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Risk Management at AXA : “a business enabler”

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— Be Life Confident —

Contents

- I. Risk Management : What is it ?**
- II. Risk Management in AXA**
- III. The challenges of Risk Management**
- IV. Risk Management in practice :
Product Innovation and Risk Management**
- V. Risk Management in practice :
Climate change**



Risk Management : What is it ?

The old version of Risk Management

- Very much focused on balancing bottom line of products, legal entities, portfolios
- Independent management of assets and liabilities
- Low key regulatory influence
- Accounting rules far from “marked-to-market” (hidden reserves in assets and liabilities)
- Very few rated companies, and investors did not really care
- Much fewer institutional investors



Risk Management : What is it ?

Creating a risk culture is the most efficient way to optimize risk taking activity

1/3

RISK IS OUR RAW MATERIAL

- AXA is in the business of managing risk

- We are in the business of :
 1. Taking risks off our clients' balance sheet
 2. Taking these risks on our balance sheet
 3. Transforming it and /or transferring it
 4. ...and generating profit from this activity

- Risk Management is not a “by product” of AXA’s organization.
It is **THE** business model of AXA.



Risk Management : What is it ?

Creating a risk culture is the most efficient way to optimize risk taking activity

2/3

- The objective of Risk Management in financial services is not to prevent people from taking risks but to allow people to understand and manage in the optimal way the risks that they take (from a risk return standpoint)
- Understanding of risks and increasing level of comfort with risk are the most efficient ways to ensure that the right risks are taken. Risk Management is therefore a “business enabler” rather than a “control function”

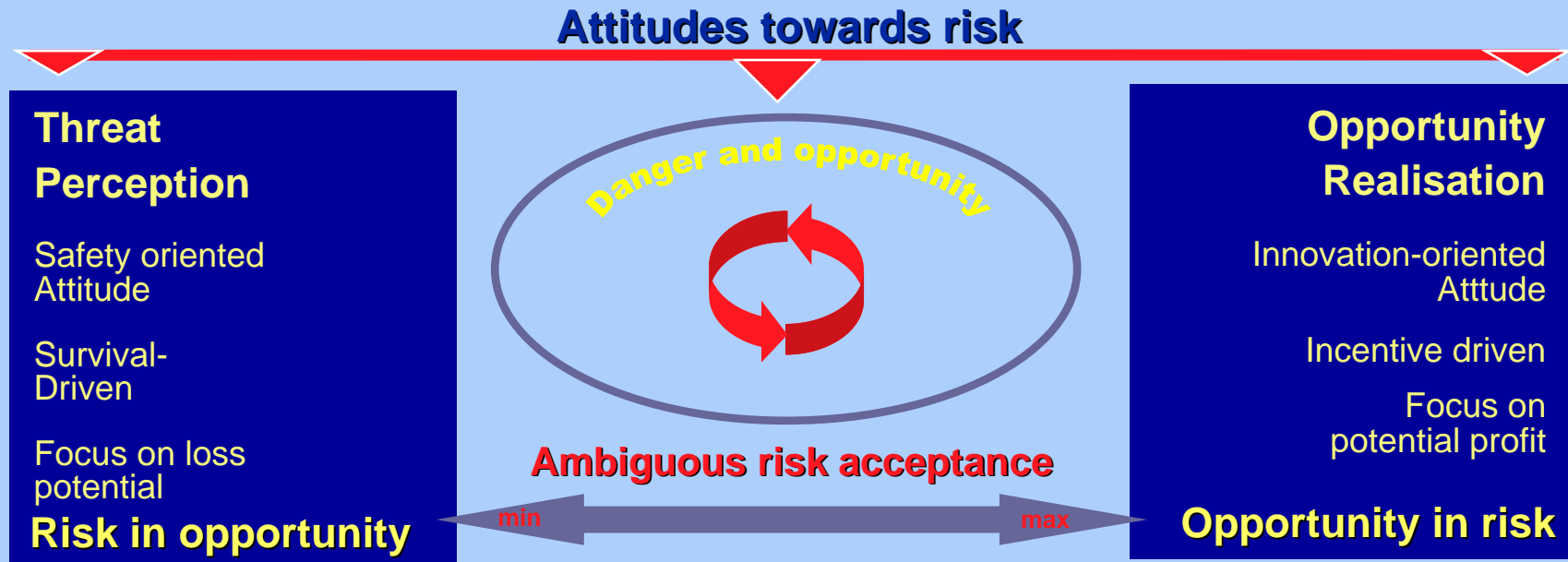


Risk Management : What is it ?

