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# MODELLING SOLUTIONS FOR THE RETAIL MARKET

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ANALYTICS

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# Abstract

*Whereas it's now the norm for customers to research, compare, purchase and manage investments online, life insurance sales are still dominated by the client/agent relationship. This is certainly a function of the complexity and bespoke nature of insurance products, and increasingly greater regulatory oversight (e.g. SFC authorization for Investment Linked Assurance Products) on selling process. Hence in order to open sales channels where customers "buy" rather than are "sold" it's essential that communication of the benefits and risks of a specific product are clearly illustrated and that potential customers are (independently) able to access and digest the information required.*

*We introduce the concept of dynamic illustration – moving from static discrete returns assumptions, to a wide range of returns possibility. This keeps retail customers informed about probability of achieving their financial goals and potential downside risks, and perhaps more importantly, better manages their expectation of the products performance. The approach could be utilized by agents (to improve the selling process and customer experience) or online, direct to the customer, to generate new leads or , potentially, real sales.*

# What's this about?

- Communication of risk/benefits of financial products to the consumer
  - Complex concept in an intuitive way
- Why do we need/want to that?
- How do we achieve this?
- Some thoughts on application to life insurance products.

# Stochastic modelling – applications in wealth management

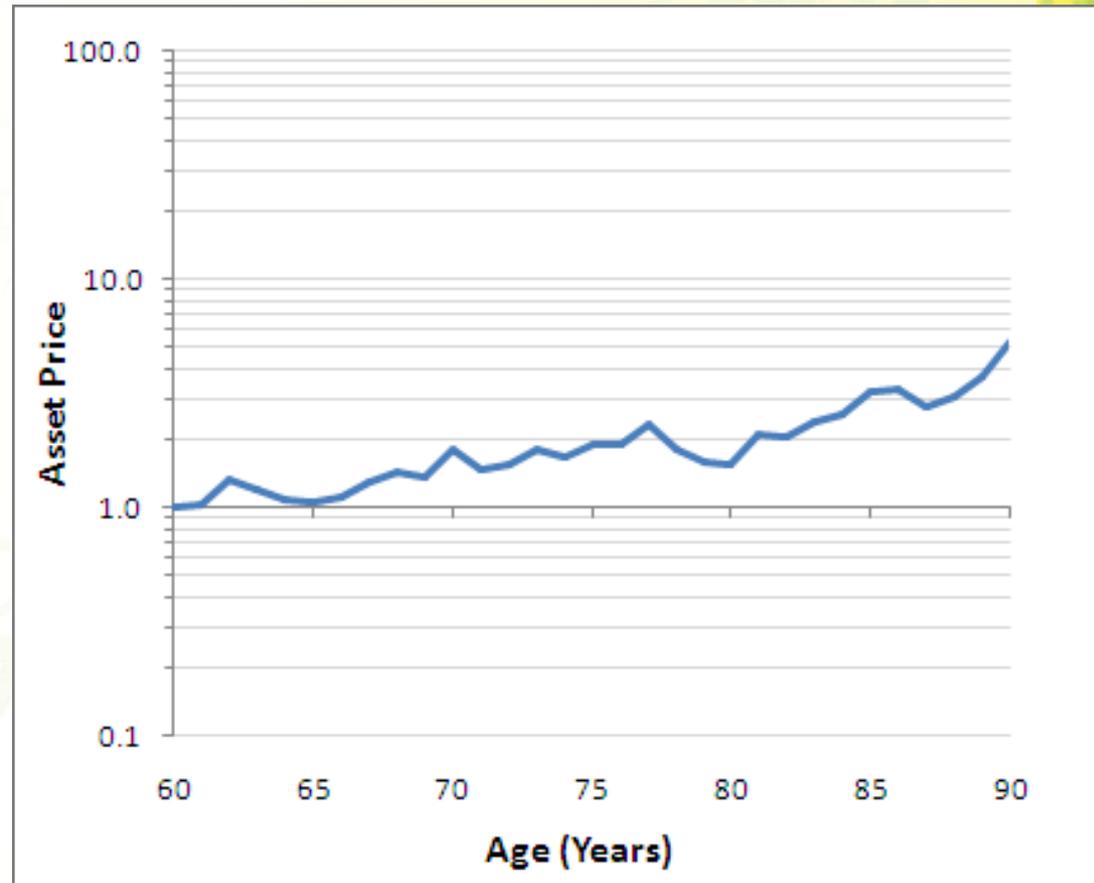
- » Project realistic range of possible future outcomes for a savings / retirement plan
- » Outcome from savings plan will depend on a variety of risk factors, not just portfolio returns:
  - Inflation risk (clients saving for more than 5 - 10 years)
  - Interest rate risk (clients saving to fund future income, retirement)
  - Sequence of returns (for clients are concerned with cashflows, the sequence of returns is important)
  - Longevity risk (clients using accumulated savings to generate income “for life”)
- » Robust stochastic projection model captures the relationship between the future paths of asset prices and other economic risk factors
- » In contrast, most Monte-Carlo advice tools still use “mean-variance” framework
  - Assumes returns log-Normal; volatilities and correlations calibrated to historic experience
  - Framework designed to model returns over single time-step - not multi-period cash-flows
  - Volatility estimates extrapolated to make statements about “tail” outcomes

