

2003 Life Convention  
9-11 November

Hilton Birmingham Metropole Hotel

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## A Perspective on Persistency

*Philip Gwilt*  
*Legal & General*

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### A Perspective on Persistency

- What is it and what is its relevance?
- What drives persistency and do we understand it?
- Modelling persistency
- How is it best measured?
- How should it be used as part of our actuarial armoury?

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## What is Persistency?

**Persistency rate:** insurance industry euphemism for the (relatively small) number of policyholders that hang on until maturity. Vast majority cash in policies early, sometimes because of changed circumstances such as divorce or desperate need for money, but more likely because salesman's thirst for commission obscured the need to suggest more appropriate investment at outset. Low persistency rate also highlights unsuitability of rigid, long-term plans for most 21<sup>st</sup> century investors.

[Definition found on [www.Telegraph.co.uk](http://www.Telegraph.co.uk)]

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## What is Persistency?

- What is left behind after .....
- Decrements other than "Death" or Maturity – Early Exits
  - Lapse
  - Surrender/Transfer
  - Early Retirement
  - Paid-up
  - CFO (Cancelled from outset)
  - NTU (Not taken up) / NPW (Not proceeded with)
  - .....

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## What is the Relevance of Persistency?

- To the Office
  - Admin issues
  - Loss of or Gain in Value
  - Management Information
  - Issues of Equity
  - Parameter setting (e.g. Pricing)
- To the Policyholder
  - Impact on policy-value
  - Choice
- Industry wide
  - Public perception of industry
  - Regulation

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**What Drives Persistency? - Do We Understand it?**

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- Why do Policyholders leave early?  
[source FSA Consumer Research December 2000]
  - Marital & Domestic Reasons – 10%
  - Product Related (Dissatisfaction with performance/service/suitability) – 24%
  - Income & affordability – 58%
  - Other Reasons – 8%

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**What Drives Persistency? - Do We Understand it?**

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- Why do Policyholders leave early?  
[source FSA Consumer Research December 2000]
- Product Related Issues (24%)
  - Product performance – 12%
  - Doubts about rightness of product – 6%
  - Service of Company – 3%
  - Lost interest in product – 2%
  - Increases in Premiums more than expected – 1%

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**What Drives Persistency? - Do We Understand it?**

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- Why do Policyholders leave early?  
[source FSA Consumer Research December 2000]
- Income & Affordability (58%)
  - Change in work/income circumstances – 15%
  - Couldn't afford to continue – 14%
  - Wanted to free up money to spend – 7%
  - Transferred money to another product – 7%
  - Financial Adviser told me to – 4%
  - Started job with a company that had a Pension Scheme – 8%
  - Retired – 3%

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**What Drives Persistency? - Do We Understand it?**




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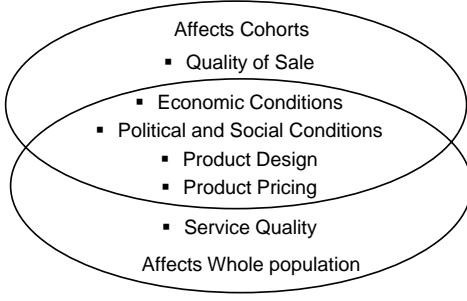
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**What Drives Persistency? - Do We Understand it?**




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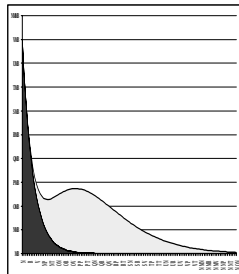
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**Modelling Persistency**

- Family of Models to describe Persistency...
- $E_c(n) \cdot Q_s \cdot e^{(-\mu n+t)} + P(n+t) \cdot (n+t)^\alpha \cdot e^{(-\nu(n+t))} + C$
- n, t
- $E_c(n)$
- $Q_s \cdot e^{(-\mu n)}$
- $P(t) \cdot t^\alpha \cdot e^{(-\nu t)}$
- C




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## How should it be measured?

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- What will the measure be used for?
  - Management Information (e.g. FSA measure)
  - Investigation for Product Pricing (by Policy Year)
  - Investigation for Valuation Purposes (by Calendar Year)
- Correspondence of Exits to Exposed-to-Risk
- Interpreting The Results
  - Usual pitfalls (e.g. size of sample, exceptional events)
  - Current effects vs. Cohort effects

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## Persistency – Its use in the Actuarial Armoury

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- Need to acknowledge what drives Persistency
- Cohort Effects vs. Whole Population Effects
- Sensitivity of Persistency to other factors
- Implications for use of persistency in Stochastic modelling

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## What Now?

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- Academic
- Practical
- Feedback
- Tea/Coffee

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**The Actuarial Profession**   
making financial sense of the future

## A Perspective on Persistency

*Philip Gwilt – Legal & General*

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