

The Actuarial Profession
making financial sense of the future

General insurance pricing seminar
Mike Hood



Developments in Commercial Property Pricing

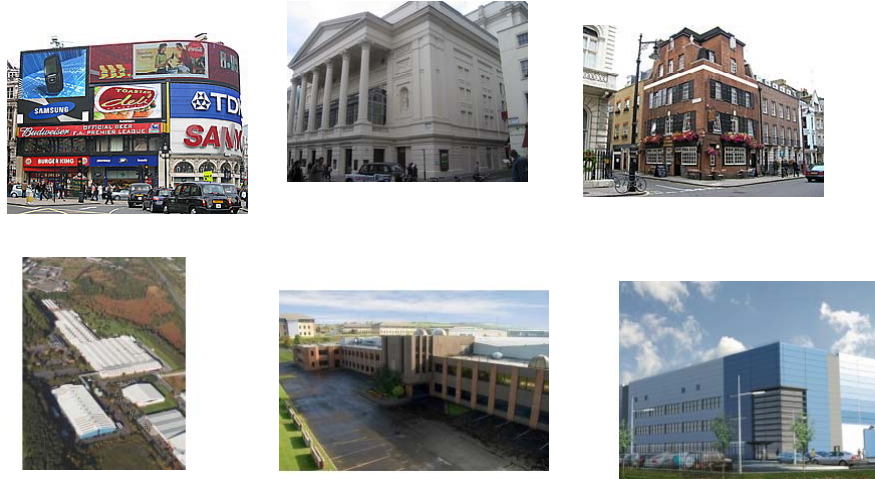
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Introduction

- Mike Hood
- Catlin – Actuary Property, Energy, Marine, War & Political Risks, A&H
- EMB – Director Commercial and London Market Pricing
- Zurich GCiE - Chief Pricing Actuary, European Corporate P&C
- Zurich London/ International – Actuary, Corporate P&C business
- Sphere Drake Underwriting Management - Actuary

Commercial Property



Reputation in tatters

An outsider might wonder how **insurance giant FM Global** stays in business. For one thing, staffers are constantly setting things on fire. Or blowing them up. Or swamping them. Some like to load pneumatic cannons with steel balls and launch them through plate-glass windows. "Our employees have no repression issues," says CEO and chairman Shivan Subramaniam. Things get even odder when you walk around the company's \$80 million materials testing facility in West Glocester, Rhode Island, and realize what's missing: actuaries. **You know, the slate-gray souls who form the statistical backbone of most insurers--golems in gabardine who use historical averages to calculate future risk** and say things like, "I'm sorry, but the numbers just aren't there." At FM Global, there are exactly none of them.

Involvement of actuaries in commercial property pricing

- Historically weak
- Seen as having nothing to add
- Threat not facilitator
- Failing to help with the data
- Some price monitoring
- Involvement in SME



Market Results

- | | |
|--|--|
| <ul style="list-style-type: none"> • UK Domestic • Volatile from year to year • UK market average last 5 years 100% to 105% combined • Upper quartile 90% • Lower quartile 115% • Steady rate declines • Above excludes 2010 | <ul style="list-style-type: none"> • Lloyd's /International • More volatile from year to year • UK market average last 5 years 90% to 95% combined • Upper quartile 80% combined • Lower quartile 105% combined • Steady rate declines • Above excludes 2010 which will be bad • Rates now moving |
|--|--|

Performance variation attributable to what?

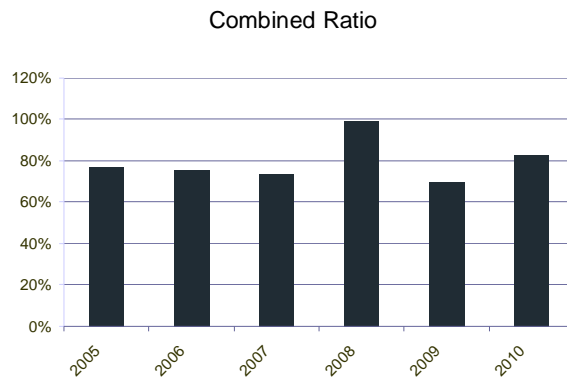
FM Global Combined Ratio

GWP \$4.5bn p.a.

