Cycle Management and RoE

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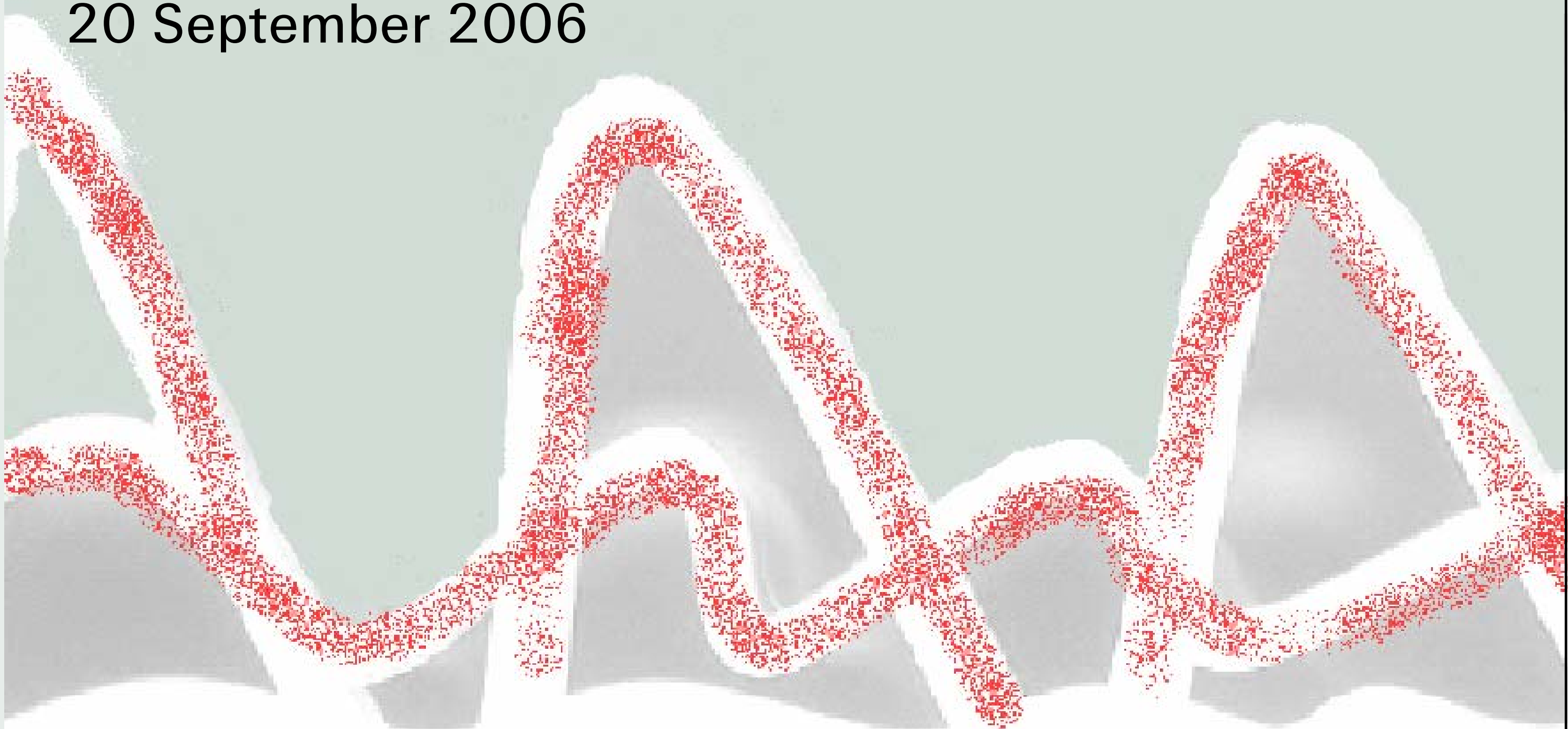

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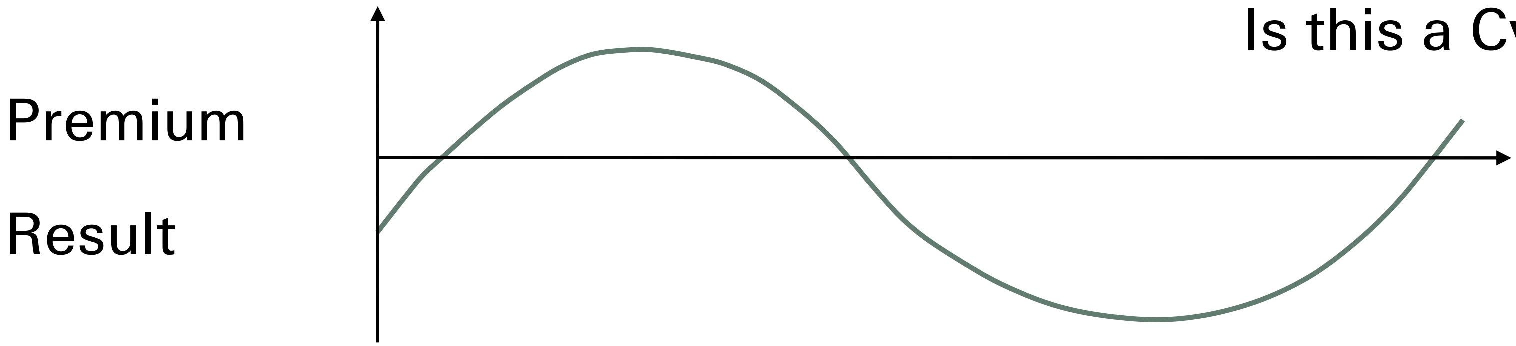
Agenda

- What is a Cycle ? – Is Marine different ?
- How can we manage Insurance Cycles
- Implication on Pricing Framework
- Outlook and Vision: The Capital Market Analogy
- Conclusions

What is a Cycle ?

Is this a Cycle ?