# Retirement Income Planning & Investment Suitability

- 60 year old
- Pension Fund = \$100,000
- Income = \$5,500 pa
- Critical Yield Target = 6%

Consider scenario where the fund generates the required 6% return over a 30 year period...

What is the outcome for the investor ?

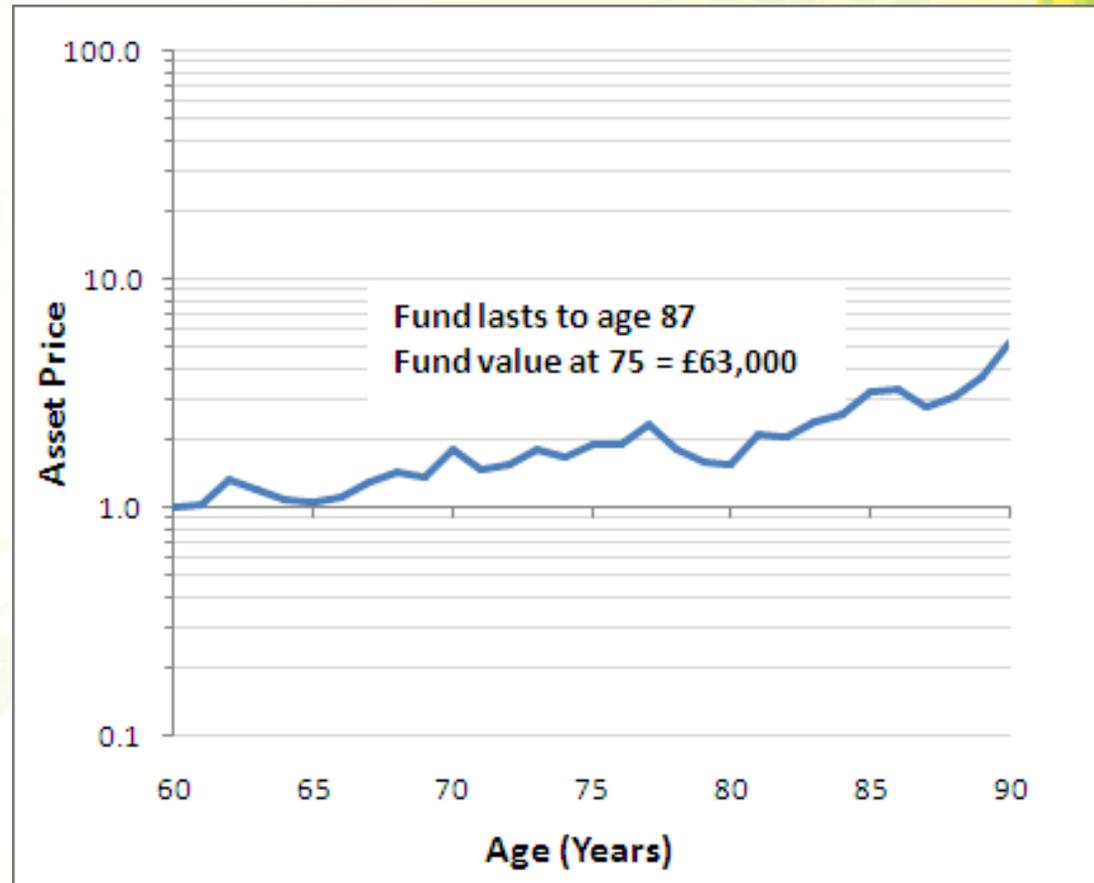


# Sequence of Returns Risk in Retirement

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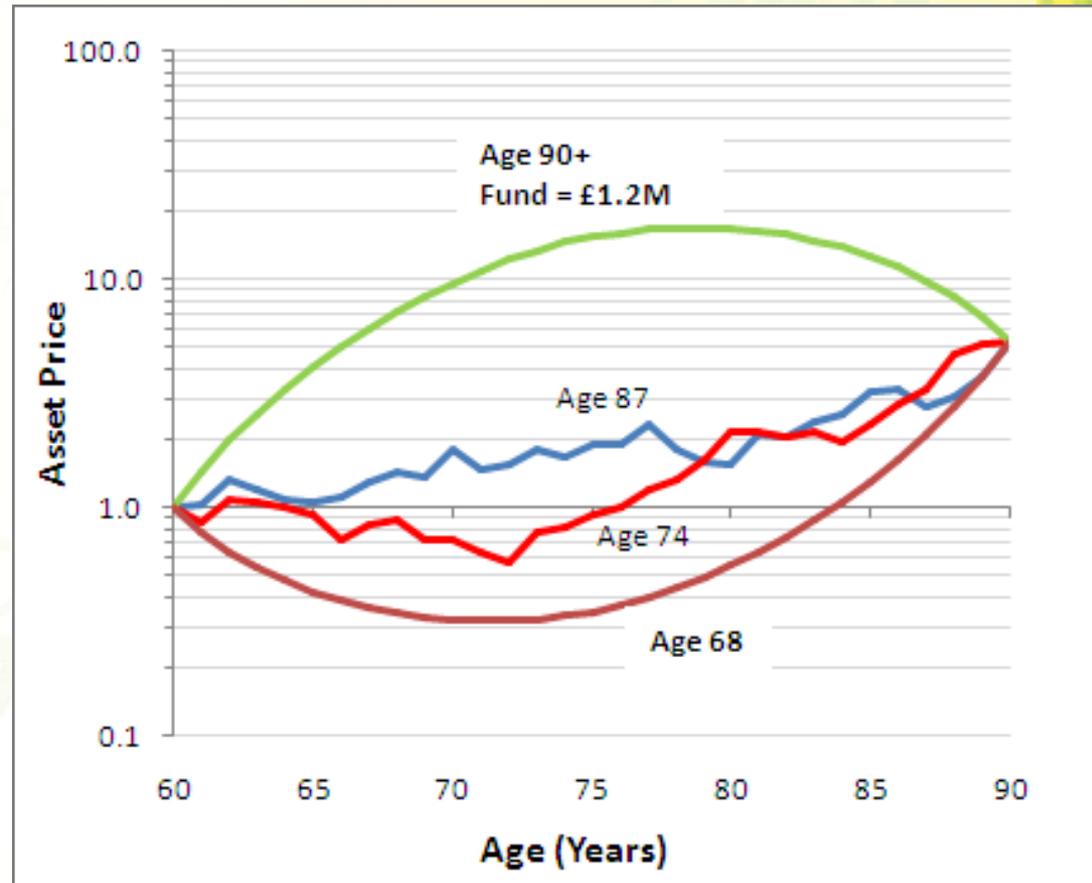


# Sequence of Returns Risk in Retirement

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What if we re-order the same set of returns ?

Consider the range of possible outcomes based on the same set of returns



# Stochastic modelling in wealth management - Why do we need it?

- » Conduct regulation now focused on concept of “suitability”
  - Requires clear communication of risk in customer outcomes
  - FCA (UK), FINRA (US), IMD/MiFID (Europe)
