



Institute  
and Faculty  
of Actuaries

# A New Dawn for Variable Annuities

Highlights of Life Conference 2015

24 March 2016

# What is the origin of the Variable Annuity?

## A US insurance based retirement drawdown product

- An “annuity” is generally recognised as an insurance drawdown product in the US market (immediate/fixed/variable/deferred)
- A “variable” product is generally recognised as an insurance product allowing direct investment into funds (UL in UK)
- May include financial guarantees whose impact is closely linked to non-market risks

## Pensions Reform has created an opening for a VA like product

- Drawdown environment
- Equity exposure with significant guarantees – especially in current environment
- Flexible and transparent

# Our speakers

## **Gus Williams, PwC Ireland**

- 18 years of industry experience, including 3 years in US where held the position of IFRS and USGAAP valuation actuary for a large VA block.

## **Michael Leahy, Prudential Europe**

- 26 years of industry experience across UK, Ireland and Germany.

## **James Isherwood, PwC UK**

- 12 years of industry experience, including 4 years in the US where he was involved in Economic Capital and Solvency II modelling of VAs

# Agenda

1. The historical development of the US variable annuity product
2. Assumption setting for guaranteed risk elements
3. Assumption setting without data
4. Alternative approach to setting policyholder assumptions
5. Conclusion

## What we will not be discussing:

- Description of the VA guarantee types (GMXBs)
- Detailed hedging discussions

# The historical development of the US variable annuity product

## Pre 2008

*Escalating benefits steadily shifted the VA sales proposition and increased the risks taken by insurance companies*

**Highwater Mark for guarantees**

- GMWB with ratchets, rollups, and/or higher withdrawal maximum

**Variable Annuities**

- Equity upside with tax-deferred mutual fund returns
- Return of premium death benefit

**GMIB**

**GMWB**

**Continued focus on income solutions**

- Hybrid withdrawal and income benefits
- Immediate annuity products

**Increasing Guarantees**

- Lifetime withdrawal benefits
- Bonus structures

*Investment return focus*

**Ratcheting**

*Guarantee focus*

1970 - 1980

1980 - 1990

1996 - 1997

1998 - 2000

2000 - 2004

2005 - 2008

# The historical development of the US variable annuity product

## Post 2008

*Global financial crisis identified key areas to be addressed and forced VA writers to focus on understanding and addressing all risks*

### **Limiting Fund Offerings**

- Lower volatility funds
- Less basis risk
- Limits on switching
- Asset transfer programs

### **More Sophisticated Hedging**

- Market consistent approach to valuation
- Stochastic modelling
- Intraday hedging
- Internal hedging expertise

