

OVERVIEW OF GIRO WORKING PARTIES:

2006 – REINSURANCE MATTERS!

2007 – REINSURANCE CREDIT RISKS

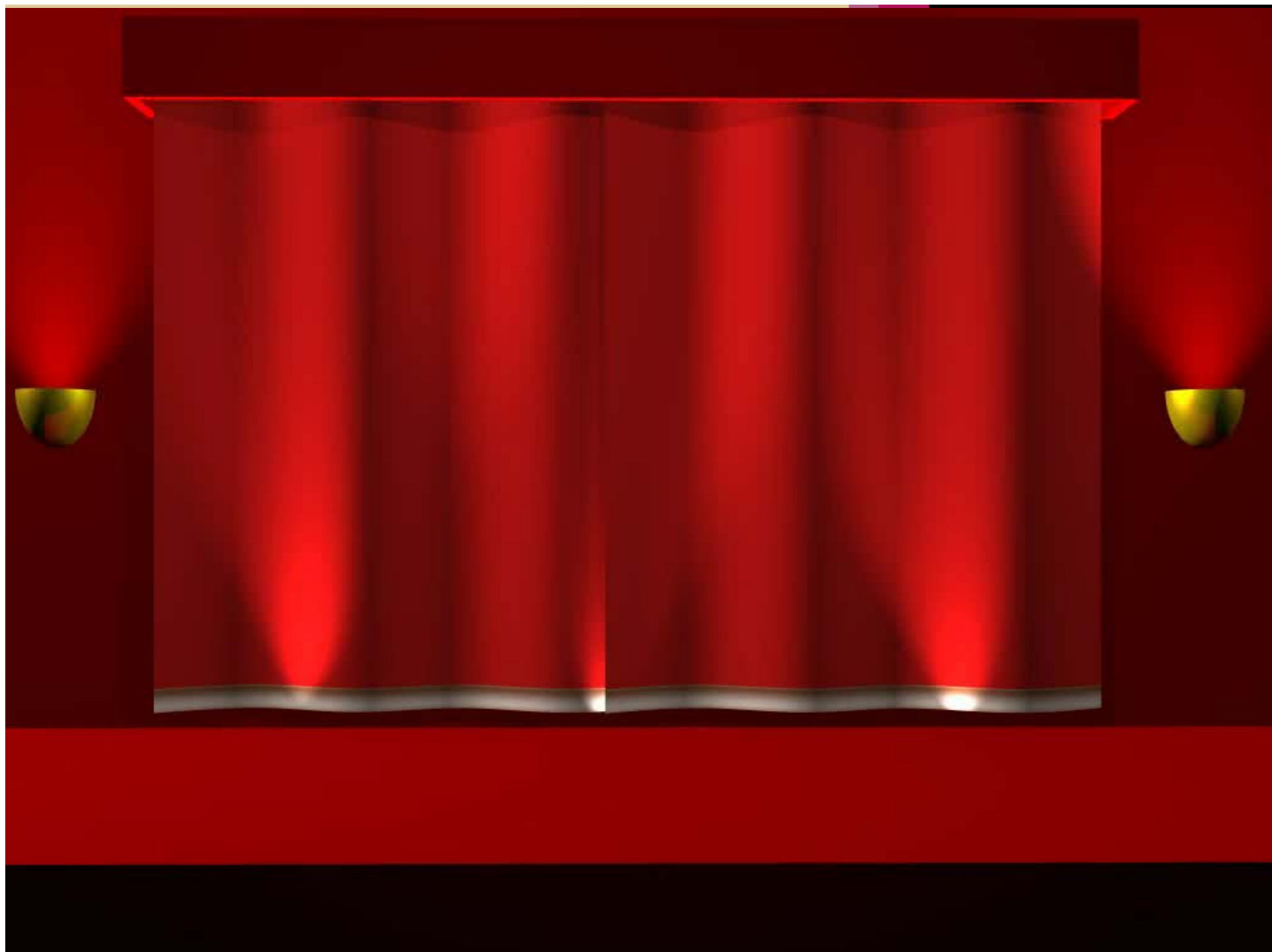
Mark Flower

21 June 2007



2006 – Reinsurance Matters!