- » Regulators no longer accept a customer’s attitude to risk, or a product’s risk rating, as a basis for demonstrating the suitability of investment advice
- » Did the customer understand the potential losses, and confirm that he/she “is able financially to bear any related investment risks consistent with his investment objectives”
- » For many financial planning or advice problems, particularly for retirement, the outcome for the customer is sensitive to the path or sequence of the underlying risk factors
- » Many existing risk models fail to provide a robust estimate of risks facing retail investors:
  - Ignore sequence of returns completely, or make very simplistic assumptions
  - Based on historic data (returns, volatilities), rather than current economic conditions and market data

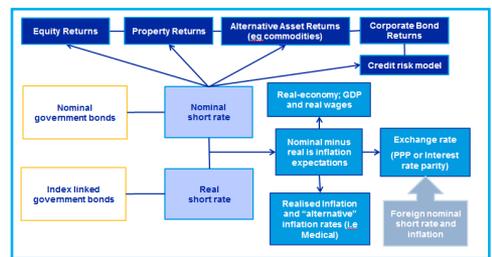
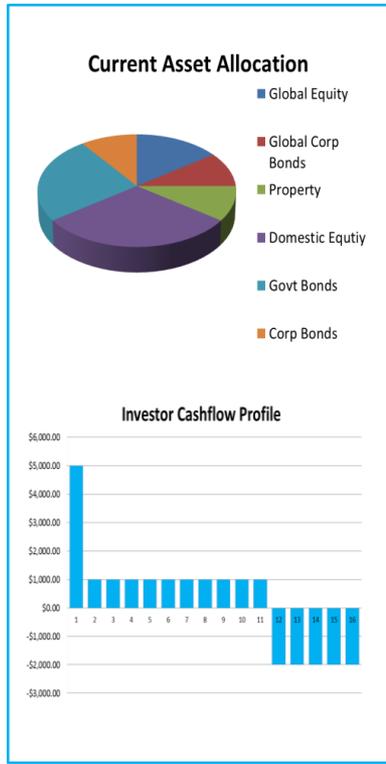
# Stochastic modelling in wealth management