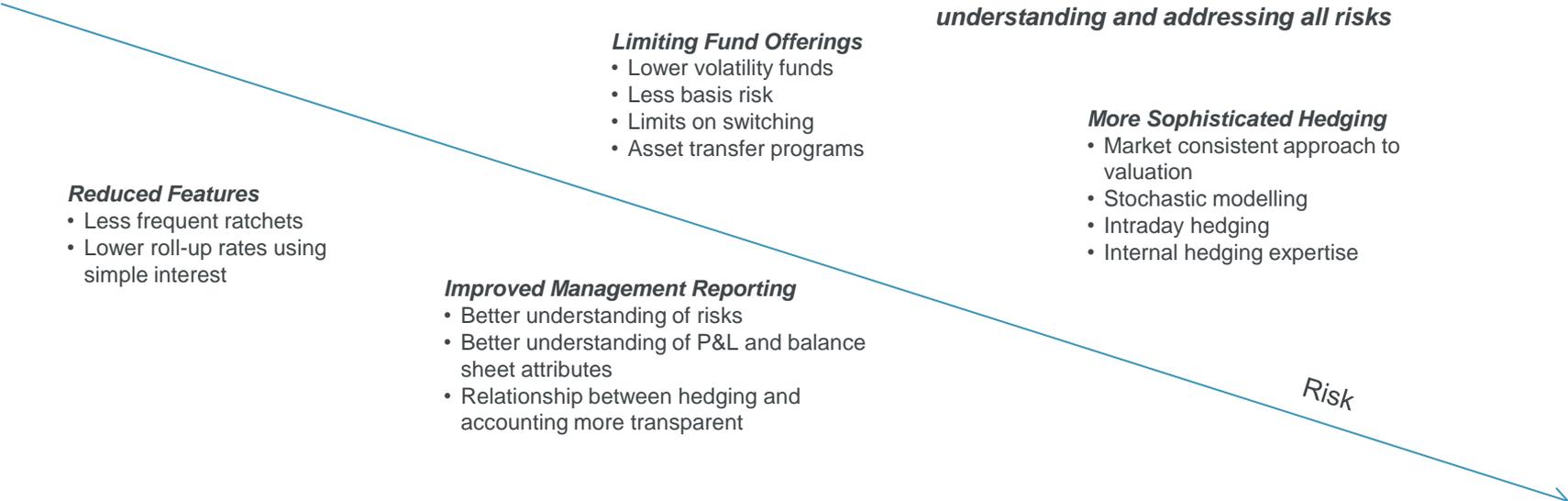
### **Reduced Features**

- Less frequent ratchets
- Lower roll-up rates using simple interest

### **Improved Management Reporting**

- Better understanding of risks
- Better understanding of P&L and balance sheet attributes
- Relationship between hedging and accounting more transparent

Risk



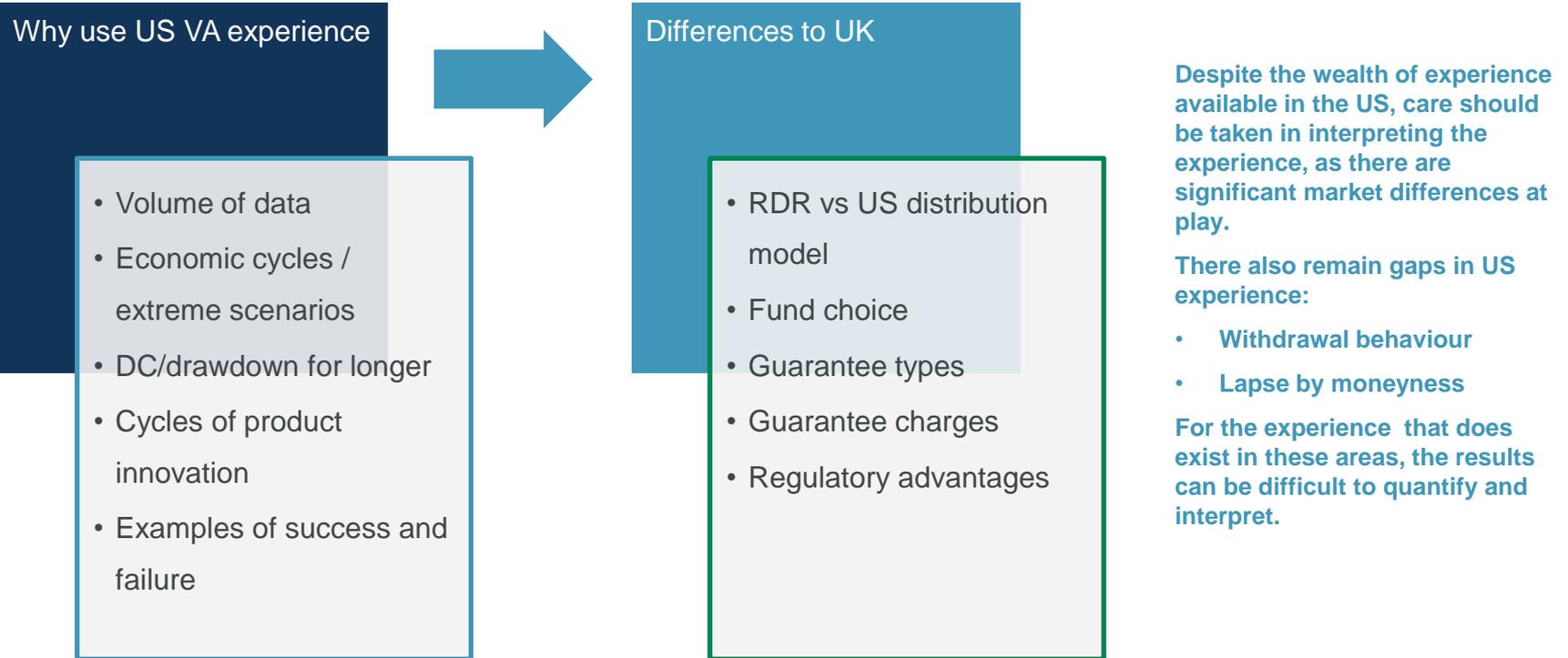
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2008 +

