

Society of Actuaries in Ireland

A Holistic Framework for Life Cycle Financial Planning

16 March 2010

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Key Messages

Current framework and tools are insufficient	Deterministic focus Wealth accumulation focus Treating customers fairly
Various catalysts for change exist	Guarantee products (GMxBs) RDR, risk appreciation Individual responsibility for retirement
Core elements need to be addressed	Total wealth management Consumption based goals Explicit risk assessment and management Objective holistic stochastic analysis Consideration of behavioural biases
Practical implementation challenges	Analysis and communication Systems and tools Headway is being made, but more work still needs to be done
More research and industry standards	Many behavioural finance areas still poorly understood Opportunity to update industry standards Actuaries can make a difference!

Current FSA Illustration Requirements

- FSA illustration requirements set out in Conduct of Business Sourcebook (COBS13)
- Deterministic projections are a MUST, stochastic projections are OPTIONAL
- Deterministic nominal returns that must be used are:

Class of Business	Low	Medium	High
Tax-exempt pensions, annuities	5%	7%	9%
All other	4%	6%	8%

Not risk sensitive

all products assumed to have comparable return expectations, regardless of their investment exposure to potential risk premium

Inconsistent and unrealistic risk premia

If rates = 4% and expected return = 7%

- 100% equity 0% bond UL product → ERP=3%
- 50% equity 50% bond UL product → ERP=6%
- 0% equity 100% bond UL product → Bond risk premium = 3%???

Not market sensitive

impacts absolute and relative value propositions →TCF?

Focused on Costs

highlights impact of costs, but not the feature benefits doesn't enable "value for money"

Guarantees a problem

not able to illustrate impact of guarantees or ratchet benefits

Current Financial Planning Framework

- Based largely on regulatory minimum illustration standards
 - Not risk sensitive, nor sensitive to capital market conditions
 - Can't illustrate guarantees
- Wealth accumulation mindset
- Limited product illustrations, comparisons and value assessment
 - Consider 5 alternative at-retirement product strategies
 - Which one is best / most optimal / most appropriate / constitutes "value"???
 - Homogenous clients: no recognition of behavioural biases

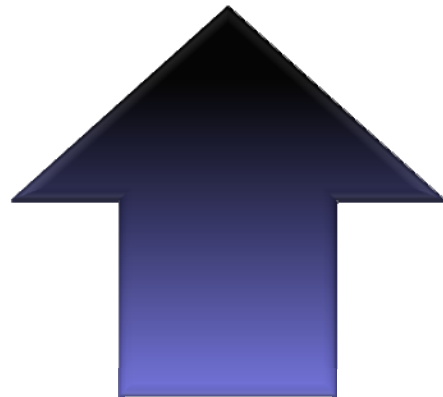
Strategy	A	B	C	D	E
Product	Income Drawdown	GMWB for life	Indexed Annuity	Fixed Annuity	Drawdown + Longevity Annuity
Benefit Level	5.5%	5.5%	5.7%	7.7%	5.2%
Cost	2%	2%+1%	None (explicit)	None (explicit)	2%
Death Benefit	Yes	Yes	No	No	Yes
Flexibility	High	High	Low	Low	High
Income Upside	Yes	Yes (ratchet)	Yes	No	Yes

Catalysts for Change



Top Down (Providers)

- Product solutions are evolving to meet consumer demands
- Move towards fee-for-advice models
- Improvements in stochastic modelling and IT infrastructure



Bottom Up (Investors)

- Responsibility for ensuring income security has been left to retirees
- Retirement savings are inadequate to meet post retirement objectives
- Increased appreciation for retirement related risks

Elements of a New Holistic Framework

Total wealth management Human and all sources of financial capital
Human capital profile and it's yield are fundamental inputs
Interaction with investment / product strategy

Consumption / income based goals Income should be the primary focus for most people
Even for accumulation, wealth is only a means to an end
Bequest motive a factor for very HNW

Explicit risk assessment and management Risk identification over various life stages
Choice of investment and product strategy to mitigate risks

Objective holistic stochastic analysis Consistent objective outcome illustrations
Including guarantees and path-dependent benefits (e.g. Ratchets)
Clear presentation / communication of outcomes and risks

Consideration of behavioural biases Asymmetric risk preferences
Framing of alternative choices is critical
Role of advisor / distributor is critical

Human Capital

Value of Future Earning Potential

$$\sum_{t=1}^n \frac{\text{Current wage} \times (1 - \text{tax rate}) \times (1 + \text{wage growth})^t}{(1 + \text{discount rate})^t}$$

	PERSON A	PERSON B	PERSON C
PERSON	25 YO GRADUATE	40 YO EXECUTIVE	40 YO TEACHER
CURRENT WAGE	50,000	150,000	50,000
WAGE GROWTH	5%	7.5%	5%
TAX RATE	40%	45%	40%
WORKING YEARS (N)	40	25	25
DISCOUNT RATE	9.00%	11.00%	6.00%
HUMAN CAPITAL	634,269	1,441,948	670,929

Why is it Useful?