It becomes a Cycle once we have the ability to measure our business / quotes relative to a

consistent benchmark ⇨ **a zero-axis !**

Market Prices Increase sharply after Events: US Industry-Changing Events in Comparison

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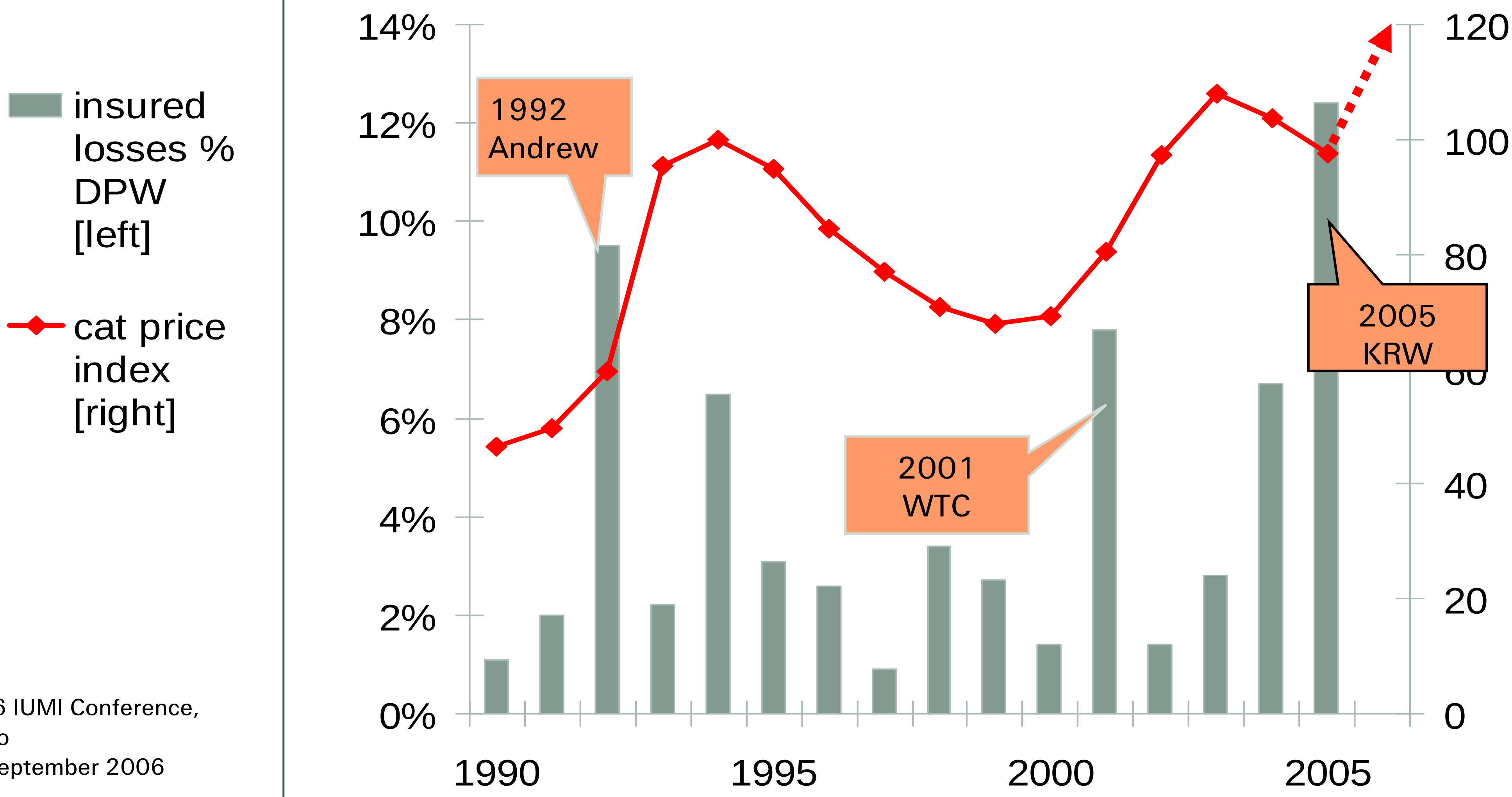

Sources: Paragon (E.W.Blanch) for price data prior to 1994, Camares for price data between 1994 and 2005, A.M.Best for DPW, PCS and Swiss Re Economic Research & Consulting for cat loss data

Prices of Reinsurance

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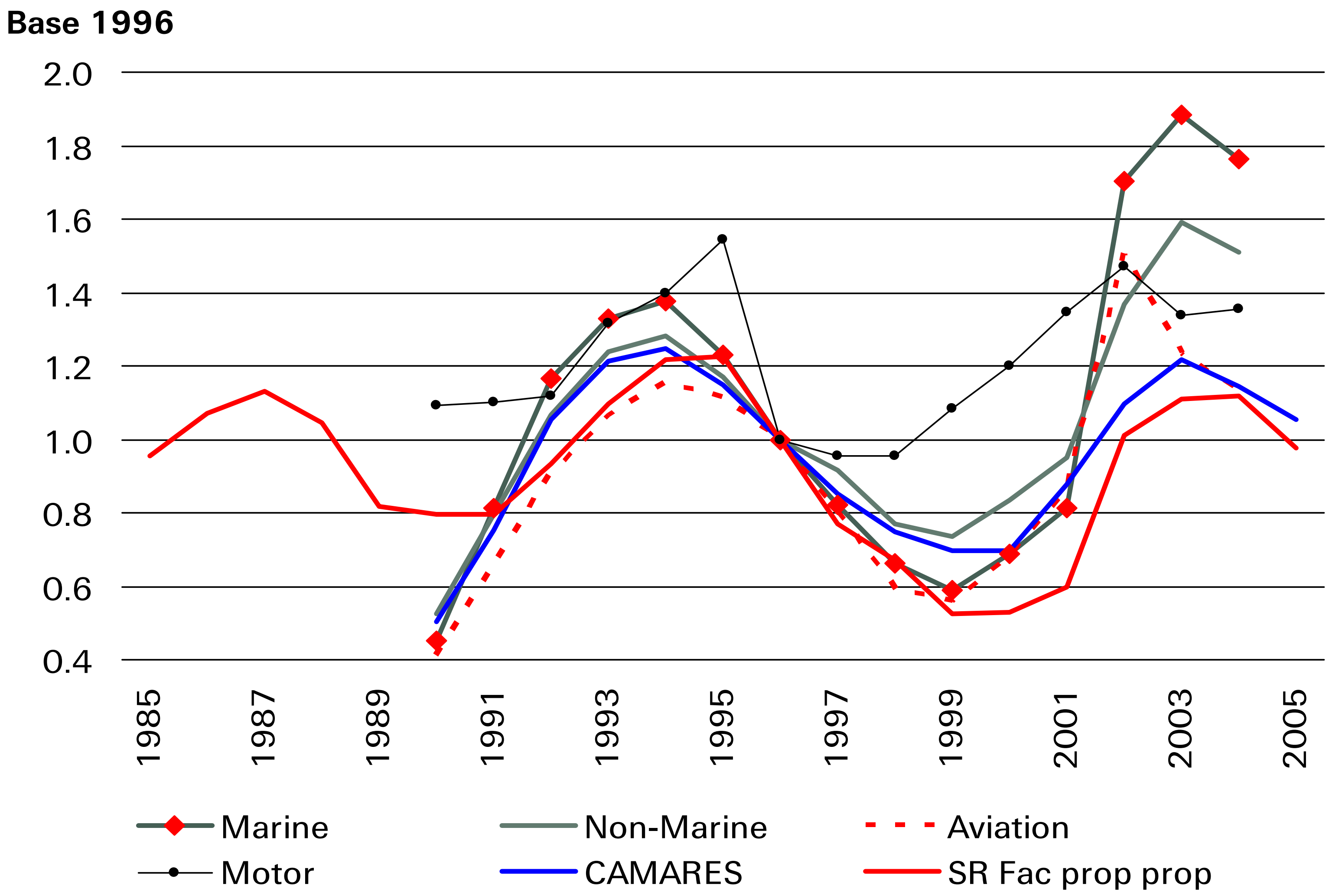