*Increased risk management sophistication and acceptance of product design changes have helped to bring exposures down*

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# Why is US VA experience relevant?



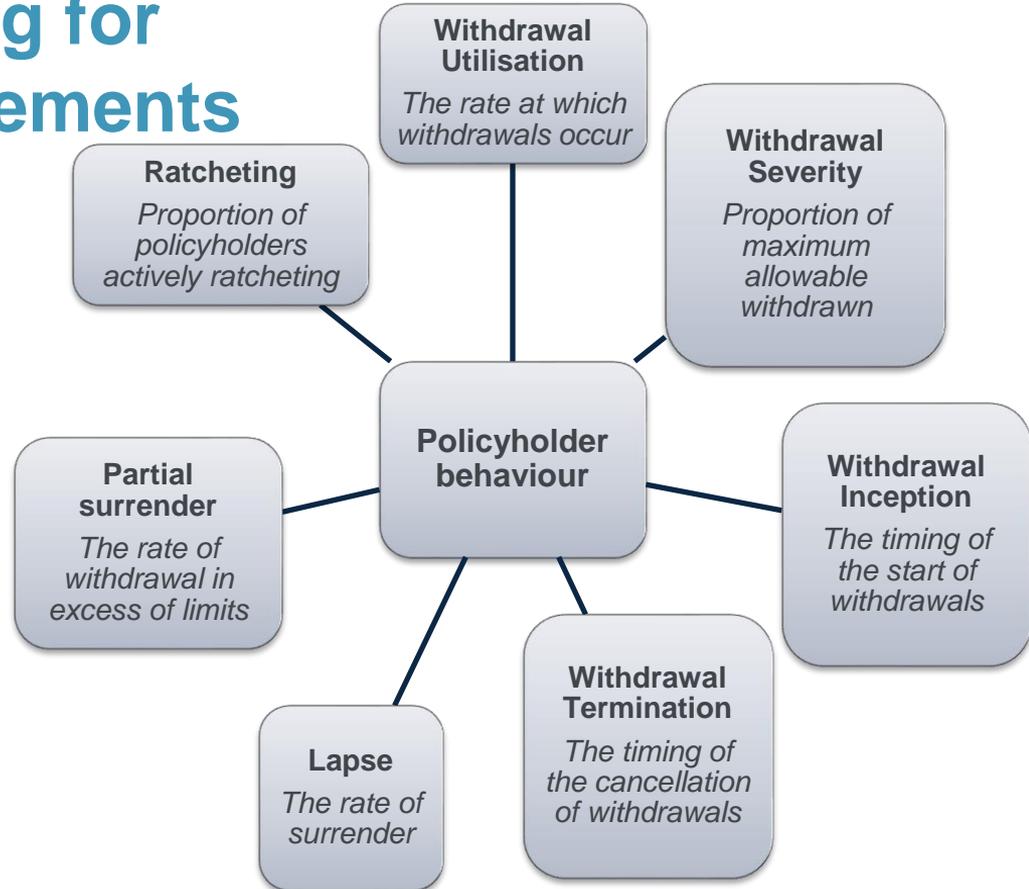
# Assumption setting for guaranteed risk elements