Retention rate 93%

CR 05-09 79%

CR 06-10 80%



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Pricing process components

- **Pricing strategy**
- Acceptance criteria
- UW guidance
- **Price delivery mechanism**
- **Rate setting process/reviews**
- **External peril models**
- **Rating algorithm**
- **Rating granularity**
- UW judgement
- Price adequacy monitoring
- Rate change monitoring
- **Engagement between underwriters and actuaries**
- Engagement between underwriters, engineers, claims
- **Historic claims data**
- **Historic exposure data**
- **Data capture going forward**

Actuaries not involved enough and can help a lot

Property Perils

- Fire
- Lightning
- Explosion
- Aircraft impact
- Vehicle impact
- Theft
- Malicious damage
- Accidental damage
- Escape of water
- Power failure
- SRCC
- Wind
- Flood (River, Surface, Coastal)
- Subsidence/Heave
- Earthquake/ Eruption
- Tsunami
- Landslide
- Wildfire
- Snow pressure/avalanche
- Freeze
- Hail
- Breakdown

Insured items and BI coverage

- Buildings
- Contents
- Stock
- Valuables
- Work in progress
- Tenants improvements
- Computer equipment
- Money
- Book debts
- Debris removal
- Professional fees
- Loss of profits
- Increased cost of working
- Additional ICOW
- Named suppliers
- Named customers
- Unnamed suppliers
- Unnamed customers
- Denial of access

Market Practice 1

| | Typical | Good |
|------------------------------------|---------------------------------|---|
| Rating algorithm fire | 50 occps, + 2 factors, 4 levels | 500 occps, + 10 factors with various levels |
| Rating granularity fire | Extensive grouping | Per building + grouped for layers |
| Fire base rate verification | Inherited | Some verified in the last two years |
| Fire relativity verification | None | Some verification in last 5 years |
| First loss curve | One curve | 20 curves |
| Rating algorithm Nat Perils | Peril region (broad), 3 perils | Detailed multi peril regions + occ/constr |
| Rating granularity Nat perils | None | Per building + grouped for layers |
| Base rate verification Nat perils | Limited RMS calibration | Extensive recent RMS + MRe calibration |
| Relativity verification Nat perils | None | Relying on RMS/ senior UW judgement |

Market Practice 2

| | Typical | Good |
|----------------------------|---------------------------------|--|
| External peril models | Limited RMS use | Extensive RMS use per building |
| First loss curve | One curve | Ten curves |
| Claims record adjustment | Subjective | Formulaic/Calibrated |
| Historic claims data | Limited not by peril or section | 5 years by peril, section, geography, linked |
| Historic exposure data | Address + SI then poor | Address + split SI + occ + other |
| Data capture going forward | As above | As above + quoted submissions |
| Price adequacy monitoring | PMD equivalent subjective | Objective + Subj |
| Rate change monitoring | PMD equivalent subjective | Objective + Subj |
| Monitoring subjectivity | No | Yes |

Market Practice 3

| | Typical | Good |
|----------------------------|------------------|---------------------------|
| Pricing strategy | Increase profits | Some docs and granularity |
| Acceptance criteria | opportunistic | Clear docs |
| Underwriting guidance | Remembered | Extensive on line |
| Price delivery | Spreadsheet | Web based system |
| Pre post bind | Mostly post bind | Mostly pre bind |
| Rate setting reviews | No | Annual |
| Engagement UWs + actuaries | Weak | Good |
| Engagement UWs + engineers | Little | Good |
| Engagement Uws + claims | Weak | Weak |

Exposure data

| | Number of buildings | | | | |
|------------------------|---------------------|--------|---------|--------|--------|
| | 1 or 2 | 3 to 7 | 8 to 50 | 50+ | 500+ |
| Address | Always | Always | Always | Mostly | Mostly |
| Town | Always | Always | Always | Mostly | Mostly |
| Total SI per building | Always | Always | Always | Always | Always |
| Detailed SIs | Always | Some | Few | Few | Never |
| Occupancy broad | Always | Always | Always | Always | Always |
| Occupancy specific | Always | Mostly | Some | Few | Never |
| Construction (Fire) | Always | Mostly | Few | Never | Never |
| Construction (Natural) | Some | Few | Few | Never | Never |
| Fire protection | Mostly | Some | Few | Never | Never |
| Age | Few | Few | Never | Never | Never |
| No of floors | Some | Few | Few | Never | Never |
| Neighbouring risks | Some | Few | Few | Never | Never |