- Our catalyst
- The team
- Why it matters
- ‘Blue Peter’
- Opportunities



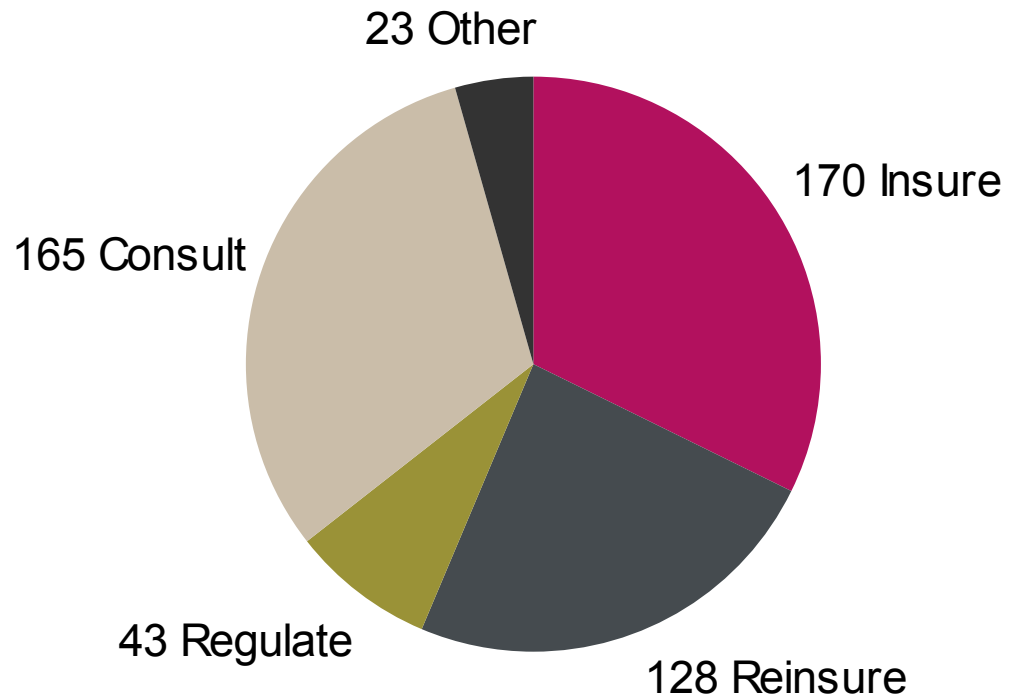
The Jedi Knights



- Ian Cook
- Craig Divitt
- Mark Flower
- Vishes Gosrani
- Andrew Gray
- Gillian James
- Gurpreet Johal
- Mark Julian
- Laurence Lee
- David Maneval
- Roger Massey

Reinsurance Matters to you

Of the 530 delegates at GIRO 2006...





Reinsurance Matters to you

Top 3 items on Insurance CEO's Agendas for 2007...

- Managing aggregations / optimising reinsurance spend
- Cycle management
- Embedding capital and risk management

Source: 2006 PwC survey of the London Insurance Market



Big Impacts!

- P&L
- Balance sheet
- Capital
- Risk management / ERM
- Key agendas

Yet it was sliding off the GIRO radar...



‘Blue Peter’

- Guide to reinsurance papers
- Practical pricing guide
- GIRO Workshop



Guide to reinsurance papers

- Rapid reference guide
- 42 key papers
- 1976 to 2005
- Relevant
- Précised them all
- Addendum to the IoA Reading Guide?

A REVIEW OF PAPERS RELEVANT TO NON-LIFE REINSURANCE (WITH A LIABILITY FOCUS)

by members of the

2006 GIRO “Reinsurance Matters” Working Party

Mark Flower (Chairman); Ian Cook; Craig Divitt;
Visesh Gosrani; Andrew Gray; Gillian James; Mark Julian;
Lawrence Lee; David Maneval; Roger Massey

Introduction

The Reinsurance Matters working party agreed that the Faculty and Institute Reading Guide is somewhat sparse on papers relating to non-life reinsurance. We therefore compiled a list of such papers and reviewed them, preparing this short summary of each in the same format as the official reading guide. We hope that this will prove useful to actuaries looking for reinsurance papers and as such could provide the basis for a reinsurance section in the official guide.