Risk drivers:

- Moneyiness
- Age
- Tax status
- Duration
- Product type
- Policy size
- Gender

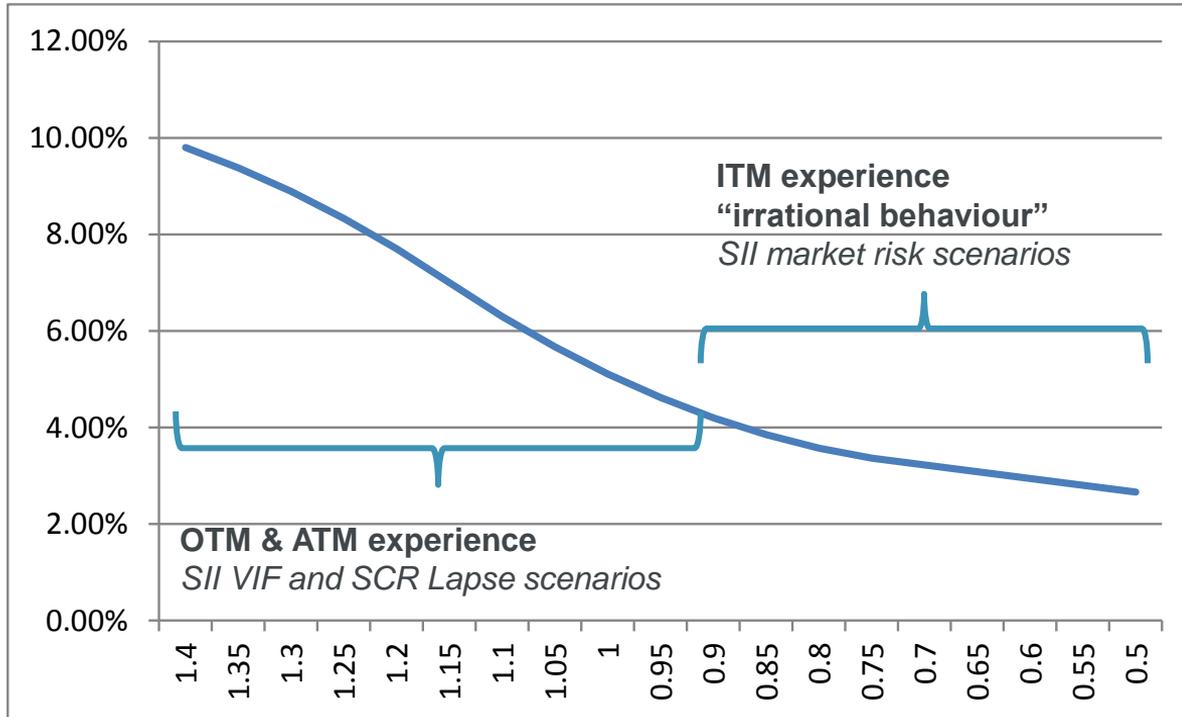
*The large number of variables along with the regular snapshots required for capturing moneyiness lead to an extensive and complex data gathering and storage challenge.*

*Statistical methods normally required to analyse experience.*



# Assumption setting for guaranteed risk elements

## Lapse rate by moneyness



SII capital will be heavily influenced by modelled policyholder lapse behaviour in extreme scenarios.

The limited experience available in these extreme scenarios suggests that policyholders will continue to lapse even where the guarantee is valuable.

The competitive pricing environment, puts insurers under pressure to allow for this “irrational” behaviour in assumptions.