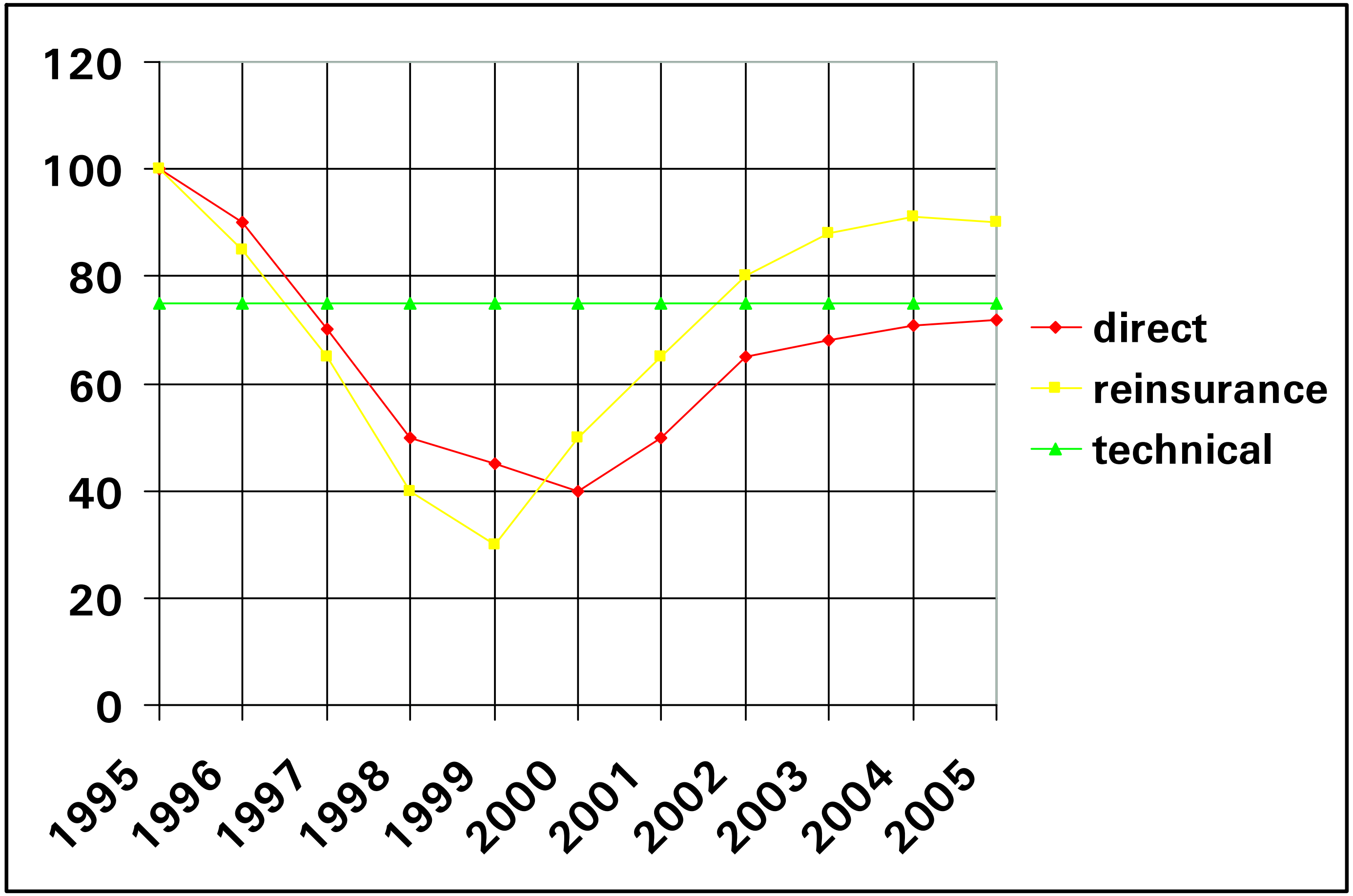
Sources: CBS Private Capital Ltd, Swiss Re Economic Research & Consulting

CAMARES = Swiss Re's Cat Market Research

SR Fac prop prop = Price of Swiss Re's Facultative Proportional Property Business