Application: Financial Planning, Advice and Investment Suitability

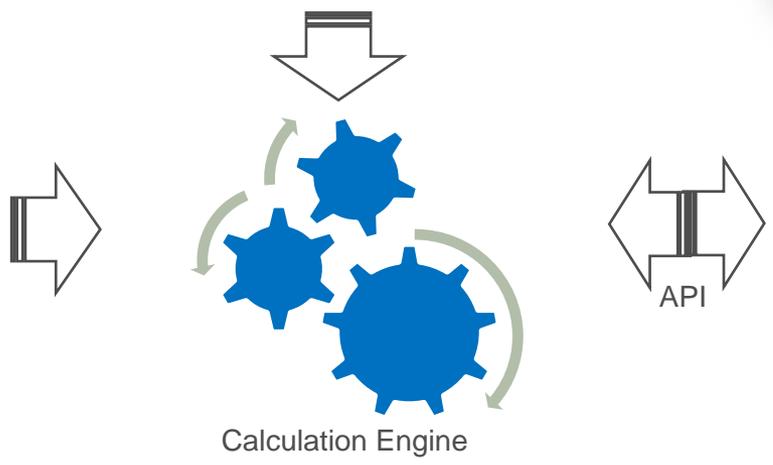
- » Help advisors and investors understand the key trade-off for robust financial planning
  - Investment risk: portfolio volatility
  - Savings risk: risk of failing to achieve my savings goals / retirement needs
  
- » Build financial planning solutions focused on client needs and savings outcomes
  - Am I likely to achieve my financial needs under the default investment option and savings rate ?
  - What is the potential loss or shortfall, if things go badly?
  - How much more should I be saving each month to ensure I meet my goals ?
  - Which of these investment / retirement options is most likely to achieve my goals ?
  
- » Create independently validated audit trail for demonstrating suitability
  - Risk characteristics (potential loss) communicated explicitly to client
  
- » Direct to customer engagement solutions, “robo-advice” models:
  - Increasingly used to support customer self-service, client retention, reduced compliance risk

# Modelling Solution Architecture

How does it work?



ESG Scenario Dataset



## Client Interface



# End User Inputs

Current Asset Allocation



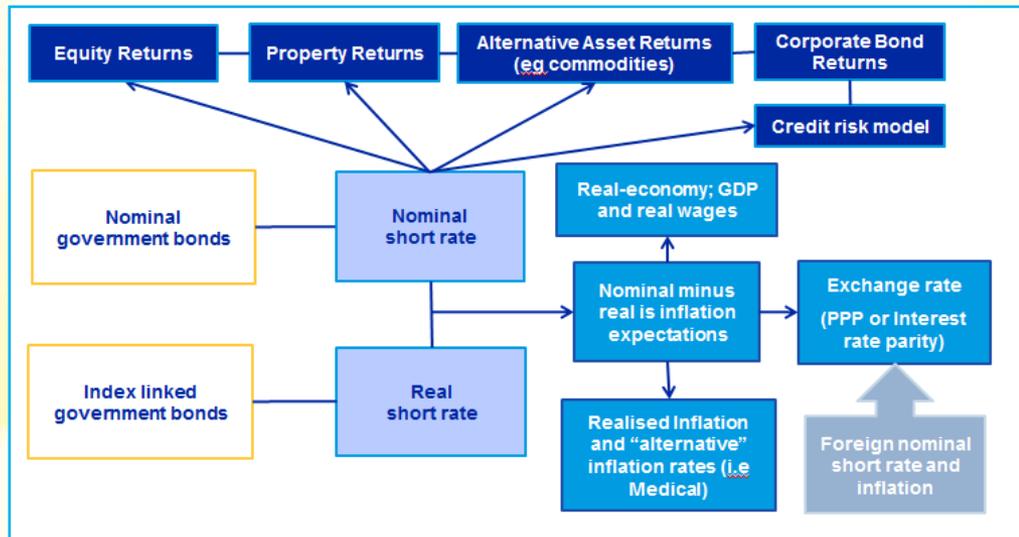
- Asset Allocation
  - Existing Portfolio
  - Risk Graded Model Portfolio