# Assumption Setting without Data

## Context

- What is state of the art on policyholder behaviour
- How does this compare to analysis of market risks or longevity

## Exercise

### Increasing importance of expert judgement on policyholder behaviour

- RDR
- Pensions Freedom
- Solvency II

### Governance

- Technical committee
- Board & non-executive directors
- Best estimate versus prudence

### A new challenge requires new tool....

# A New Dawn needs New Thinking

## Recap

The game has changed – more flexibility brings more options, and more heterogeneity.

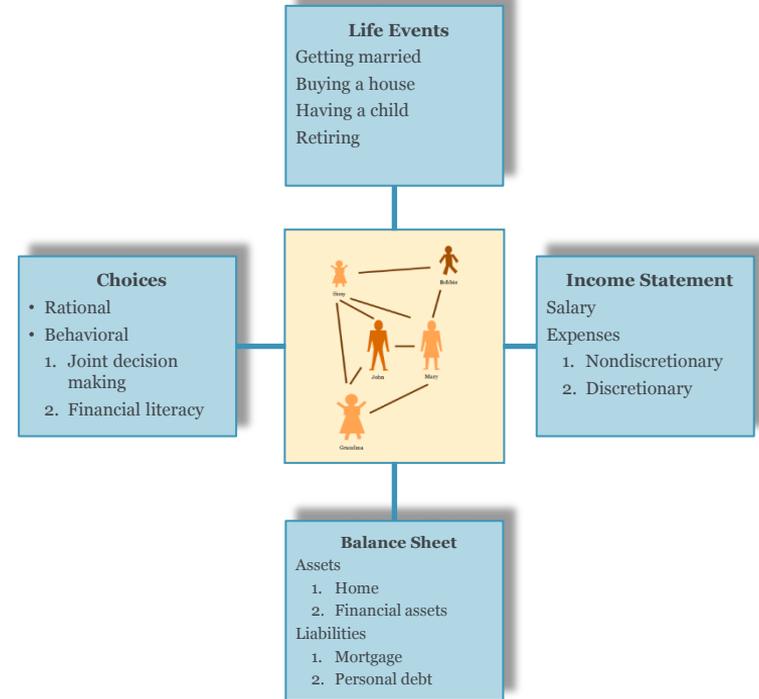
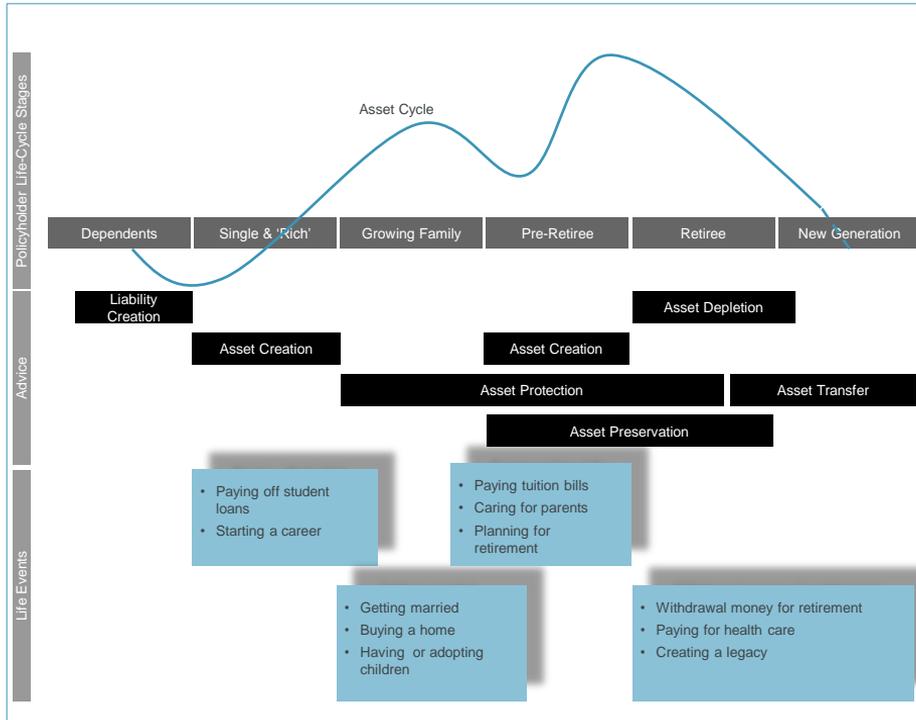
The US shows that having data provides important context but does not mean you understand behaviours