Marine Cycle

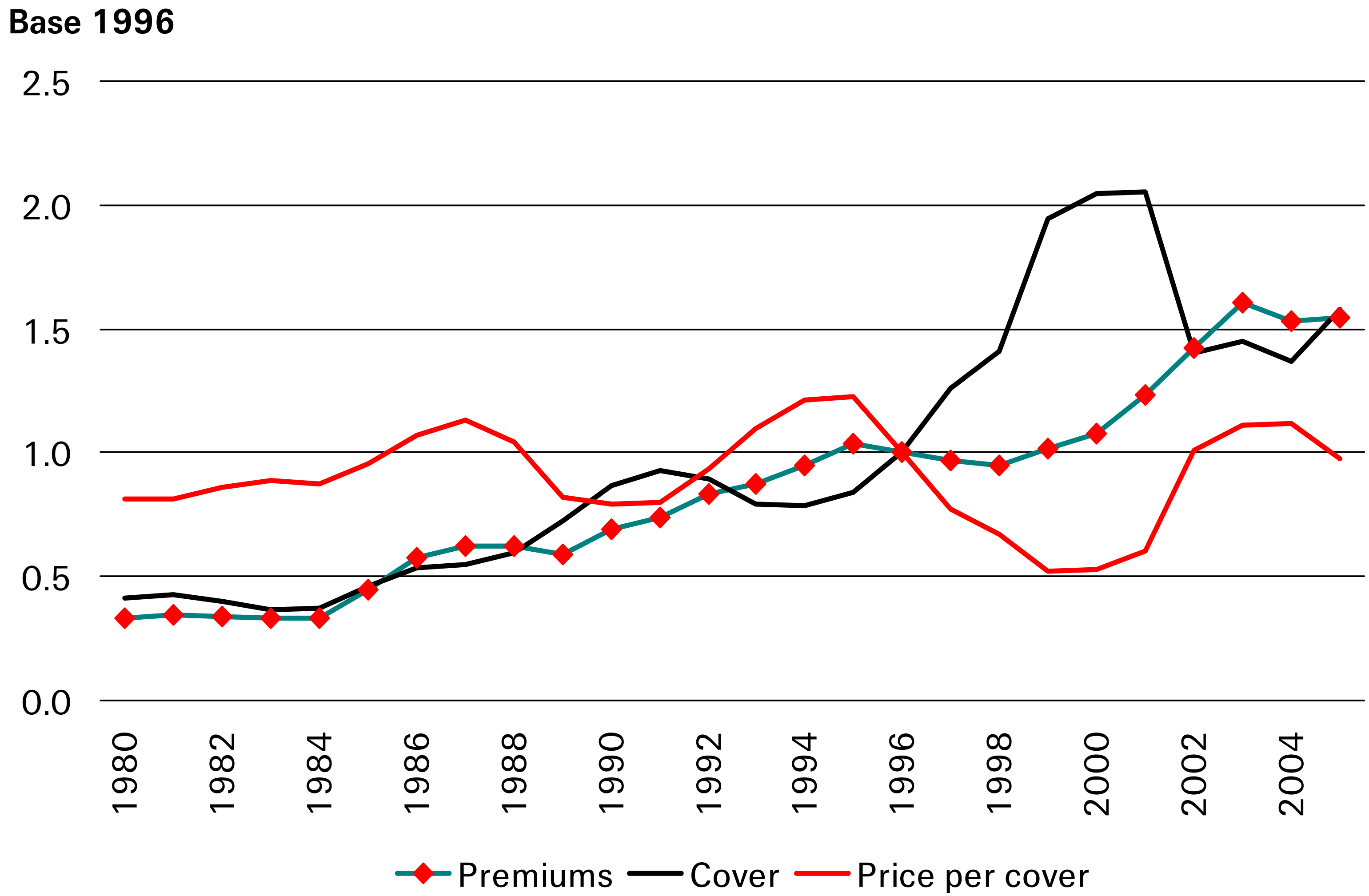
Marine Rating Index - based on London market estimates; reinsurance our own estimates



The Insurance Cycle – Reasons for 'irrational' behavior

- Changes in Supply and Demand in reinsurance, often driven by external events
  (losses, changes in legal/accounting environment, risk perception, ...)
- Insurance is an investment under uncertainty
  (no standard, transparent pricing approach leads to different views on expected loss costs)
- Lagged adjustment to changes in production costs
  (no real time tracking of terms & conditions, adjustment of pricing based on bad underwriting results or overall results following accounting year cycle)
- Market share or top line matters
  (Planning and Steering rather based on top line than on economic result, outside stakeholder expectations)
- "Agency" Problems
  (Underwriters and sales people are afraid to lose their jobs by not writing business in the soft market, managers are afraid missing top line growth targets)

Negative Correlation between Price and Cover granted



Source: Swiss Re Economic Research & Consulting

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Cycle Management
Comprehensive toolbox for real time steering

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Rate levels	offered and realized rates compared to target
Business volume	written premiums, number of accounts, portfolio structure
Qualitative trends	wordings, exclusions, special clauses
Market developments	cedant retention levels, competitor behavior
Integrated Planning process	consistent process from target setting to performance measurement

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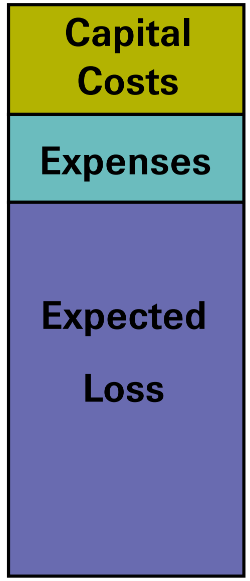
Prerequisites to Manage the Cycle
Consistent Pricing Framework

- Consistent Pricing Framework for all products, lines, classes:
  - consistent evaluation of expected loss
  - allocation of internal and external expenses
  - allocation of capital costs



- Ability for real time Monitoring of Pricing Data and Developments
  - analysis of profitability by product /overall
  - real time monitoring of quotes

Prerequisites to Manage the Cycle Consistent Tracking and Analysis of Rate Levels