As we are actuaries we couldn’t resist a couple of caveats:

- We recognise that whilst quite comprehensive the list of papers we have reviewed is not exhaustive.
- Each review was compiled by a small subset of the working party and as such no single review necessarily reflects the views of the entire group

Key

“Type” must be one of the following three options:

Intro : Introductory and background: assumes little knowledge
Core : Core material – essential knowledge for a practitioner in this area
Spec : Specialist – goes beyond the essential knowledge

“Tech Level” must be one of the following three options:

Non : Non-technical – a layman can understand this
Stan : Standard – Requires an actuary’s technical skills
Bey : Beyond – Goes beyond standard actuarial skills

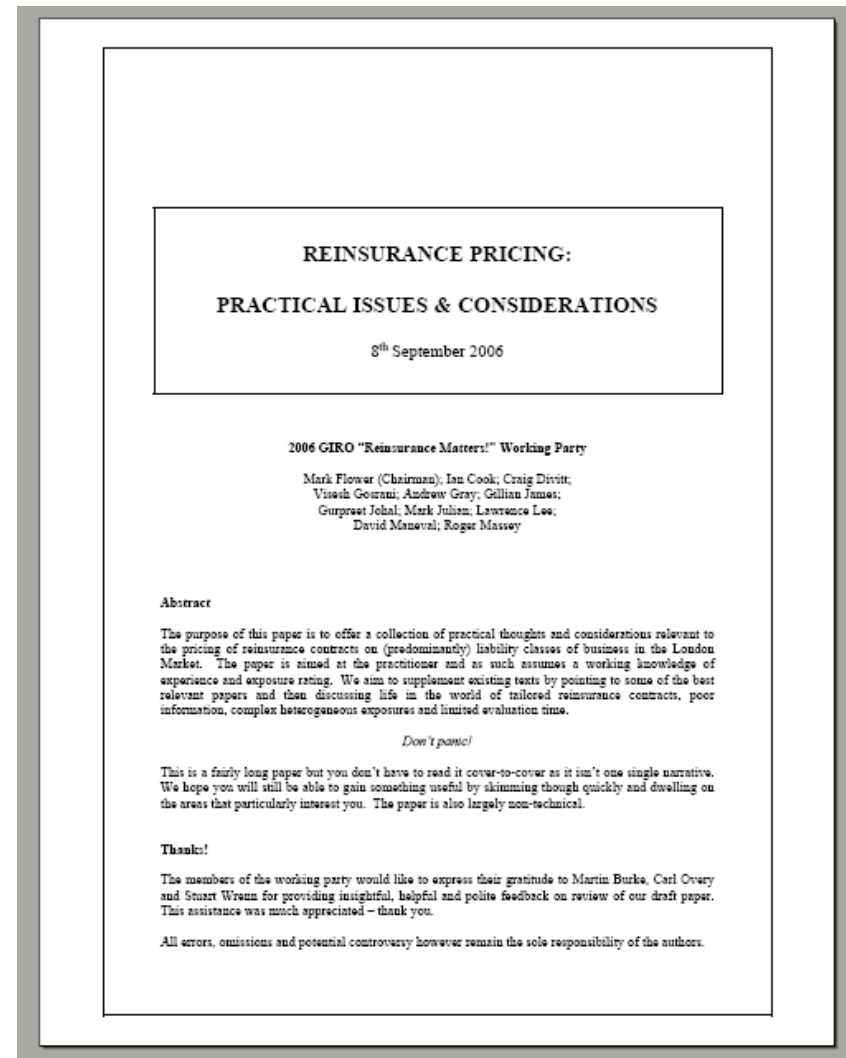
#4 Philbrick, S. 1985	<i>A practical guide to the single parameter pareto distribution</i>	Type : Spec Tech Level : Stan Pages : 40
The paper is a reasonably in-depth analysis of the single parameter pareto distribution. The first section of the paper looks at various loss severity representations before moving on to examining basic properties of the single parameter pareto. A section on parameter estimation follows and the paper concludes with a discussion on the effects of inflation and some worked examples. Although this is quite long paper, it is readable and has a good balance between text and formulae, and the worked examples at the end are useful. A solid foundation for anyone wishing to learn about the single parameter pareto distribution.		