Investor Cashflow Profile

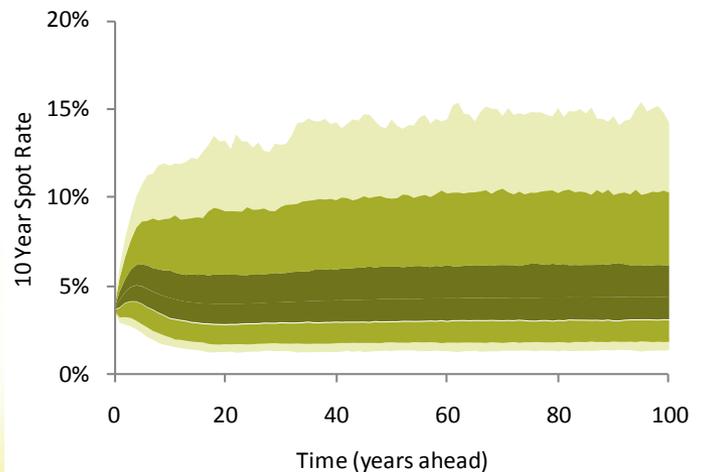


- Investment Constraints
  - Cash flow requirements
  - Horizon
  - Investment targets

# Stochastic Scenarios



- Monte-Carlo simulation
- Structural model captures realistic dependencies
- Forward looking scenarios
- Full range of potential outcomes



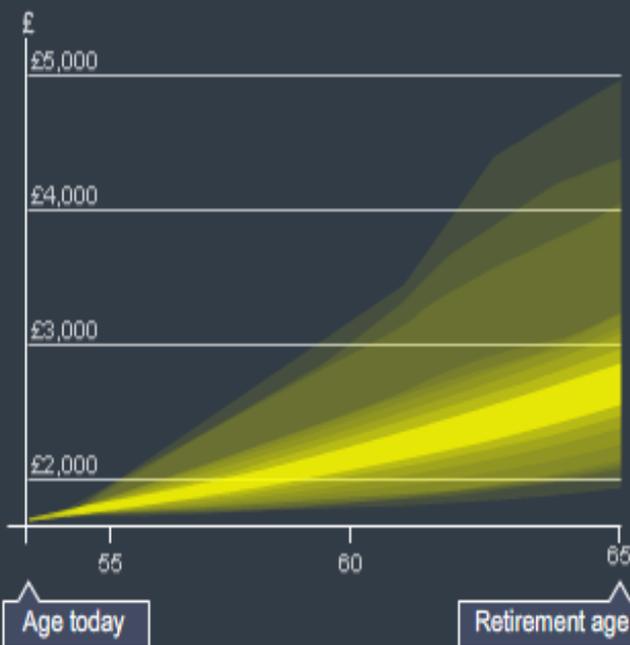
# Modelling Solution Architecture

How does it work?

- Stochastic Assumptions and Risk Factor Projections
- Portfolio modelling**
  - With Profits
  - Multi-Asset Portfolios
  - Growth
  - Income
  - Lifestyle asset strategies
  - Target dated funds
  - Alternative / Diversified Assets
  - Hedge
  - Fund of funds
- Investment / Savings
- Calculate investment requirements
- Calculate likely fund / asset values
- Identify appropriate investment objectives
- Calculate investment requirements
- Compare risk and return profiles of existing and proposed portfolios
- Illustrate cost of delay / profiles

This is the estimated tax-free cash you could take at retirement assuming you take the maximum 25%. You can reduce this percentage if you wish by using our 'what if' calculator.

Today's terms ▼



Only a small chance of being above

£3,830



Most likely to be between

£3,100 and £2,230



Only a small chance of being below

£1,800



### Tell me about this section

What are the graphs in this section showing me?

How are the values in the graphs calculated?

Graphs powered by [Barrie & Hibbert](#)

To understand this graph, you need to read the [assumptions](#) we have made about you and your plan. These figures are illustrative and are not guaranteed.

# Drawdown Review Analyser

How sustainable is your client's retirement?

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Email us [retirement@barrhibb.com](mailto:retirement@barrhibb.com)

A retirement income health-check from Barrie & Hibbert: discover if your client's retirement plan is on track, and identify options for closing any gaps.

Current Age <sup>?</sup>  Current Retirement Fund Value (£) <sup>?</sup>  Annual Withdrawal Amount (£ pa) <sup>?</sup>  Current Investment Strategy <sup>?</sup>

Calculate

## Retirement Income Sustainability

You have a

**55%**

chance of maintaining £6,000 pa for life

<sup>?</sup> Based on your specified <sup>?</sup> annual withdrawal level, the fund remaining in the event of your death is expected to be **£21,560**

What do I do now?