In the UK the pension reform means historic, imperfect data is even less of an indicator of the future (central estimate or in the tail)

Creating a narrative around your assumptions is important – to do this you need to understand your policyholder

# Understanding the policyholder

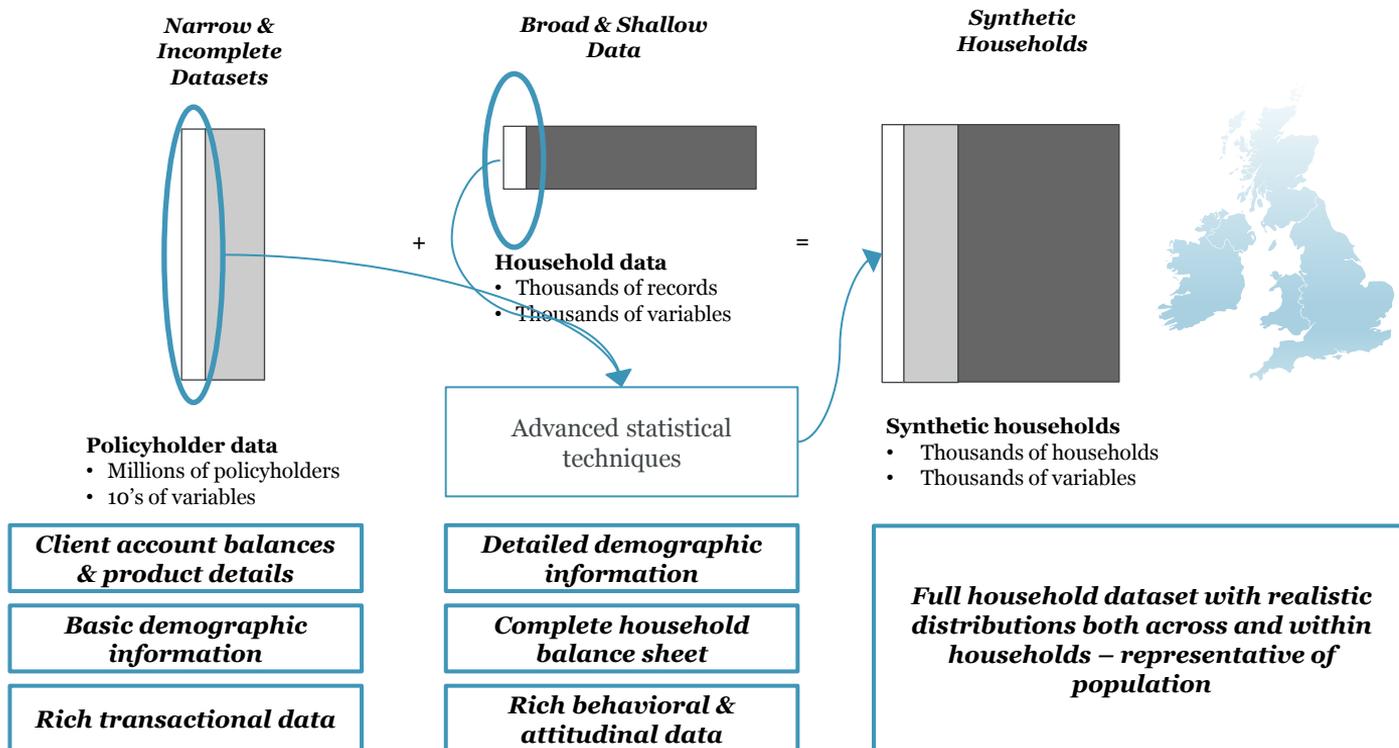
It is important that we view the policyholder not as a male age 40 nonsmoker, but as a member of the household, making choices based on their life situation. Life events change the individual's understanding of themselves and their relationship to others and to the environment.



