A Maths Toolkit for Actuaries
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“A Working Title Production”

Part I
- The Model Actuary
- The Rate of Change
- The Subject of Conjecture
- The Continuously Developing Profession

Part II
- Academic Research
- Software Survey
- IT Toolkit
- CodeCogs

And Finally... So What?

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The Model Actuary

- Aspirational Think-Piece
- All Practice Areas
- Dangers of Convenience
  - Dumbing Down?
- Time to Think
  - Sharpening the Saw

The Paranoid Survive

- Constant Renewal
  - Life Long Learning
- The Quant Revolution
  - A Missed Opportunity?
- CFA Institute
  - formerly the Institute of Chartered Financial Analysts
  - qualification of choice for ambitious numerate graduates

The Rate of Change

- Globalisation
- Climate Change
- Energy Supply
- Water Supply
- Changing Regulation
- Ageing Populations
- Population Growth
- “Compensation” Culture
- New Technologies
- Terrorism
The Next Opportunity?

- The “Cat” Revolution
  - complex, science-based models
  - emerging group of technical experts
  - issues of use, interpretation and communication
  - clear links with actuaries...and ICAS
  - should we engage?

The Subject of Conjecture

- Many in Guessing Game
- Quantification of Uncertainty
- GRIT
- ICAS

The Continuously Developing Profession
Part II

- Risk Measures/ Copulas and Recursions
- IT toolkit
- Software survey
  - CodeCogs

IT toolkit

Tools:
- Blogging
- Blog Search
- RSS feeds
- Tagging
- Wikis

Why?:
- WWW is big!!!
- Platform for CPD
- Connections
- 21st Century
- Toolkit WP – ‘pilot’

Blogging – vision?

I read an interesting article the other day about copulas written by Dr Andreas Tsanakas, where he explains that we are all using them perhaps without knowing it. It is well written and has some excellent links for those wishing to read further. Here is a taste:

Copulas are simple abstractions from the joint probability distribution between risks. They enable the separation of the dependency structure from the marginal behaviour, that is, from the probability distributions of the individual risks. While the concept of the copula is not particularly difficult to explain, a fair amount of mystique around copulas persists.

I had a go at building a simple copula on a spreadsheet, take a look if you are interested. I think it would be good to see how these are being used in practice; if you would like to add your views please visit the wiki. Hopefully this will grow into a practical guide to implementation.

Posted by Trevor on 16th October 15:08

Tags:
- Copulas
- dependency
- insurance
- insurance
- insurance
Blogging

- Web logs
- On line postings
- Sharing information / filtering
- Interacting

"A blog is merely a tool that lets you do anything from change the world to share your shopping list. People will use it however they wish. And it is way too soon in the invention of uses for this tool to limit it with a set definition."

Jeff Jarvis 2005

"The right blogs are compelling, informative and written with a voice that we recognise as authentic"

John Harnett 2005

Blog search

- These are just search engines in blogosphere
- Time based not hit based
- Standard Google would never find these...because they only just wrote them

RSS feeds

It is likely to be available on many of the sites you use day to day...
RSS feeds

- "Really Simple Syndication"
- File format => state of the site
- Aggregators
  => changes to the site
  => Reading list
- Create your own newspaper ..... from sources you know to be useful
- Widely adopted, automated web surfing

Tagging

"It isn’t the ideas in a book that have to be in one place — a book can be about several things at once. It is the book itself, the physical fact of the bound object, that has to be one place, and if it’s one place, it can’t also be in another place. In the virtual world, there is no shelf.”
Clay Shirky 2005

Tagging

- Categorise the web
- Added by the author. . . .
  . . . OR the reader
- "I think this article is about"
- Power in numbers
- del.icio.us
Wikis

- John's article on a wiki
- Wiki is Hawaiian for "fast"
- Websites users can edit
- Collaborative software

Wikis - vision

Perfect for working parties?

IT toolkit - summary

- Blogging
- Blog Search
- RSS feeds
- Tagging
- Wikis

"These tools work because our constructive instincts outnumber our destructive ones."
John Harnett 2005
**Software Survey**

- Free
- Open source
- Collaboration...
  - ... Web 2.0 model
- Constructive instincts
- "Better supported"
- A tool to implement theory
- Fantastic graphics

**Simulated Loss**

- Professional graphics
- Many curve fitting methods
- Many distribution fitting methods
**Plots**

As a matrix of figures.

- Time consuming in Excel
- One line in R

**Colour**

- an extra dimension
- Easy in R...
  - not in Excel!
So what?

- CPD Changes
- Strategy for The Profession
- Quantitative Finance Network
- Friday's Workshop
- 2006 Working Party