At Risk

Income Comfort Zone

Safe

£5,305 pa

Annual Income

£4,632 pa

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A retirement income health-check from Barrie & Hibbert: discover if your client's retirement plan is on track, and identify options for closing any gaps.

Current Age <sup>?</sup> **60** | Current Retirement Fund Value (£) <sup>?</sup> **100000** | Annual Withdrawal Amount (£ pa) <sup>?</sup> **5330** | Current Investment Strategy <sup>?</sup> **Balanced** 40% Bonds, 60% Equity

Calculate

## Retirement Income Sustainability

You have a

**75%**

chance of maintaining £5,330 pa for life

<sup>?</sup> Based on your specified <sup>?</sup> annual withdrawal level, the fund remaining in the event of your death is expected to be **£56,788**

What do I do now?

At Risk

Income Comfort Zone

Safe

£5,300 pa

Annual Income

£4,257 pa

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# Retirement portfolio analysis

[Help](#)

Use this analysis to identify appropriate solutions to your client's retirement needs.

## Retirement solution options

[Reset](#)

Retirement Solutions	Income Sustainability	Portfolio Risk	Residual Fund	Guaranteed Income (£ pa)	Income Comfort Zone	Include in Report?
100% Drawdown	63%	Balanced	£82,000	£0		<input type="checkbox"/>
80% Drawdown 20% Annuity	70%	Balanced	£66,000	£1,100		<input type="checkbox"/>
60% Drawdown 40% Annuity	75%	Balanced	£50,000	£2,200		<input type="checkbox"/>
40% Drawdown 60% Annuity	88%	Balanced	£34,000	£3,300		<input type="checkbox"/>
20% Drawdown 80% Annuity	99%	Balanced	£19,000	£4,400		<input type="checkbox"/>
100% Annuity	100%		£0	£5,500		<input type="checkbox"/>

INVESTMENT TERM (AGE)

**85** years old

PORTFOLIO RISK

**Balanced**

INCOME TARGET

£4,000 MINIMUM INCOME | **£5,000** | £6,000 TARGET INCOME

**BACK**

**NEXT**

# Dynamic illustration – what's the benefit?

- Seems complex but simple to communicate/for customers to understand
- More useful qualification of risk – clearly illustrate the range of possible outcomes
  - + path dependency – e.g. look at worst expected loss in any given year
- Capture realistic (complex) market structural dependencies and features without over complicating the communication process
- Communicate risks in meaningful context – i.e. there's a 60% probability of meeting your goal with this approach, rather than some abstract measure – e.g. the volatility is high

# Application to Life Insurance?

Becoming the industry standard in the retail savings market

- In the US and Europe, APAC following
- E.g. differentiator in the Provident fund space

But complex life insurance products dependent on similar risk factors

- Path dependency, joint dependency both important
- Particularly relevant when bought as an investment product

