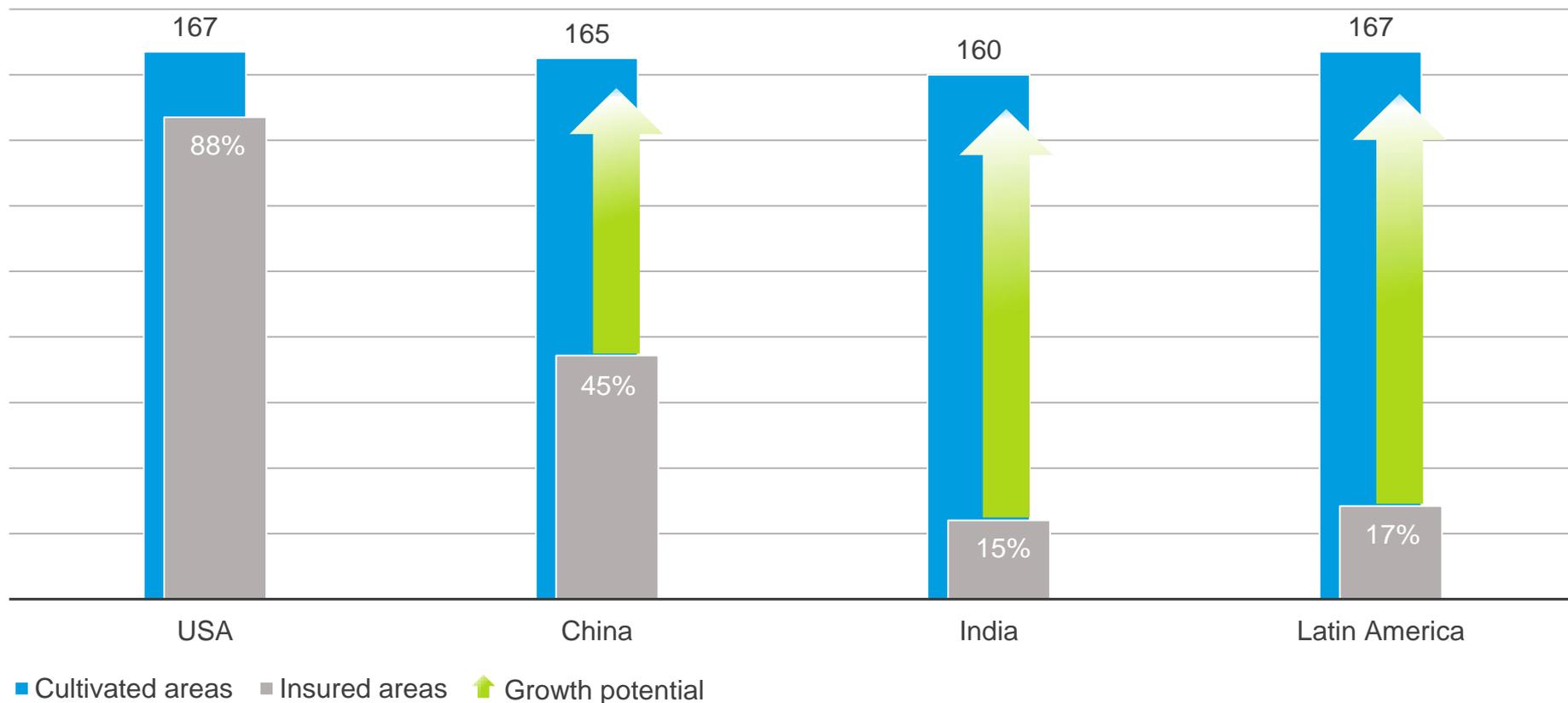
Source: Worldbank, 2009  
Sigma, 2012

# Insurance penetration in agricultural crop business

## Still huge