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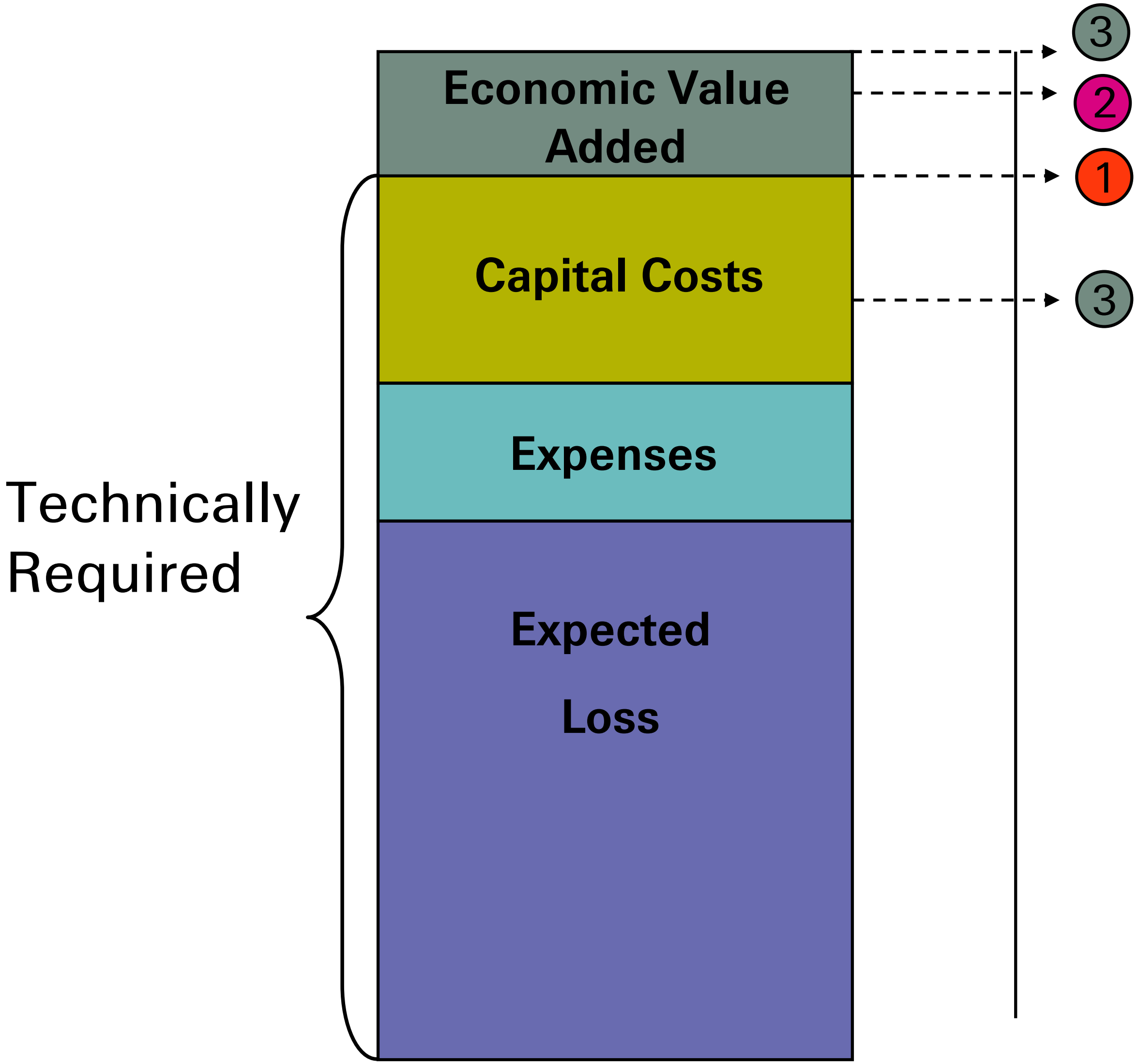


1 = Level technically required

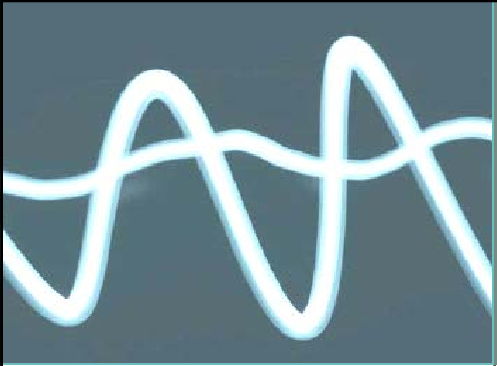
2 = Renewal Target

3 = Quote / Bound

Prerequisites to Manage the Cycle Qualitative Developments

- Monitoring and tracking of qualitative trends (wordings, exclusions, special clauses, etc.)

- Market Developments (cedant retention levels, competitor behavior, etc.)



Cycle Management
Monitoring qualitative trends

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Traffic light approach to monitor current situation and trend for both rate adequacy and coverage terms (wordings)

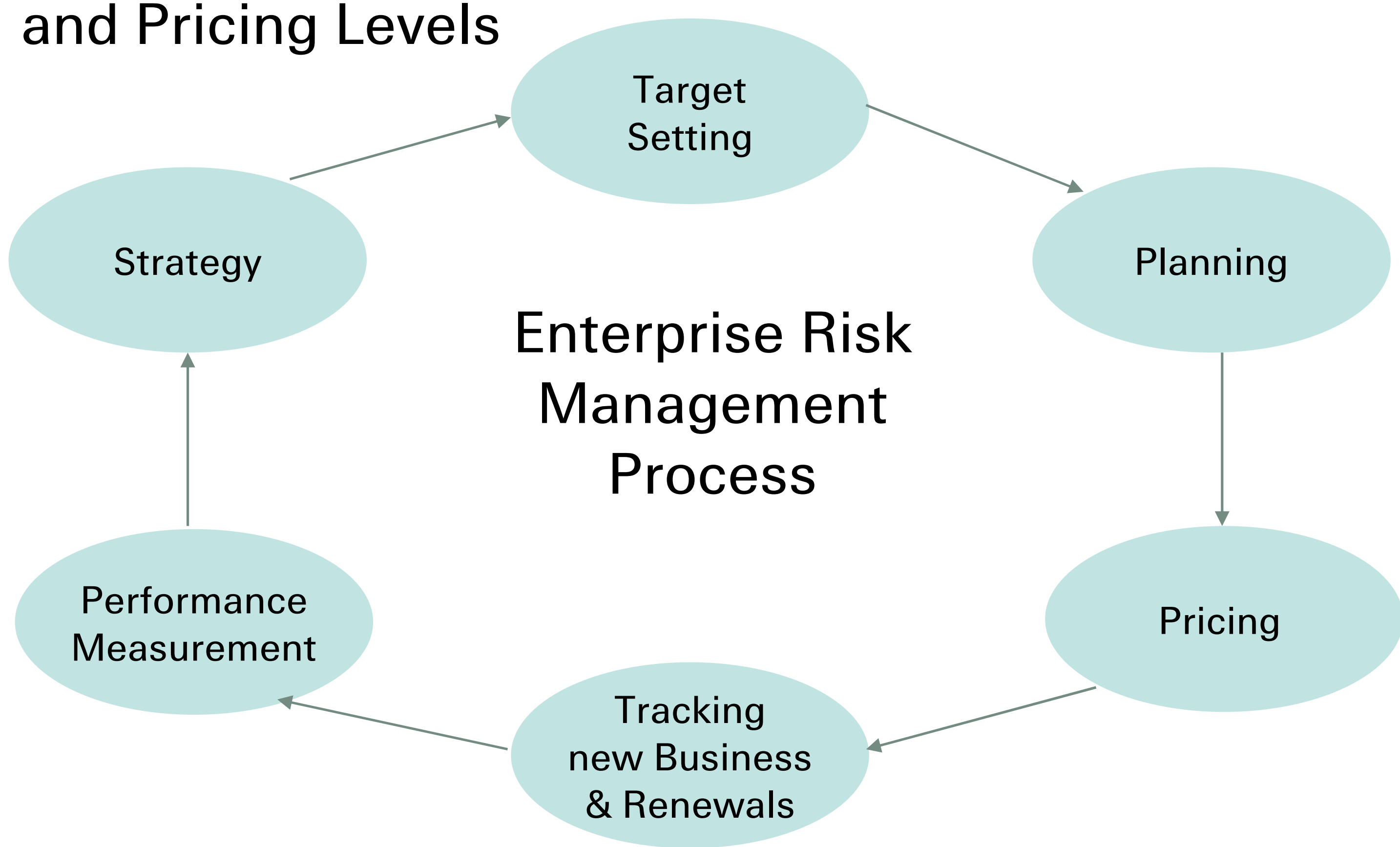
- ↑ Significantly better terms
- ↓ Significantly worse terms
- ● Stable terms
- ↘ Weakening terms
- ↗ Improving terms
- Above Renewal Target
- Between Cycle Reference and Renewal Target
- Between Production Cost and Cycle Reference
- Below Production Cost