Creating a risk culture is the most efficient way to optimize risk taking activity

3/3

Attitude towards risk is often ambivalent :



Contents

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Risk Management in AXA

The progressive emergence of an enterprise-wide Risk Management approach in AXA...

- Historically, AXA has always focused on translating risk appropriately in the P&C reserves, since theoretically, “adequate reserves reduce required capital”.
- AXA has also been one of the insurance industry pioneers in controlling and managing the investment risk especially in Life business through strong ALM practices that have been implemented throughout the Group.
- At the end of the 90’s, in some countries (Belgium, US, France, ...), local strong risk management practices were implemented, responding to specific needs (especially regulatory requirements), and organized in different ways
- Since the early 2000s and in order to increase consistency among operating entities and better account for diversification, AXA has developed global, integrated Risk Management approaches (Economic Capital, control of concentration risks, Group ALM...).



Risk Management in AXA

...has led to the creation of our *Integrated Group Risk Management Organization*

1/2

Integrated Risk Management organization was implemented in 2003, in order to:

- Measure and approach risk consistently throughout the Group,
- Implement appropriate control processes
- Optimize risk taking activities, (in particular by leveraging diversification effect) and risk transfer activities (reinsurance strategy, securitization)
- Disseminating the risk culture, in particular through :
 - Adequate operational tools (Economic Capital)
 - Education about risk
- This organization is based on a "subsidiarity" principle between central and local risk management teams :

Central team

60 people

Local teams

150 people



Risk Management in AXA
...has led to the creation of our *Integrated Group Risk Management Organization*

2/2

5 priorities of Risk Management

Asset Liability Management

Risk-adjusted product profitability

Exposure to Insurance Risks

Projection systems and modeling

Operational risks



Risk Management in AXA

Being aligned with AXA organization by using a global/local governance based on business-oriented interactions and subsidiarity principle...

- Aligned with AXA's management structure
- Consistent with AXA's culture



Risk Management is a "Business enabler" rather than a control function

Effective global/ local collaboration associated with strong Risk Management processes have consistently enhanced Risk Management