growth potential

Ratio of insured vs. cultivated areas

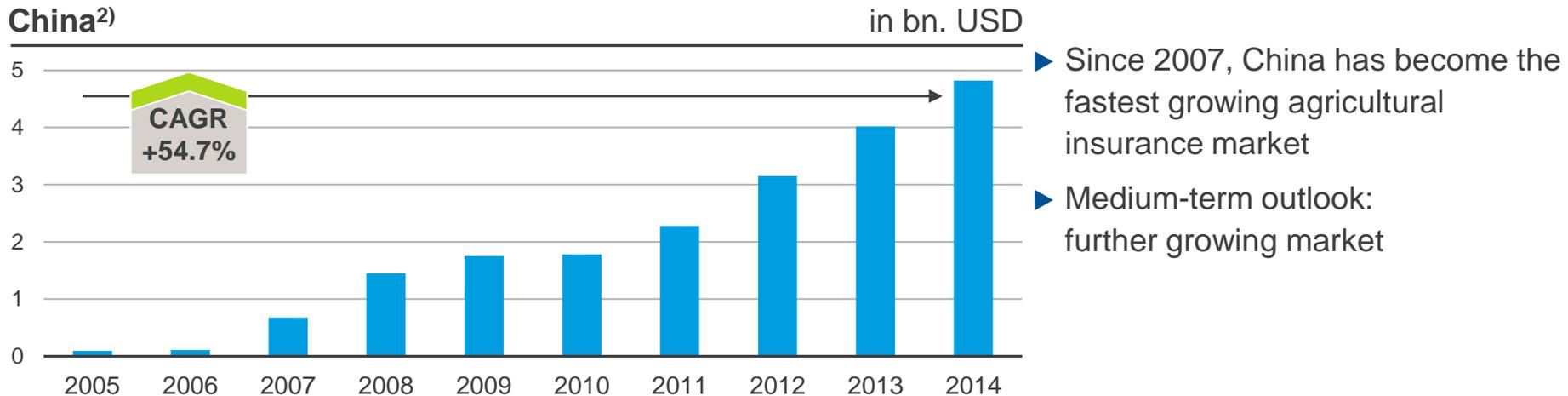
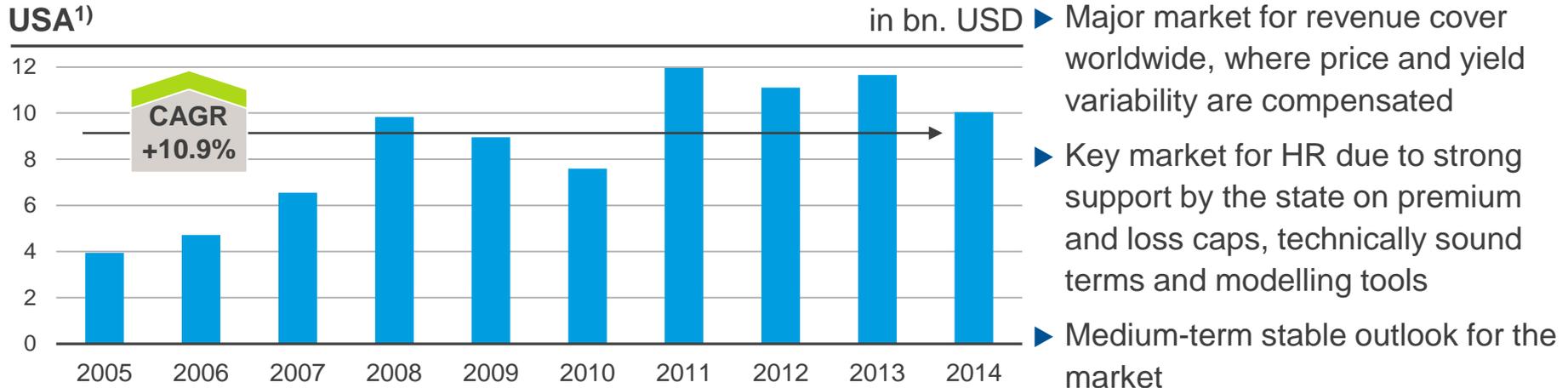
in m. ha