#5 Lee, Y-S. 1988	<i>The Mathematics Of Excess Of Loss Coverages And Retrospective Rating – A Graphical Approach</i>	Type : Intro Tech Level : Stan Pages : 29
The mathematics of excess of loss coverage and retrospective rating can involve heavy algebra. This paper presents a graphical approach to the theory in order to illustrate and explain many mathematical relations and results. The first half of the paper deals with XoL and as such is straightforward to follow, whereas the second half deals with retrospective rating and therefore assumes a working knowledge of “Table M” and “Table L” as used in the USA when rating workers compensation plans. The paper offers a quick, easy and useful additional perspective for anyone struggling to conceptualize the mathematics involved.		

#6 Keatinge, CL. 1989	<i>The effect of trend on excess of loss coverages</i>	Type : Core Tech Level : Stan Pages : 21
This paper follows on from previous papers, that discuss how (uncapped) excess losses increase proportionately more than the average trend in losses. It demonstrates that there is a dampening effect from capping excess losses (practical reality of limits for most excess layers), which acts to offset the leveraging effect of the deductible. By the use of graphs, the paper then demonstrates how this varies when : • Changing the shape/scale of the loss distribution • Changing the type of loss distribution • Allowing the trend to vary by size of loss		

Practical pricing paper

- What it is
- What it isn't
- Why we did it
- Target audience
- Relation to GRIP





Pricing paper: Topics

- Performing the basics
- Data issues
- 'Bells and whistles'
- Underwriters' rules of thumb and how to test them
- Pitfalls
- Accumulations and correlations
- Credit risks
- So where do we go from here?

Pricing paper: Themes

- Intelligent Execution:
 - Fit for purpose...



- Communication:
 - Two way, and RTFS...