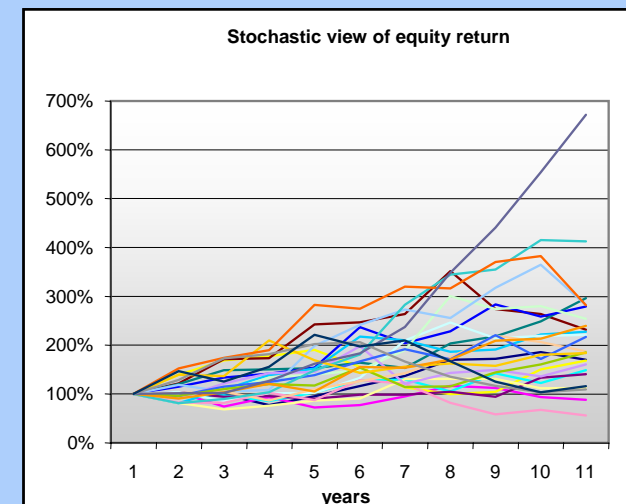
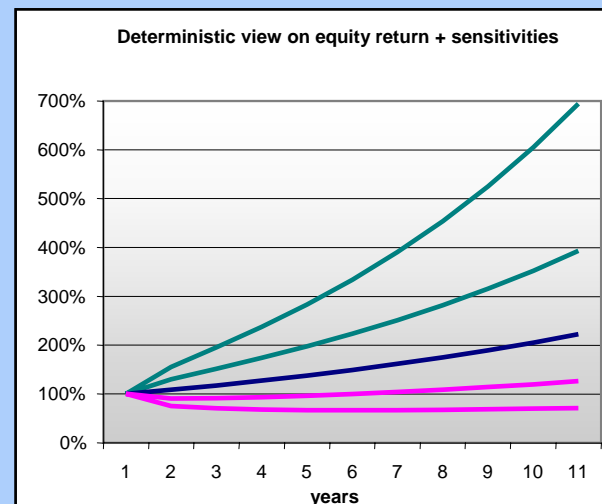
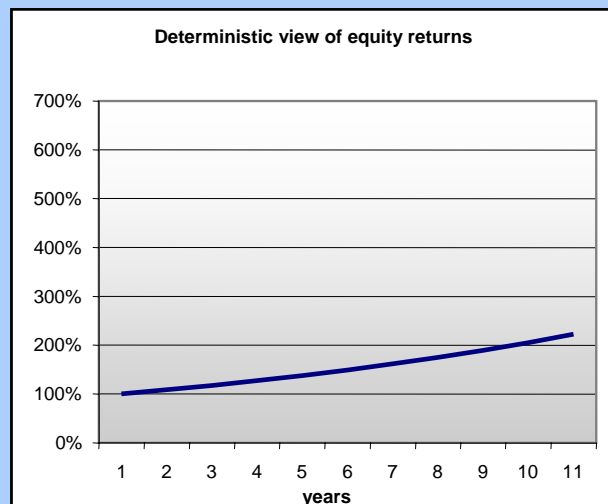
- Monthly concentration risk monitoring
- ALM strategy extensively communicated to the market
- Improved resilience to significant market losses : from WTC to Katrina
- Embedded options and secondary guarantees now fully priced

Risk Management in AXA

Stochastic modeling is a superior tool in Risk Management

(1/2)

- Modeling techniques borrowed from the banking industry, and specifically from capital markets, combined with the improvement of IT capabilities have helped develop Risk Management in the insurance industry.



- In real life, our world is truly stochastic. Deterministic scenarios alone lead to irrational decision making. Stochastic modeling techniques help us make better, more appropriate decisions.



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The challenges of Risk Management

Risk Perception is always the starting point

1/2

- Risks are perceived differently:
 - Some real risks are not considered to be relevant, either because they are not known or rejected as hypothetical. (Repetition of 1918 flu, Tsunami before Dec.26,2004)
 - Other risks are perceived as threats, even if no cause-effect relationship has been detected so far. (Antenna for mobile communication)

- For the insurance industry, risk perception is very important



The challenges of Risk Management

Risk Perception is always the starting point

2/2

Differences in perception exist between :

- different people
- different organisations
- different cultures

**Obvious differences in risk perception between
“chosen” and “imposed” risks**



The challenges of Risk Management
Risk landscape : What has and still can happen...



The challenges of Risk Management
Risk landscape : Oops, I missed this risk in my considerations !



The challenges of Risk Management

Risk landscape : Expensive, but we can fix it !