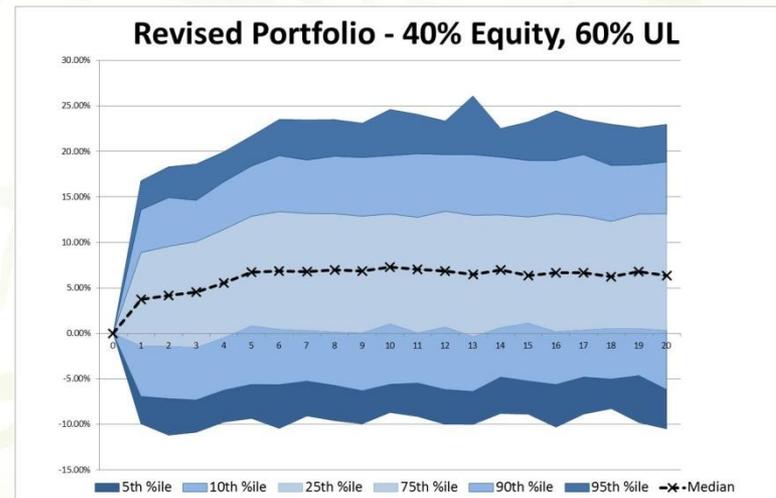
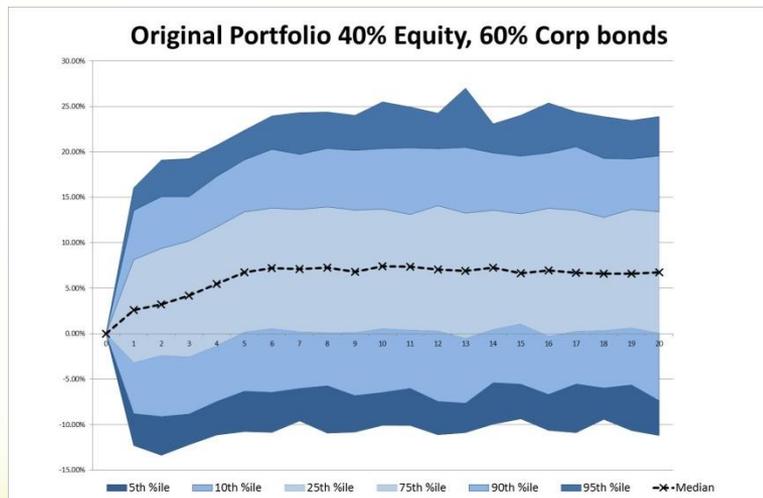
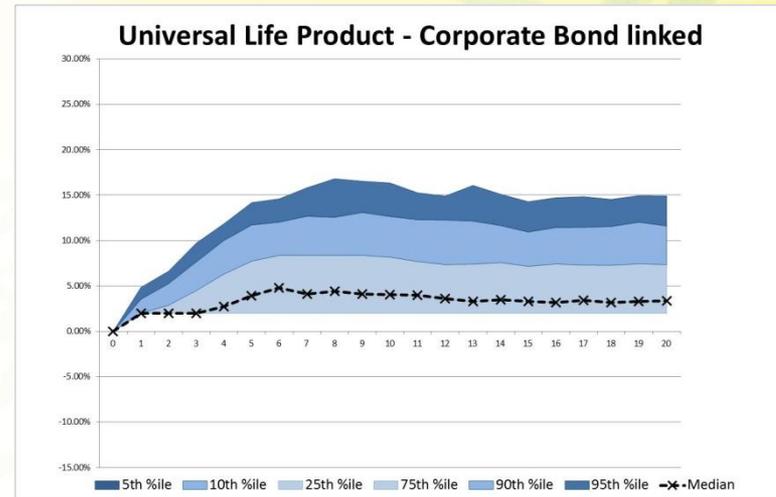
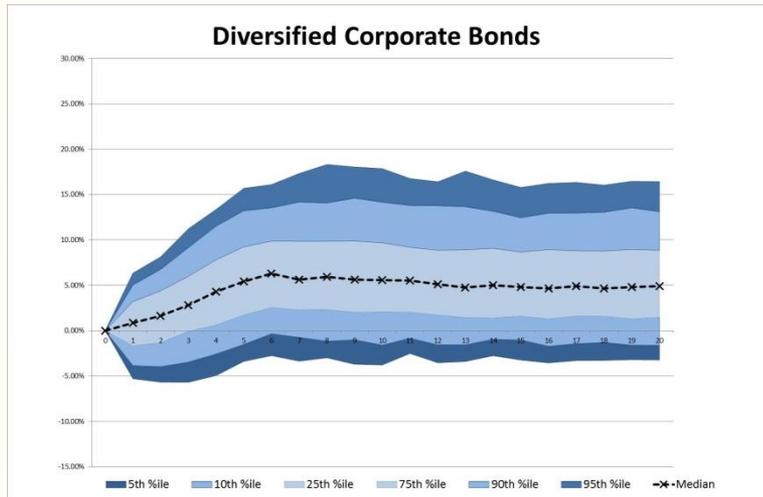
Online communication of risk

- Direct to customer sales?