# Learning more about your policyholder

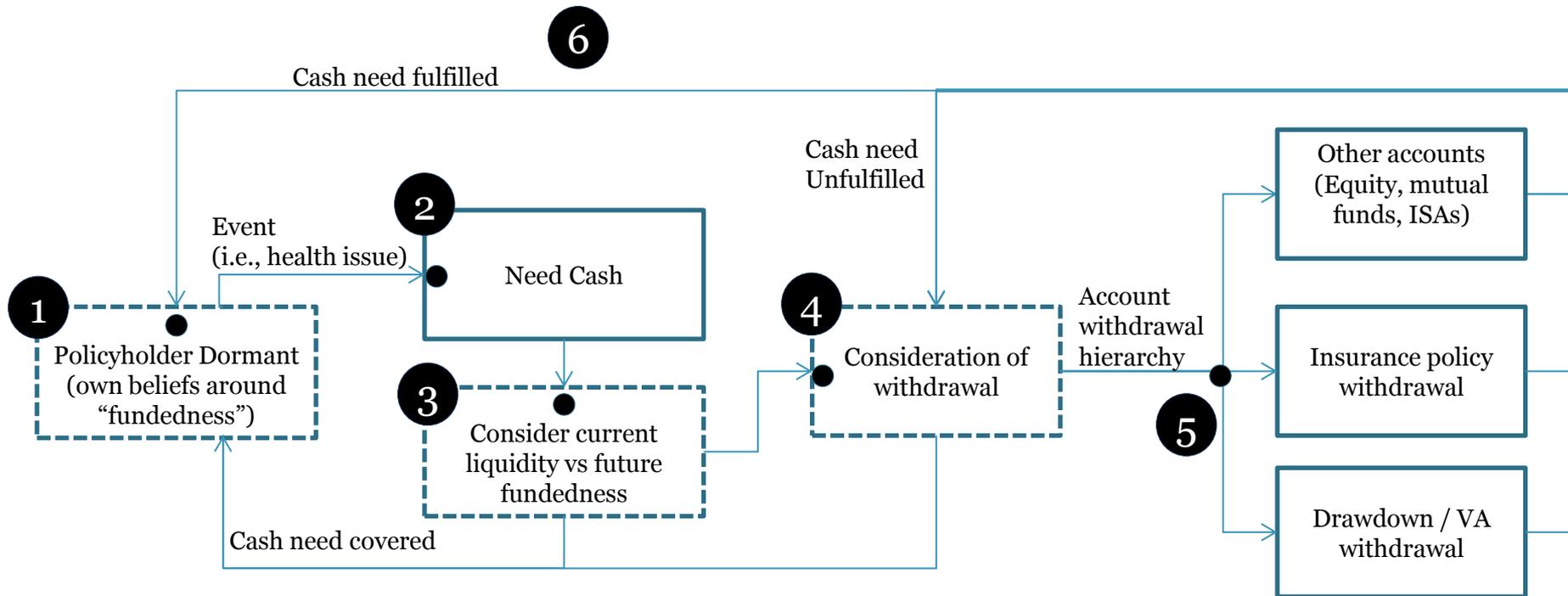
Combining “large and incomplete” data with “small and detailed” data at a household level enables us to understand complete consumer balance sheets.

Using various statistical techniques, internal data can be combined with external data to give a more complete view..