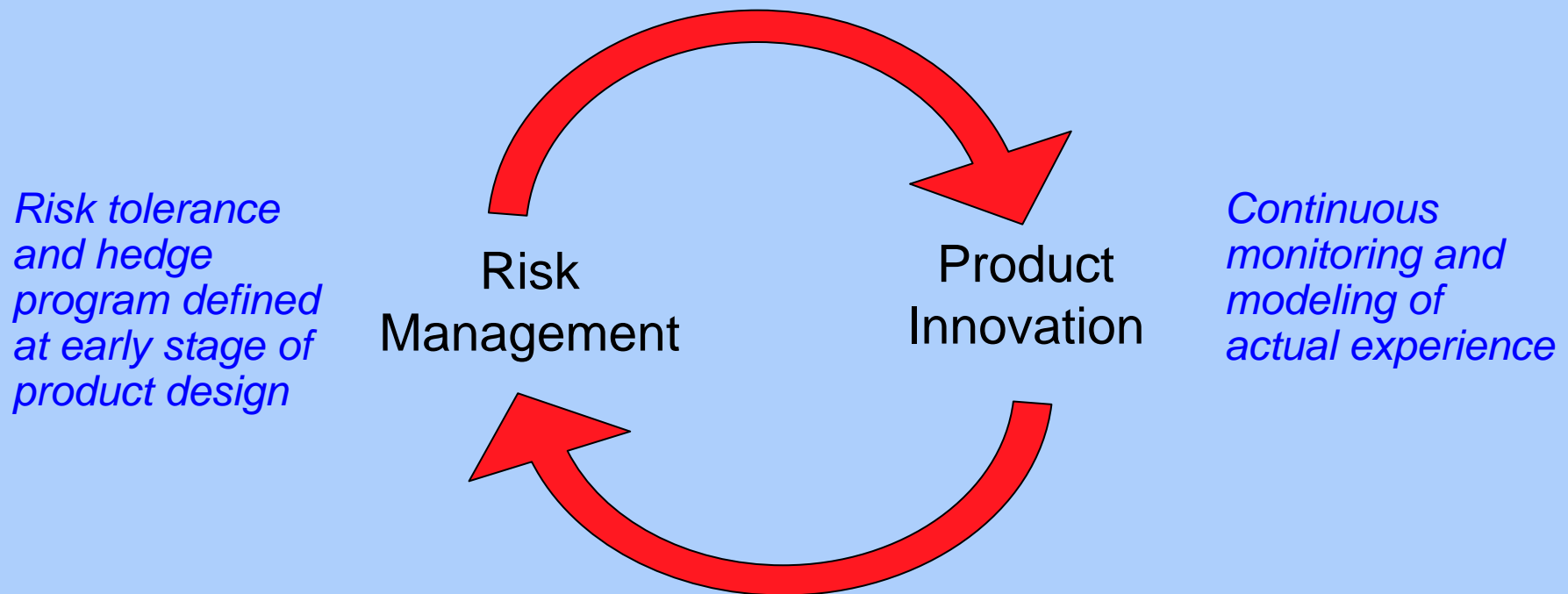
Contents

- I. Risk Management : What is it ?
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Product Innovation and Risk Management

Integrated Product and Risk Management is a continuous cross-functional process



- ➔ **A sustainable presence in the market**
- ➔ **Support strong balance sheet and ratings**