	Market Unit 1	Market Unit 2	Market Unit 3	Market Unit 4	Market Unit 5	Market Unit 6	Market Unit 7	Market Unit 8
Property proportional	●	●	●	●	↘	●	●	●
Proprty non-proportional	●	↘	●	●	●	●	●	●
General Liability proportional	●	●	●	●	●	●	●	↗
General Liability non-proportional	●	●	●	●	●	●	●	●
Professional Liability proportional	●	●			●	●	●	
Professional Liability non-proportional	●	●		●	●	●	●	
Motor proportional	↗	●	●	●	●		●	↗
Motor non-proportional	↑	●	●	●	●	●	●	↗
Marine proportional	●	●	↗			●	●	●
Marine non-proportional	●	↗	↑		●	●	●	●
Engineering proportional	●	●	●	↑	↗	↗	↓	↘
Engineering non-proportional	●	●	●	↗	↑	↑	●	↓
Aviation proportional								
Aviation non-proportional								
Special Lines proportional								
Special Lines non-proportional								

Illustration of a traffic light overview

Prerequisites to Manage the Cycle
ERM Process

- Consistent and Integrated Target Setting and Planning Process ➔ Pricing and Renewal Targets
- Performance Measurement consistent with Target and Pricing Levels



Consistent Evaluation of Expected Loss: Stumble Point Marine?

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What is the right Method to determine the Expected Loss?

- Market Pricing → Orientation on "moving" top line leads to inconsistent EL estimation.
- Experience Pricing → How many years of data? What about large losses / cat events?
- Exposure Pricing → Only stable measure/data, although individual assessment might differ.

➡ Pricing should be based on exposure (i.e. the loss potential), and less on experience

Prerequisite for Exposure Pricing: <u>Loss Data</u> / <u>Exposure Data</u> } Systematic Data Capture

Interested Stakeholders include RM, CFO (Capital), Regulators, etc.

Consistent Evaluation of Expected Loss: Is Marine different?

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Potential Arguments:

- Risks are moving and accumulating
- Inhomogeneous Portfolios
- Importance of Soft Factors and Moral Hazard (Ship maintenance, quality of crew, reputation of owner, loss prevention measures)

Counter Examples:

- Aviation (“Slip & Fall” vs. Airline Crashes)
- Casualty (Umbrella vs. Product Liability)
- Property (Residential vs. Large Commercial Risks)

➡ In all these cases approaches for Exposure Rating have been developed and implemented.

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Implication on Pricing: Capital Costs or RoE loading

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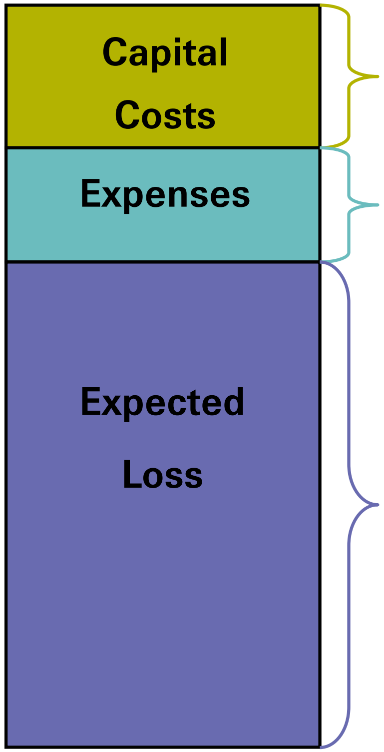
Historically, Capital Costs were determined based on volatility of LoB/contract applying variance or standard-deviation based methods.

Premium of Contracts



Capital Costs consider Return on Capital (RoE) Targets

Internal & external expenses

Frequency / Severity modeling

Today's Best Practice

Capital costs or RoE-loading is based on Allocated Capital and Capital Costs

Allocated Capital:

- Risk Landscape Modeling (integrated)
- Capital Allocation Approach
- Risk Appetite / Ruin Probability / Rating Level Standard

Capital Costs:

- Capital Structure (debt/equity)
- Rating (cost of debt)
- RoE Targets

RoE vs. Cost of Capital
US Non-Life 1991 - 2002

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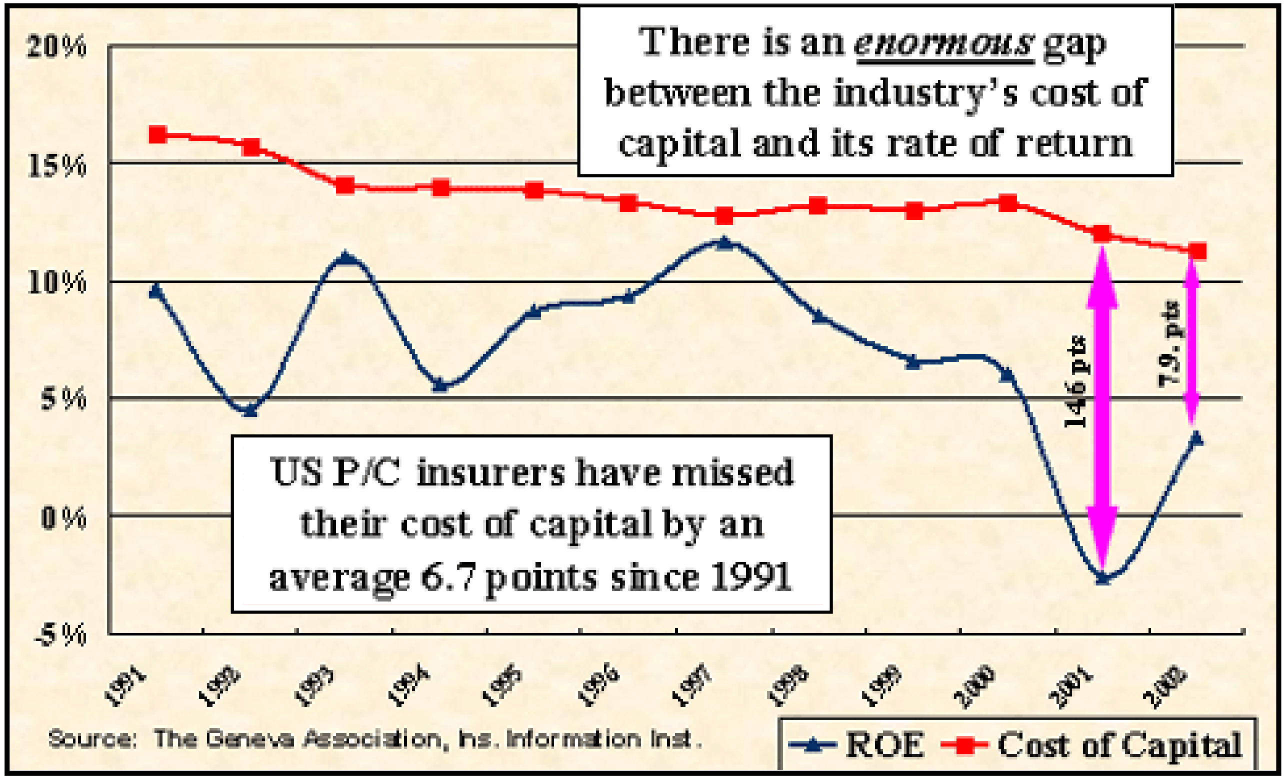

P&C Insurance as an industry has tended to exhibit lagging ROE's – What is our target?

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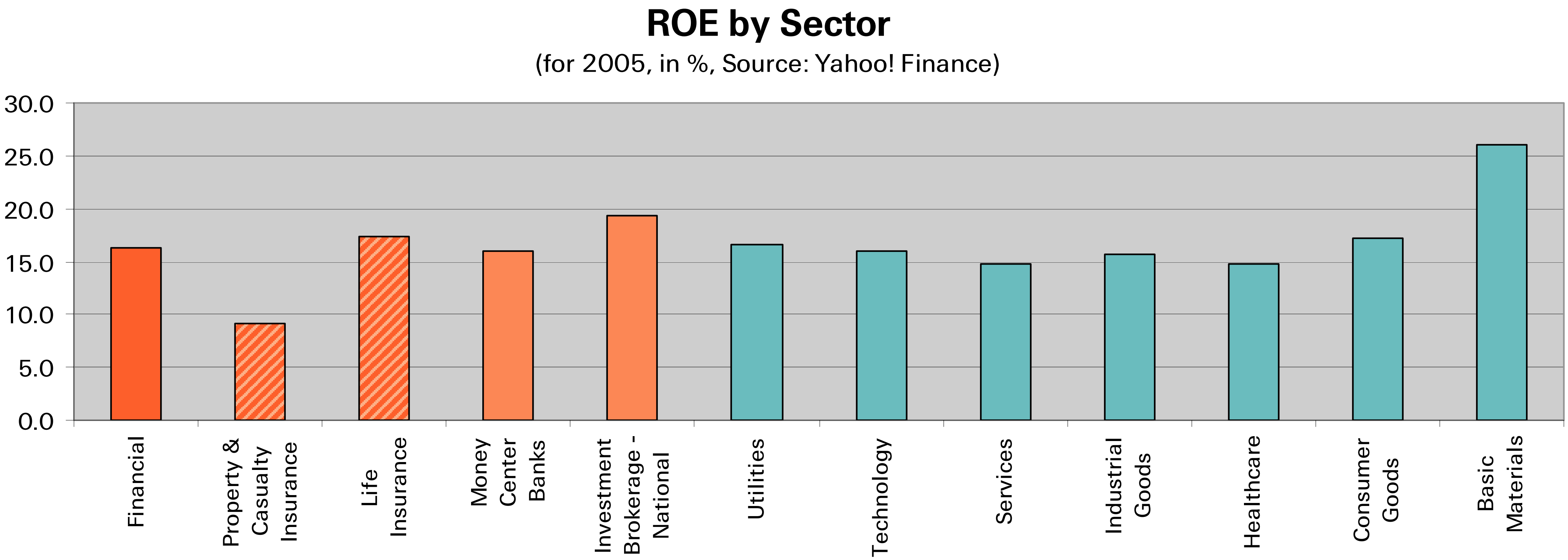

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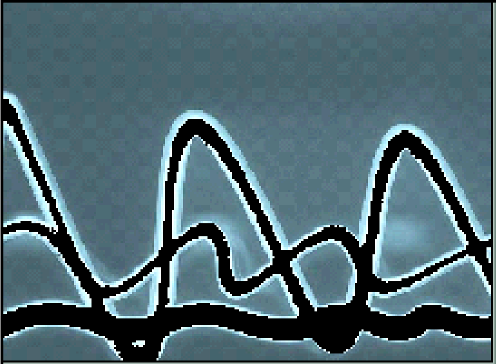

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The Evolution of Bank Lending

Insurance industry is roughly where the banks were in 1990

- **1980** Relationship-driven
- **1990** Lenders begin to employ risk-based pricing (e.g., price by credit rating)
- **2000** Enter securitization - most loans packaged and sold on to investors