2006 Workshop: The reinsurance onion

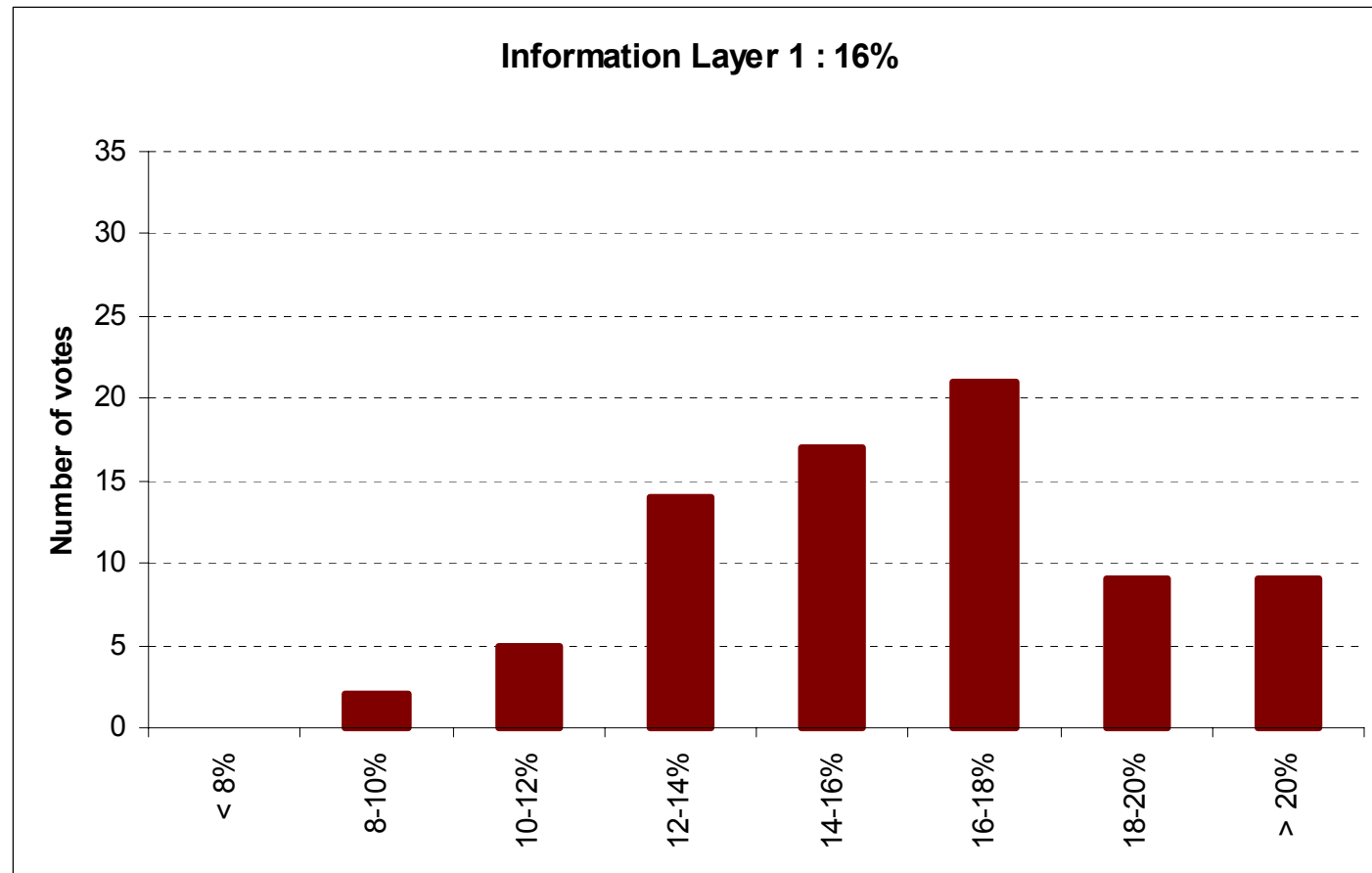




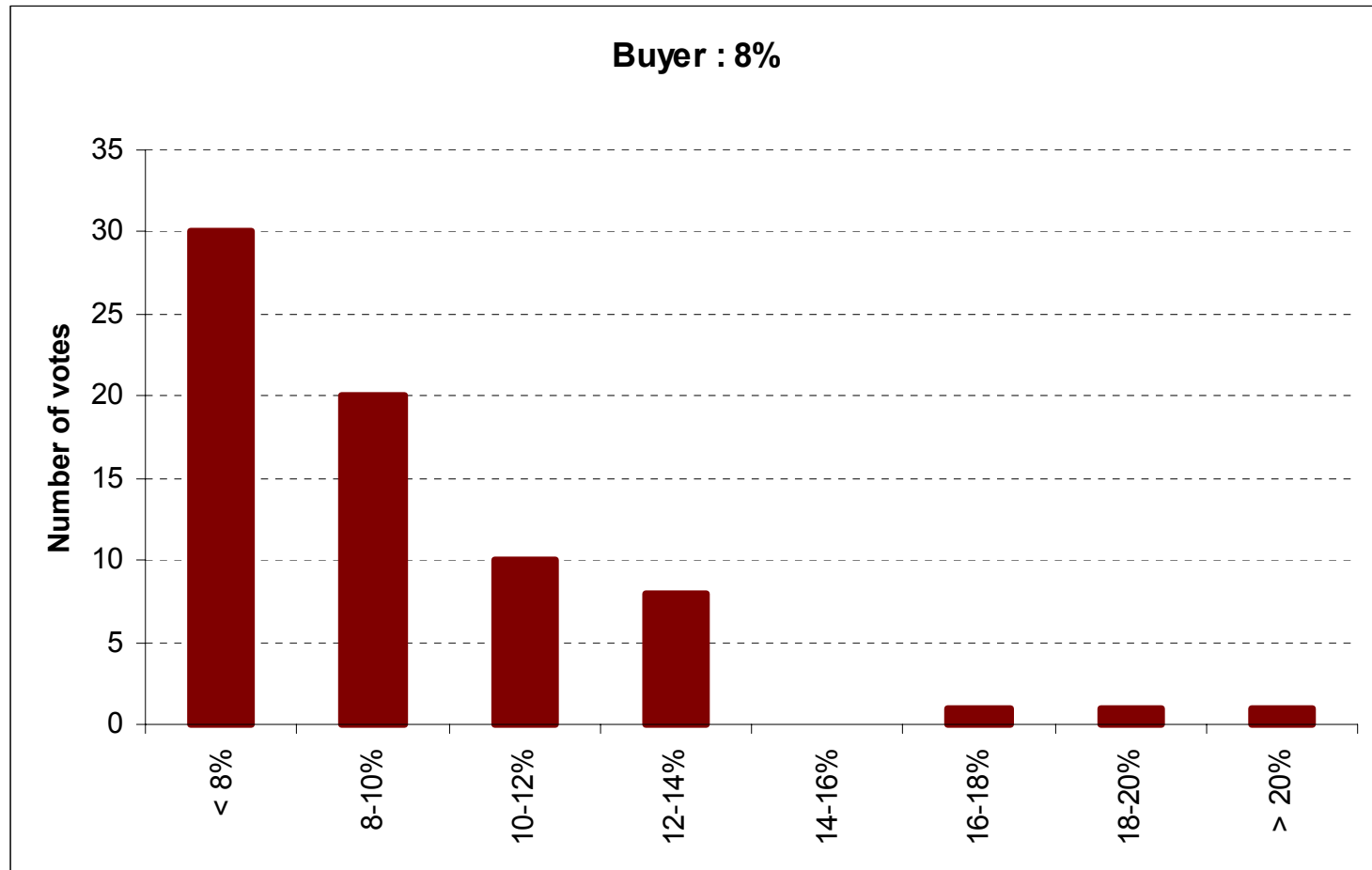
The reinsurance onion

- Practical pricing exercise
- Successive layers of information
- Consensus price moved with each layer of information
- Dramatic shift when changed perspective

The reinsurance onion



The reinsurance onion





The reinsurance onion

- More to pricing than mathematics
 - Quick and dirty often misleading
-
- Also... Brief discussion of thoughts regarding RCCR

Opportunities: Be learned, one must



- Feed into GRIP
- Industry benchmarks
 - Lloyd's, ABI
- 'Wikified' resources
- RI credit risks
- Practical accumulations
- Actuarial education
- UK CArE seminar



That was then, this is now...



2007 – Reinsurance counterparty credit risks

- Who?
- Why?
- What?



Who?

- Mohamed Afify
- Ian Cook
- Craig Divitt
- Mark Flower
- Visesh Gosrani
- Gillian James
- Pantelis Koulovasilopoulos
- Jason Lincoln
- David Maneval
- James Robinson



Why RCCR?

- Potentially catastrophic for P&L
- Reserving implications for B/S
- Capital implications
- Pricing / commercial considerations
- 'Bad debt paper' excellent but focussed on reserves
- Problems with rating agency default tables
- ICAS, ERM, DFA etc
- Lots of correlations – these should be modelled
- Explore wider fields
- Seek a new approach
- New perspective, not a replacement



What?

- Easy-reading paper
 - Issues with current approaches
 - Wider fields (Life, rating agencies, bankers)
 - Banking techniques
 - Worked example
 - Commercial aspects of RCCR
 - Correlations
- Excel based illustrative model
- GIRO 2007 presentation and workshop