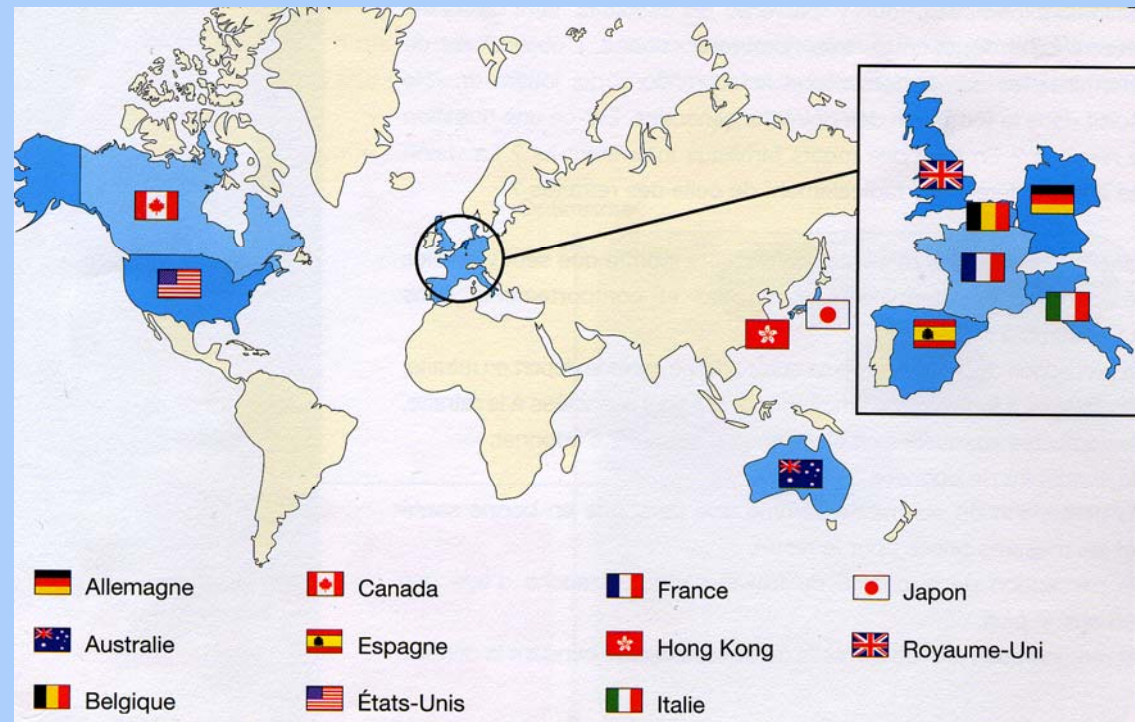


Product Innovation and Risk Management

AXA Retirement Scope - Introduction

- AXA, provider of pensions for millions of consumers in many countries has developed a knowledge about consumer's behaviour, preferences, needs and priorities.
- International survey "AXA retirement scope" implemented by the research company GFK.
- We use it to understand consumers needs and to adapt our offer.

11 surveyed countries in 2005



Product Innovation and Risk Management ***Consequences for AXA Offer at Retirement***

Baby-boomers are aware the risks of outliving their assets. So, they ask for :

- high returns,
- guaranteed lifetime income,
- access to their capital in order to have more flexibility with their lifestyle
- an ability to change their investment strategy during retirement.

Given the increased longevity of individuals, investing in risk-free bonds do not provide the desired level of income throughout retirement. **The best available solution is to invest in equities to achieve superior returns in the long run, and have protection against the downside risk of equity investment.**

AXA proposes “Accumulator” in the US to meet this need - it offers the customer :

- a large variety of **investment options** (including equities), adapted to various risk profiles,
- **optional protection** against poor market performance by offering a guaranteed minimum level of income at retirement and a guaranteed minimum benefit on death.

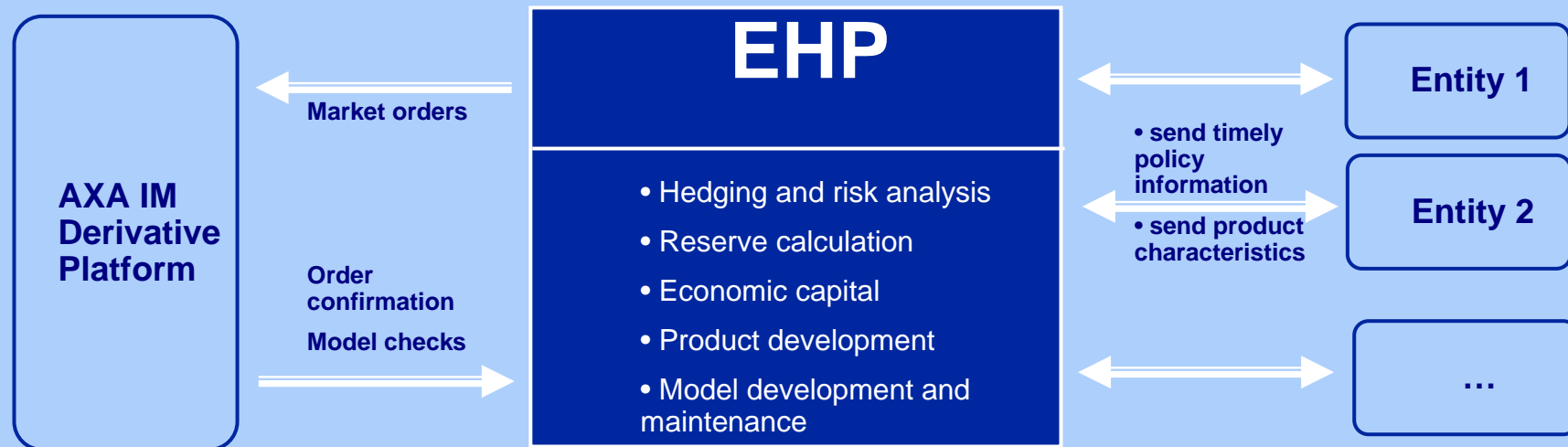
The customer pays an explicit charge for the guaranteed protection – depending on the customer’s risk appetite he/she can always invest in this product or mutual funds directly without any protection.