  Loans still need to be priced correctly, but only to pass the risk to the public securities markets

  Banks generate more income on services than from holding risk on their balance sheets

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The Role of the Capital Market

Insurance and Capital Market will converge

- Increasingly more insurance risks are transferred to the Capital Market
- Banks and Hedge Funds are actively looking at diversifying into insurance risks, some are setting up their own reinsurance companies
- Insurance Products are a substitute for Capital
- Banks provide products (contingent capital, stand by credit lines), which can substitute or compete with insurance products

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Insurance is a substitute for Equity Funding

Corporate **treasurers can opt** between covering enterprise risks with either equity or insurance

Characteristics	Issue Equity	Buy Insurance
Share ownership control	YES	NO
Limited to specific risks	NO	YES
Pricing relative to 2002	Cheaper	More Expensive

Investors can opt between funding enterprise risks with either equity or insurance (with the advent of ILS)

Risk premia between capital and insurance markets should tend toward the same level

Insurance and Capital Markets are converging toward "Insurance Capital Markets"

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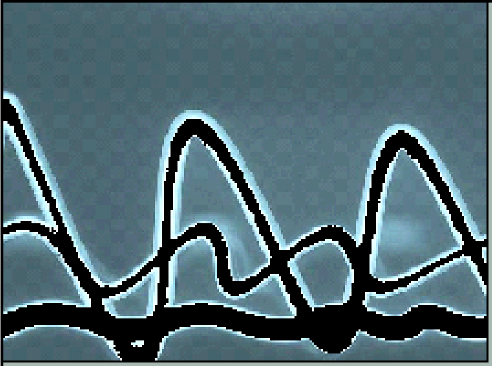
Insurance-linked securities (ILS) allow investors (e.g., pension funds) access to insurance risks, thus bridging the gap between insurance and capital markets

Market	Debt Financing	Debt Capital Markets	Equity Capital Markets	Insurance	Insurance Capital Markets
Typical Product	Loans	Bonds	Common Stock	Indemnity policies	ILS
Level of risk transfer	Low	Low	High	Medium	Medium
Risk Sellers	Corporation	Corporation	Corporation	Policyholder	(Re)insurer
Risk Buyers	Bank	Institutional Investor	Institutional Investor	Insurer	Institutional Investor
Price Discovery	None	Periodic	Periodic	None	Periodic

Risk premia across different product types should tend toward the same level



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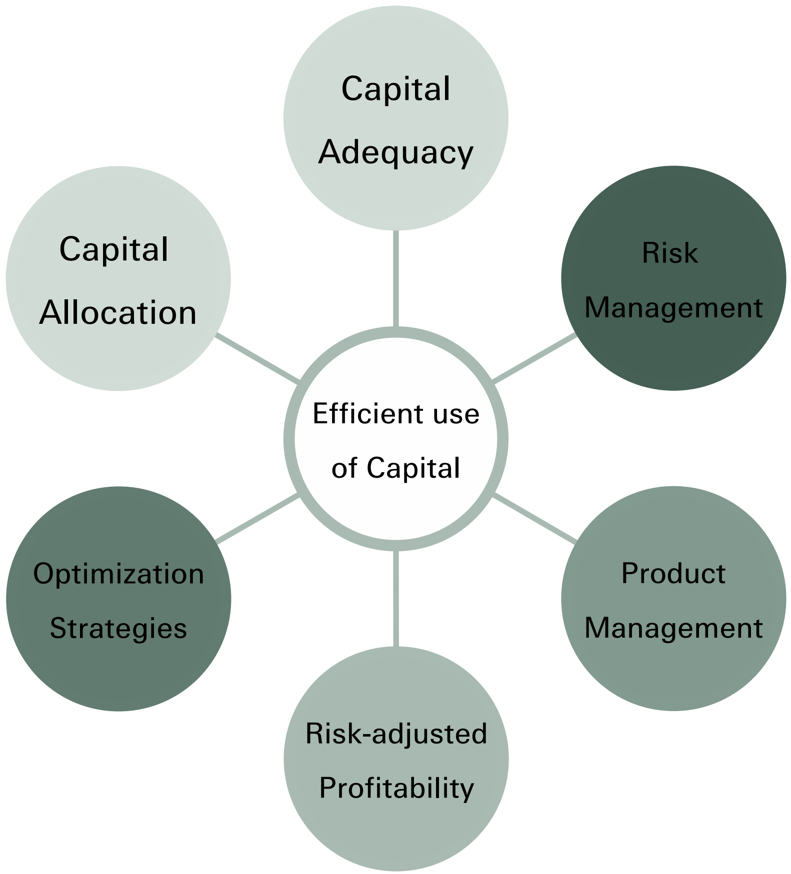
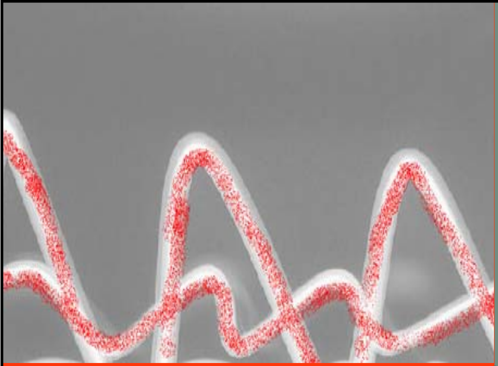
Capital Market Pricing

- Pricing based on RAROC (Risk Adjusted Return on Capital) framework
- Economic Capital (comprised of Market Risk, Credit Risk, Op Risk charge) calculated based on worldwide agreed and consistent standards (Basle I and II regimes)
  → Solvency II is a first corresponding step for insurance
- Most risks are securitised and openly traded
  → at the time of pricing, benchmark price for hedging/securitising is available (Bloomberg, etc)

➡ Cycle Management Framework consistent across whole industry (all participants)

Measuring Profitability: A RAROC Framework





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Conclusions:
Cycle Management & RoE

- Banking and Insurance will converge
- Tools, Processes and Pricing approaches will converge as well:
  - Risk Capital based pricing
  - RoE based targets
  - Liquid risk trading -> benchmark for pricing/hedging
  - Regulating Framework will be on economic basis and considering risk capital costs (Basel II, Solvency II)

Marine might be lagging today, but I am convinced Marine will catch up fast !