# For Complex Life Insurance products?

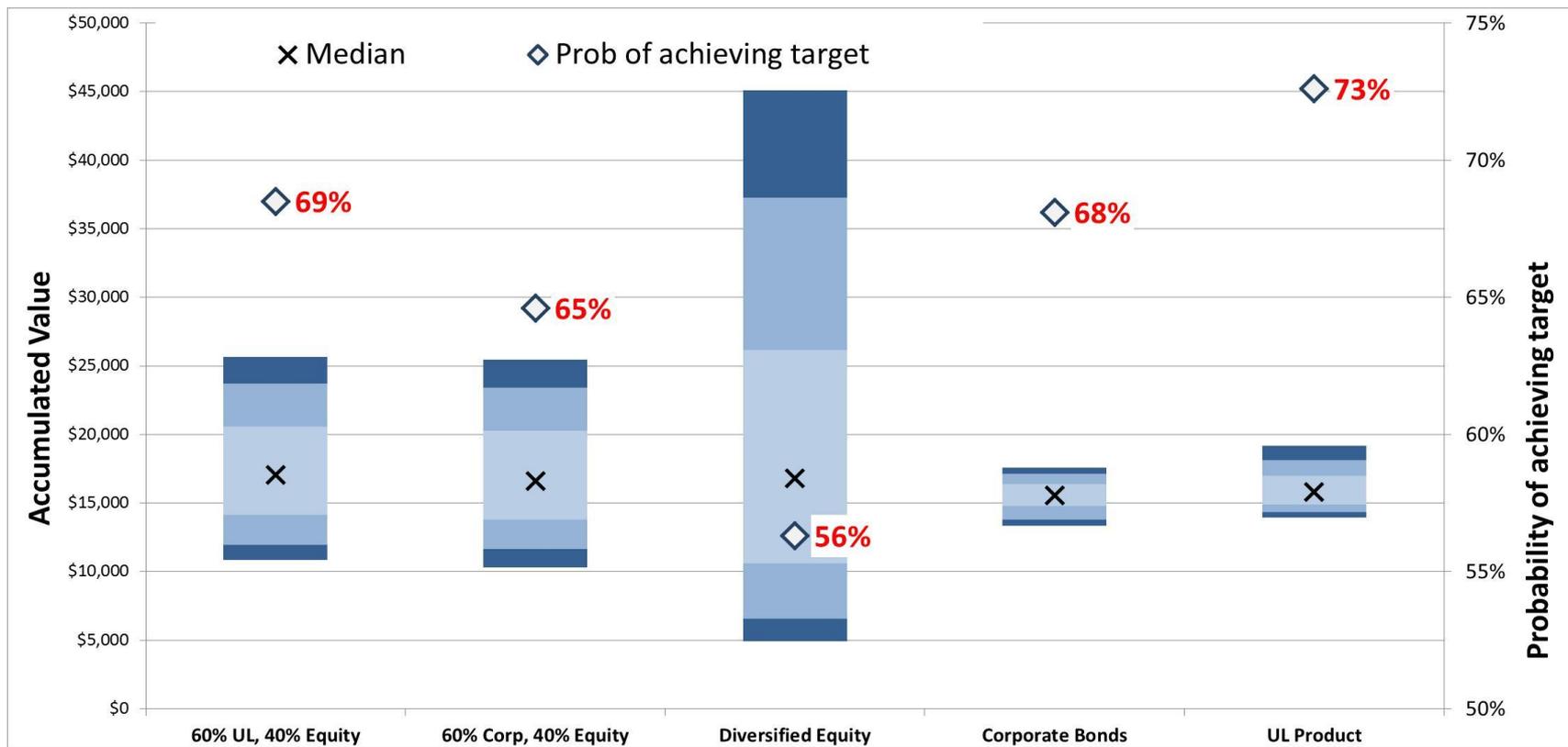
- Transparency – capture product features
  - fees (e.g. cost of insurance, early surrender, fund charges, etc.)
  - Guarantees
  - Investment options
- In the context of customers existing portfolio of assets
  - Consider holistic investment portfolio
  - Or standalone
- Simple to illustrate value of insurance over time in the same way

# UNIVERSAL LIFE (INVESTMENT COMPONENT) EXAMPLE



# UNIVERSAL LIFE EXAMPLE CONTINUED

- » How do we make sense of the results?
- » Consider customer objectives
- » Initial investment of \$10,000
- » Accumulation target of \$15,000
- » Horizon of 10 years



# Online as sales channel?

## – Evolving (evolved) consumer preferences

- “Digital Natives”, the rise of online services, and shifting demographics
- Existing distribution channels

## – Insurance company aims

- Increase direct sales – lower cost?
- Increased market penetration – APAC?

## – Increasing regulatory scrutiny

- **US, Europe ,UK - investment suitability guidelines**
- **Asia Pacific – gaining some attention**
  - Hong Kong – Investment Linked Assurance Products
  - “China: Intermediary mart faces unprecedented revamp”<sup>1</sup>
  - “South Korea: Regulators to clamp down on insurance agencies”<sup>1</sup>

# Online sales– barriers

Typically dominated by the agency relationship and face to face interaction - for a number of good reasons

- Complexity of communicating risks/benefits
- Suitability – accounting/assessing for specific needs and product choice

- Customer education may be required.
- Advisory element

Complements rather than replaces agents/financial advisors for these sorts of services

# To “buy” rather than to be “sold”

Need a solution that allows for:

- *Remote* communicate of risk/benefit and product features
  - Which meets obligations to customers and
  - Regulatory considerations
- Customers to carry out their own research/gather information
  - Complete and sufficient (flexible) to make independent informed decision
  - For those that want to
- User experience of course key – but not unique to life insurance

# Final thoughts

## Motivation for buying Life Insurance?

- Generally some trigger/life event
- Accessibility – easier to consider in context of complete investment portfolio, and hence as an investment alternative?

## Don't need to consider this a remote only process

- Attract new demographic of customers to call agent or directly
- Start the education process
- Better communicate risk within the existing process

## Other Considerations

- Consistent product design, risk management and governance
  - Use the same stochastic scenarios across the business – consistent message

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