Appropriate Risk Management strategies and infrastructure has been put in place to manage these guarantees.



European Hedging Platform's objective is to provide services currently performed for the various European entities

- Accumulator is the first worldwide product range for AXA which provides to our policyholders guarantees for which they expressed the need for in the AXA Scope Retirement
- EHP is to provide services to operating units, to manage the risk linked to these innovation guarantees.



Accounting is done locally, using outputs of the platform



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Climate Change *Global Impacts (Intergovernmental Panel on Climate Change 2001)*

- ➔ Whether Climate Change could be attributed to natural climatic oscillations, man-made emissions of Green House Gases, or both, the concentration of CO² within the atmosphere is continuously increasing, hence the following might occur:
 1. World average temperature increasing (best/worst case 1.4°C / 5.8°C) range 2100
 2. More intense precipitation events occurring
 3. Sea level steadily raising (up to 88 cm)
 4. Extreme events frequency and severity increasing
- ➔ Therefore, Climate Change as a whole will imply significant challenges for our societies, the risk landscape will be modified, some risks will become more expensive and the Insurance industry will need to fully take these changes into account



Climate Change *Regional to Local Impacts*

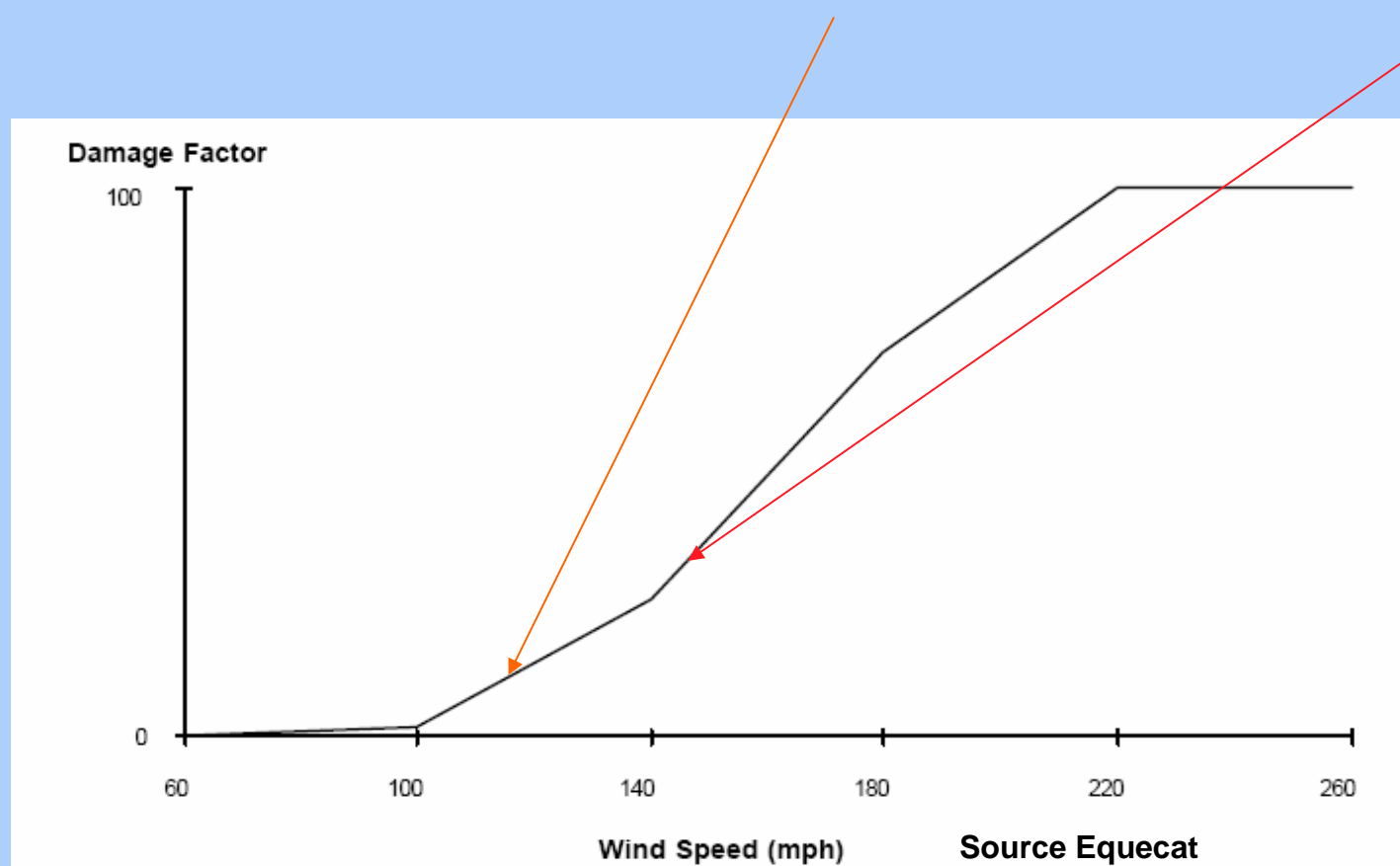
- ➔ Regional and local downscaling of IPCC global models is difficult to achieve, however EU initiatives such as Mice, Prudence, Stardex have recently forecasted for the end of the century that:
1. Summer climate zone would slowly move by 400 to 500 km North: e.g. France would enjoy as many hot days above 30°C than Spain and Sicilia and heat waves frequency and duration could increase six fold
 2. Mediterranean areas would get dryer and northern areas would get wetter
 3. Extreme wind events (European windstorms) frequency and severity could increase within the area 45° - 55° latitude North