Source: own data

# Our key markets with growth potential - US and China

## Primary market gross written premium

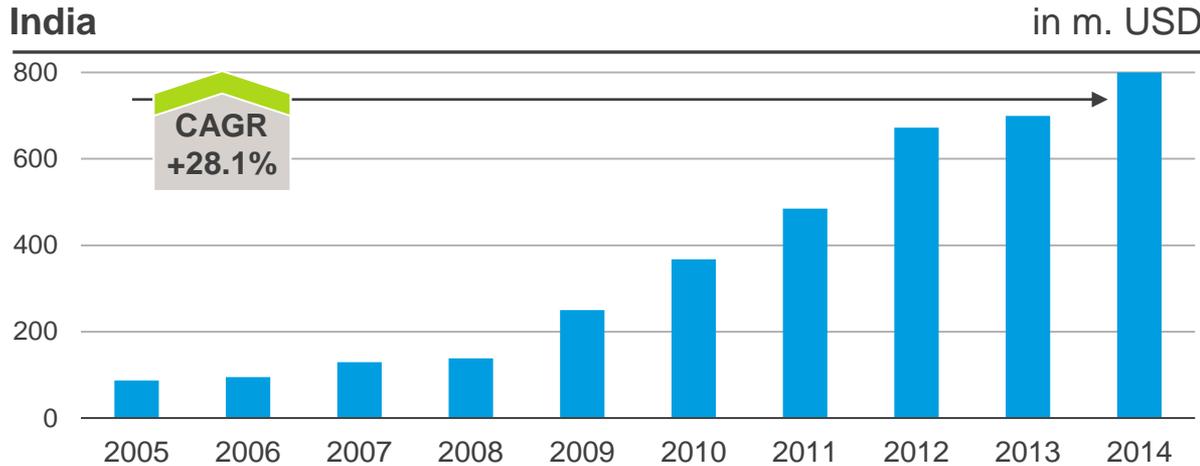


1) United States Department of Agriculture (USDA)

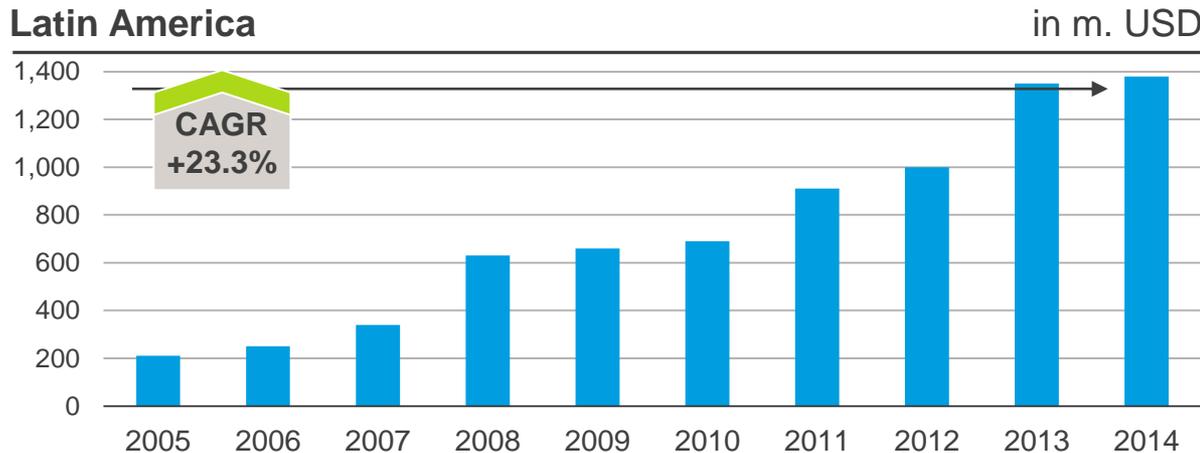
2) CIRC

# High growth potential in India and Latin America

## Primary market gross written premium



- ▶ Depends strongly on state support and strategy
- ▶ Medium-term outlook: potentially high growing market



- ▶ Low penetration rate and highly dependent on state support (PPP)
- ▶ Medium-term outlook: high growth potential