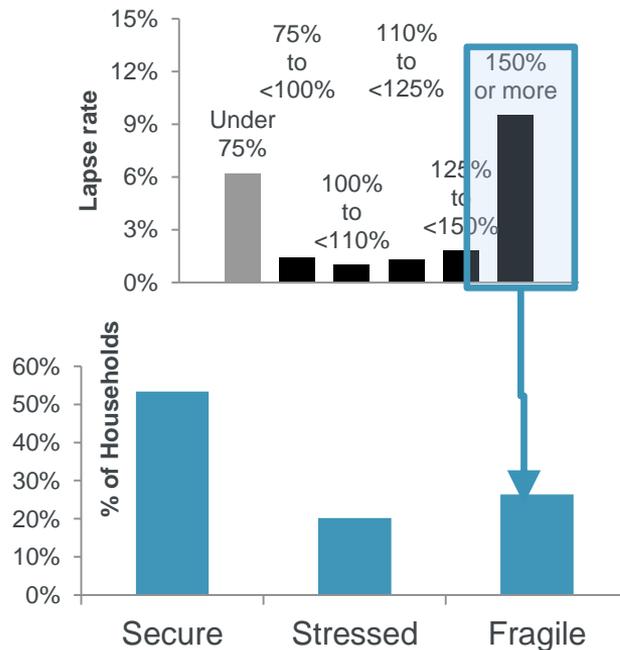
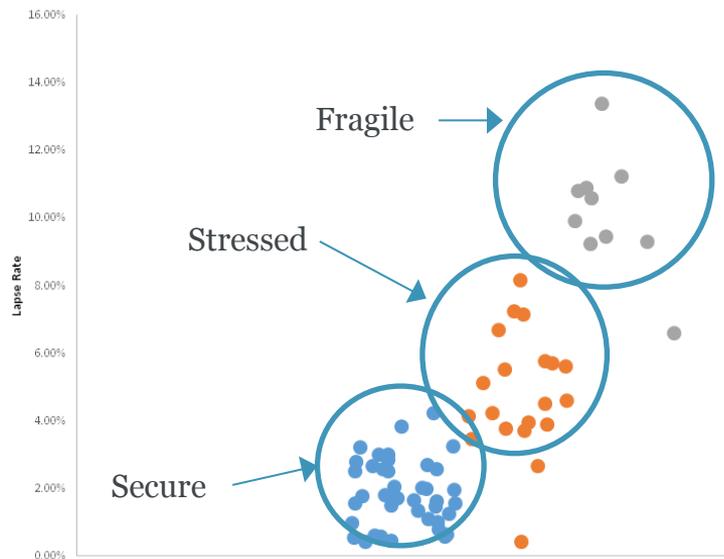
# Simulating the policyholder

Focussing on individual behaviours to drive insights around how consumer needs change across the life cycle



# A Narrative to Your Assumptions

Simulating customer behaviour under multiple scenarios can help insurers develop a more holistic understanding of the choices policyholders make.



# Conclusions

## **US example demonstrates need to understand unexplained behaviour for drawdown products, particularly where guarantees exist**

- Not enough to just use US data
- Rational behaviour from the policyholder perspective is not same as for Lifeco. Rationality is in the eye of the beholder.
- Significant risks undertaken and large exposure to unhedgable risks

## **Pensions Reform is already having an impact on wider drawdown market**

- Large number of unknowns in the setting of assumptions – getting it right will drive competitive advantage

## **Risks of using unadjusted experience**

- Historical data not likely to be an appropriate indicator of future
- Need to develop internal support for central estimate and tail assumptions, along with related correlations.

## **Features of successful product / provider**

- Understand customer needs and behaviour - consider the nuances that drive the behaviour
- Insurance guarantees are important differentiator over other products
- No need to enter in to guarantees arms race, but greater need to understand the value of the guarantees attaching

# Questions

# Comments

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