 4. Storm surge associated to North Sea stormy events would be increasing along the coast of Holland, Germany and Denmark



Climate Change

Example : Modeling Destructions caused by Extreme Wind Speeds

- In the risk modeling exercise, should we load Lothar / Martin wind speed by some Climate Change assumptions (+25% according to Zwiers & Kharin), peak wind speeds above Paris area of 118 mph could have gone above 148 mph (Katrina : 180 mph) thus considerably increasing the expected damage to property



Climate Change Challenges for the Financial Protection

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- ➔ As human activities will be impacted either gradually (climate zone moving North) or suddenly with the increase in frequency and severity of extreme events (storms, floods...), Financial Protection have to adapt accordingly by:
1. Assessing accurately exposures to major catastrophic events as a consequence of increased climate change impact on clients activities in order to maintain a smooth and resilient risk transfer mechanism which sustains human activities
 2. Raising awareness amongst corporate clients, promoting responsible behaviors for personal lines (respect of building codes, avoiding building close to river)



Climate Change Challenges for the Financial Protection

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3. Incorporating climate change impacts within pricing mechanisms and, if need be, investigating public private partnerships to smoothen impacts of these extreme events on policyholders
4. Increasing support to tailor made insurance products that assist development of renewable energies) and more generally, encourage initiatives in product development within P&C, Life & Health insurance that will contribute to mitigating climate change impacts
5. Taking into account long term sustainable development perspectives when assessing investment in addition to short & medium term financial criterions

Risk Management also aims at making sure that AXA has a sustainable development



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