Claims Data

| Claims data | Typical | Good |
|--------------------------------|----------------------|------------|
| Split by peril | Cat / non cat | Ten perils |
| Split PD BI CBI | Not split or flagged | Yes |
| Split buildings stock contents | Not split or flagged | Yes |
| Matched to building / details | No | Yes |
| Matched to insured values | No | Yes |
| Other cause of loss | No | No |
| Suspected arson | No | No |
| Sprinkler impact | No | No |
| Deductible applied | No | Yes |

Market Practice Summary

- Generally weak, technically
 - Data collection particularly weak
 - Not knowing what they charge for what
 - Linking exposure data to claims data not good
 - Feedback loop into book rates and parameters weak
 - Use of models weak
 - Everyone bad at something
- *The excuses*
 - *Claims are too infrequent*
 - *Every risk is different*
 - *Data collection is too hard*
 - *Rates don't matter for good risks*
 - *Don't write bad risks*
 - *Ancient technology*
 - *Somebodyelse's job*

Matching claims and exposure data

- What is so difficult?
- Claims not seen as providers of information to underwriting or actuarial
- Ancient technology
- Actuaries who think its somebody elses job
- Short sighted management
- **Actuaries should take responsibility for the data**

A few other issues that need attention

- Cat models
- Sprinklers
- Age of building
- Earthquake
- Arson
- First loss curves

Cat Models in pricing

- Heavy reliance in agg modelling and cost of capital % loads
- Expanding use in pricing but...
 - Limited reliance
 - Lack of trust
 - Black box
- Non RMS peril regions
- Occupancy / Age / Construction

Models not used enough and not used with enough understanding of limitations

Sprinklers

- Discounts 30% to 90%
- But very few have any data
- And very few are collecting it
- NFPA
- FRS

Big discounts, no data



Age of building

- Fire
- Escape of water
- Earthquake
- Flood
- Subsidence
- Wind
- Construction codes
- Materials
- Wiring
- Pipes
- Heating
- Security

Building standards generally improve over time and everything deteriorates with age

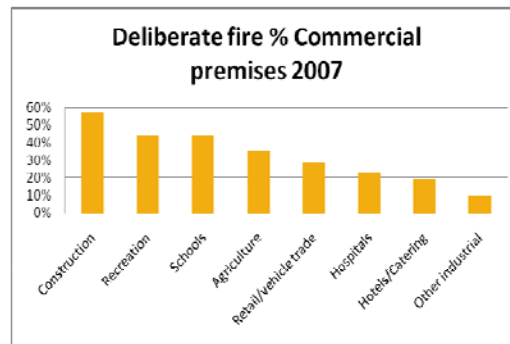
A key risk factor that is infrequently recorded analysed or used in rating of commercial property

Earthquake

- What would your results look like if you took out the earthquake premiums?
- What would happen if you increased your new zealand earthquake premium by 50%?

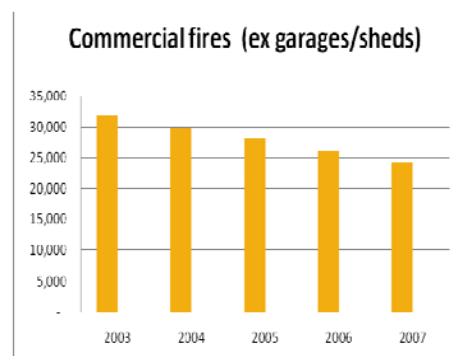
Arson

- Is a key cause of fire
- Risk factors kids
- Risk factors owners
- Risk factors employees
- Risk factors accidental fire
- Data?
- Rated separately?



Trends

- Fire, Flood, EOW, BI, CBI
- Frequency / Severity
- Not often taken into account



First Loss Curves

- Still largely unverified
- Few collect the data needed
- Still a belief that someone knows what's going on
- Application of curves questionable
 - Curve selection by trade
 - Use on groups of locations
 - Use against PMLs and Insured values
 - Use for cat events



Call to action

- Models and advice that help underwriters
- Know what you are charging for what
- Take responsibility for the claims data
- Take responsibility for the exposure data
- Prove the cynics wrong

Questions or comments?

The views expressed in this presentation
are those of the presenter.