Life actuaries' approaches include...

- Ignore it: Default probabilities less than VAR threshold...
- Use a higher (default risk adjusted) discount rate
- Write down an arbitrary percentage of the provision
- Ignore the small ones (“immaterial”), focus on large
- Ignore the large ones (“we’d be dead”), focus on small
- Model reinsurance cash flow like a defaultable bond
- Stress and scenario testing

That’s okay for them, but doesn’t help us much...



Bankers' credit risk models

- One common approach at core of most models
 - Default intensity curve
 - Like a yield curve but for default probabilities
 - Inferred from market spreads
- Theory is intuitive
- Practice is challenging
- Application is pleasing but still flawed
 - But so are our current methods!!



Our model...

- Captures key dynamics
- Models correlations
- Forces you to parameterise...
- ...and think prospectively
- Is stochastic
- Gives a new perspective
- Should stimulate healthy thought processes

- But of course it isn't perfect!



Want to know more?

- Wait for our paper!

If you have ideas to contribute...

- | | |
|------------------|------------------------------|
| ■ Mohamed Afify | ■ Gillian James |
| ■ Ian Cook | ■ Pantelis Koulovasilopoulos |
| ■ Craig Divitt | ■ Jason Lincoln |
| ■ Mark Flower | ■ David Maneval |
| ■ Visesh Gosrani | ■ James Robinson |



One more thing: Wiki! Wiki! Wiki!!

- Used a wiki to share ideas
- Teething problems
- Worked well, then...
 - Struggled with lengthy paper
 - Ghosts in the machine...
 - Couldn't handle spreadsheets
- Has some real benefits, but
- We stopped using it towards the end

QUESTIONS?

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