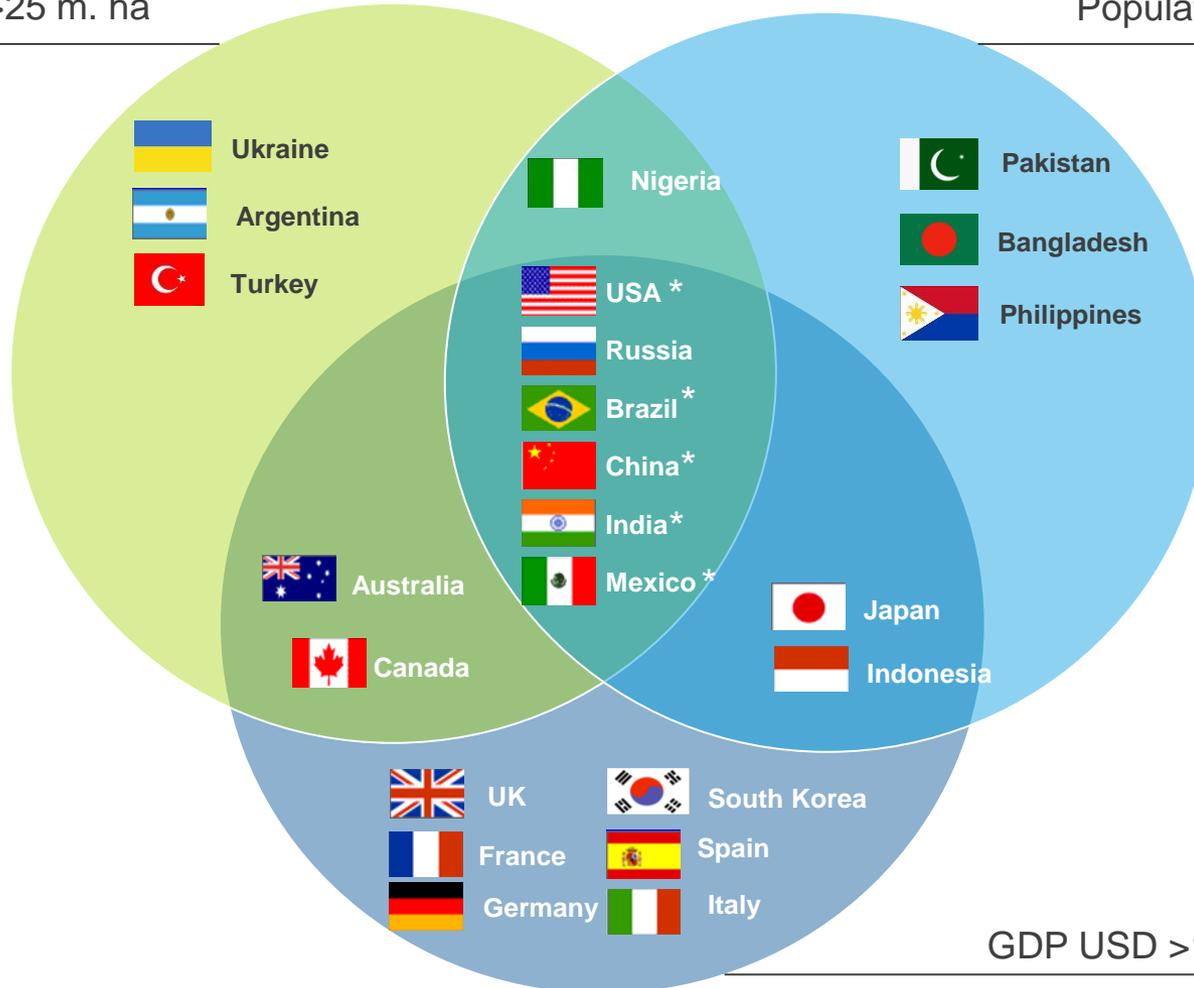
Source: own data

# Most important agricultural insurance markets

\* Our key markets

Agricultural area >25 m. ha

Population >100 m. people



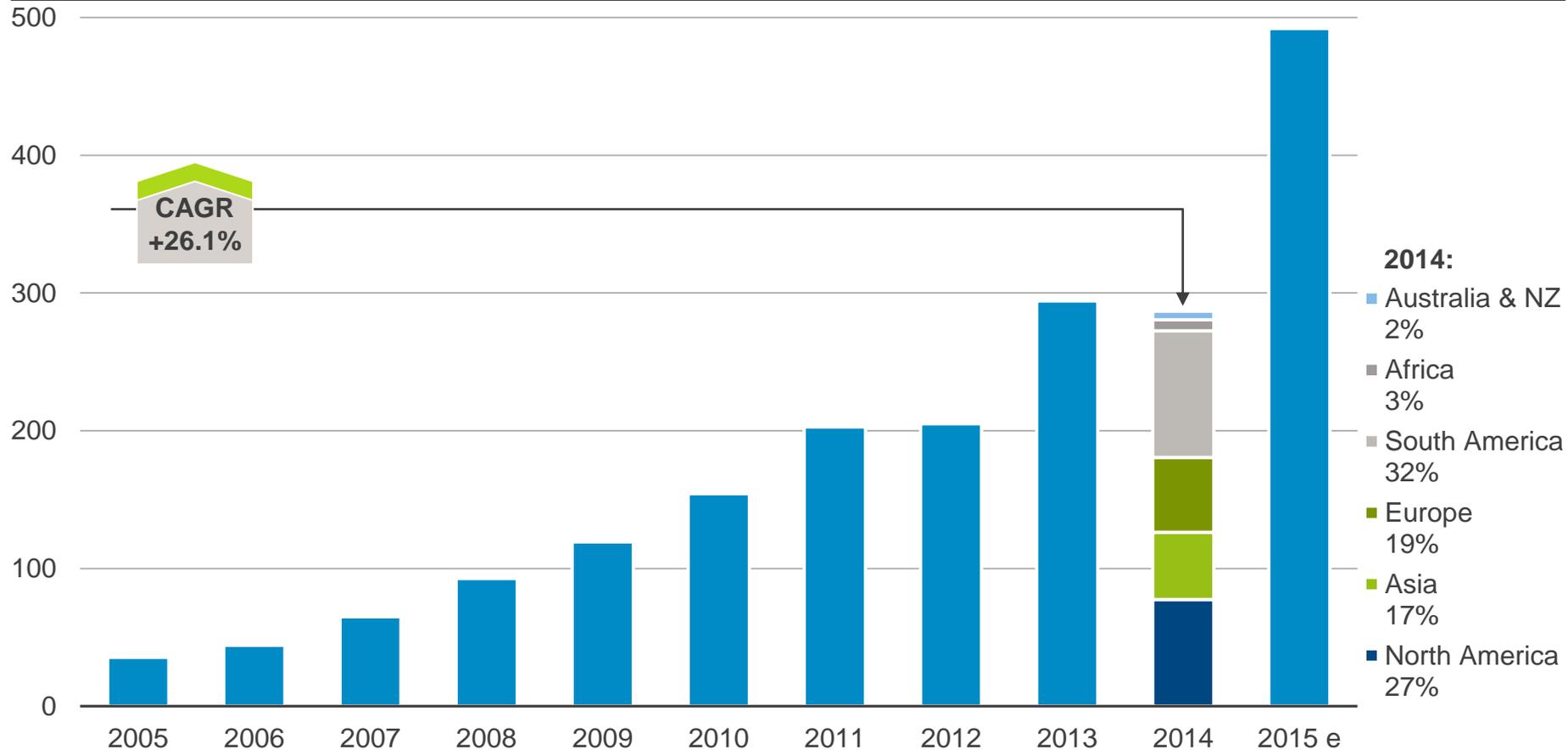
Own data

# A steady increase in agricultural premium ...

## ... with further growth potential

Hannover Re's GWP development of agriculture

in m. EUR



# Our agricultural portfolio is well diversified

Based on gross premium written in 2014

## By line of business

2014: EUR 287 m.

### Forestry

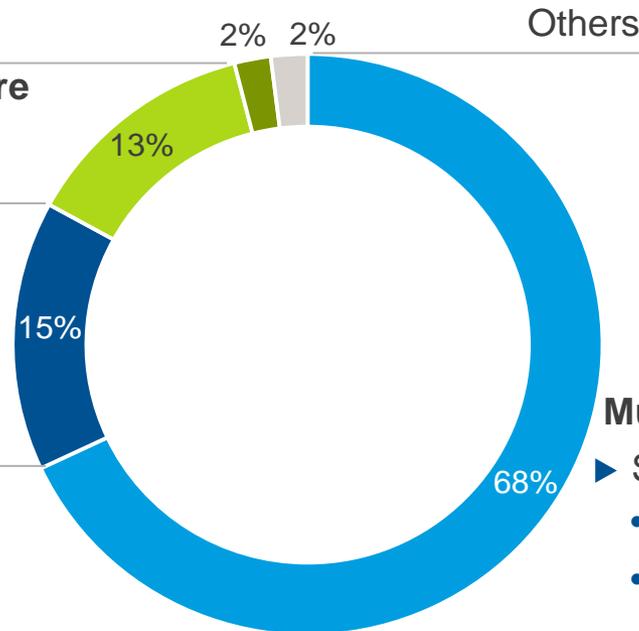
- ▶ E.g. Fire and wind

### Livestock, bloodstock & Aquaculture

- ▶ E.g. Fire, severe cold and epizootics (animal diseases)

### Hail

- ▶ Oldest form of insurance in agriculture (oldest policies in Germany were placed in 1820)



### Multi-peril crop

- ▶ Systematic risks
  - Frost (Mexico 2010, Poland 2011)
  - Drought (USA 2012)

- ▶ ~ 10% of premium is microinsurance

# Our approach for future agricultural business development

- 
- ▶ Highly dedicated international team of specialists (agronomists & veterinarians) drawing on backgrounds of R/I, international development assistance, agricultural and veterinarian engineering, economics, science, and can serve in a number of native languages
  - ▶ Close cooperation with strategic partners (e.g. governments, world banks, non-governmental organisations, etc.)
  - ▶ Continuous and systematic screening of opportunities (e.g. aquaculture, forest, etc.)
  - ▶ Committed to fostering and developing microinsurance (e.g. Climate Insurance Fund)
  - ▶ Innovation is a key contributor to our growth (e.g. satellite)

# Agenda

somewhat  
different

02 – 11 | Cyber insurance

12 – 22 | Agricultural insurance

**23 – 23 | Conclusion**

## Conclusion ... there is more than just NatCat

- ▶ Growth is safeguarded by expert knowledge
- ▶ Specialty lines and products do support growth that is embedded in more traditional segments
- ▶ There are lines of business with significant entry barriers
- ▶ Evolution of products and innovation continues

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