- Can be used to assess cost benefit analysis of education, employment and remuneration decisions
- Life insurance is centred on the protection of human capital
- Determines future savings capacity
- Riskiness and correlation of human capital should influence asset allocation
 - Significant own-industry bias exists
 - Should diversify asset away from own employment industry

		EMPLOYMENT INDUSTRY				
		FINANCIAL SERVICES	IT	HEALTH	TECHNOLOGY	AVIATION
INVESTMENT ALLOCATION	FINANCIAL SERVICES	15%	5%	9%	8%	8%
	IT	10%	21%	9%	13%	12%
	HEALTH	1%	2%	3%	2%	2%
	TECHNOLOGY	11%	11%	8%	17%	10%
	AVIATION	<1%	<1%	<1%	<1%	7%

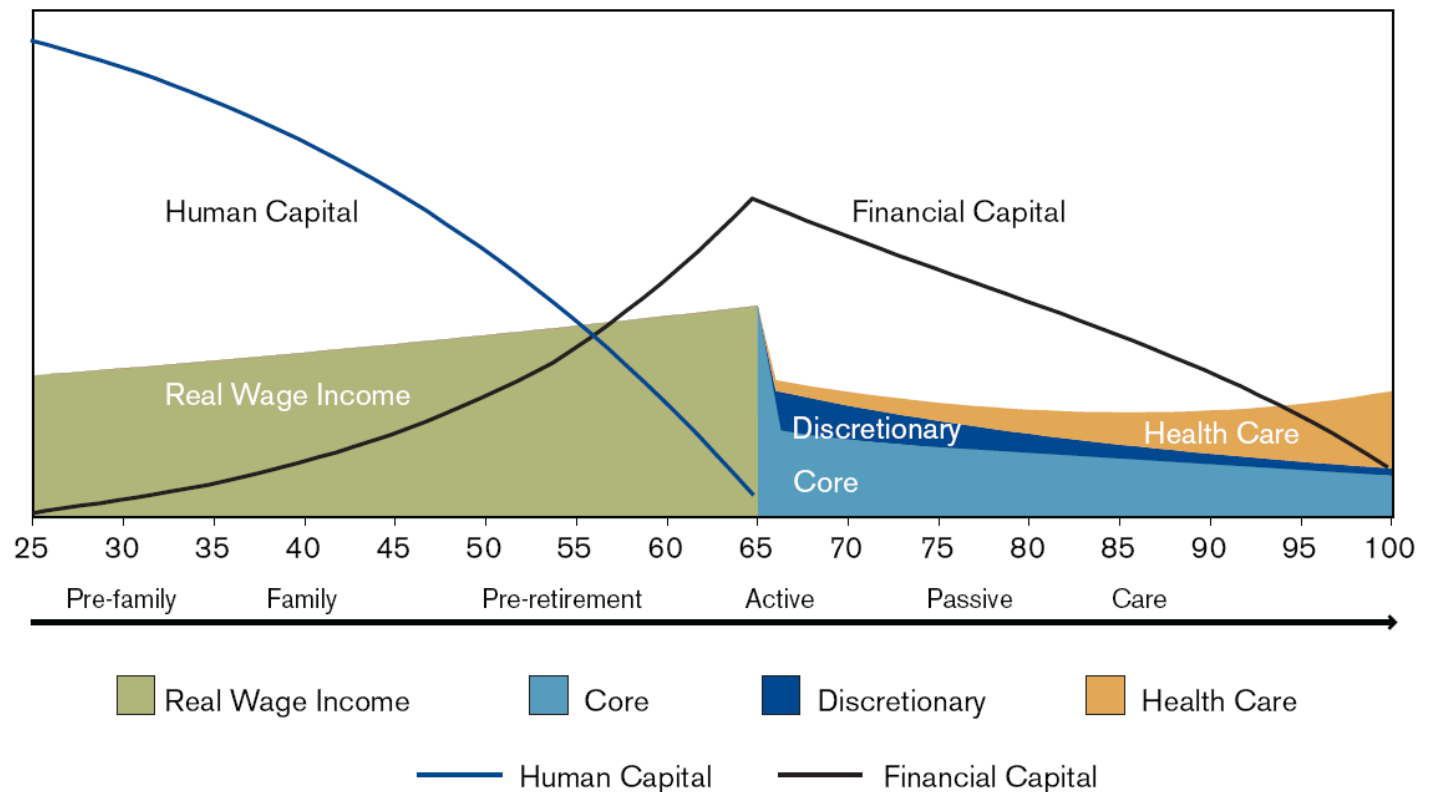
Source: Gerhard (2009)

Holistic Lifecycle Framework

The central feature is the transition of human capital into financial capital and thus into future income to meet future consumption needs

Financial capital (wealth) is only a mechanism to transfer income and consumption to a later period.

Both the expected levels of human capital, financial capital and income AND the associated risks are critical to the planning process



Consumption Based Goals

- Asset purchases



- Children education



- Retirement income to meet:

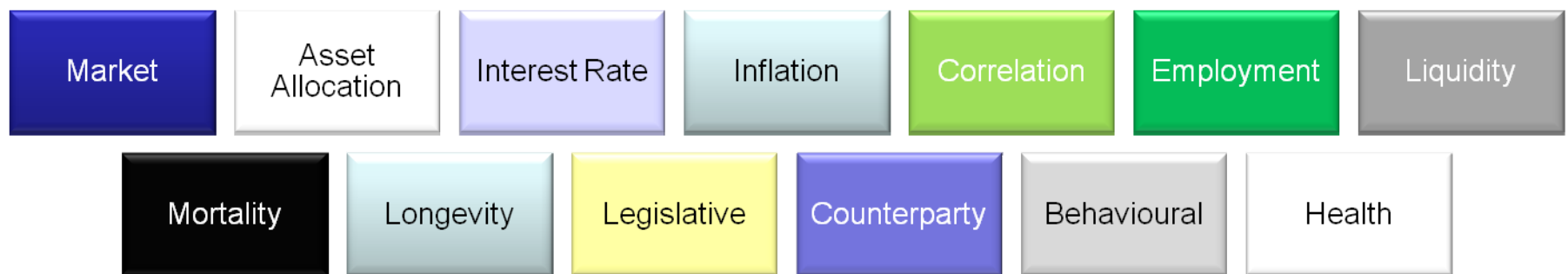
- Core expenses
- Spending the kids' inheritance
- Medical needs



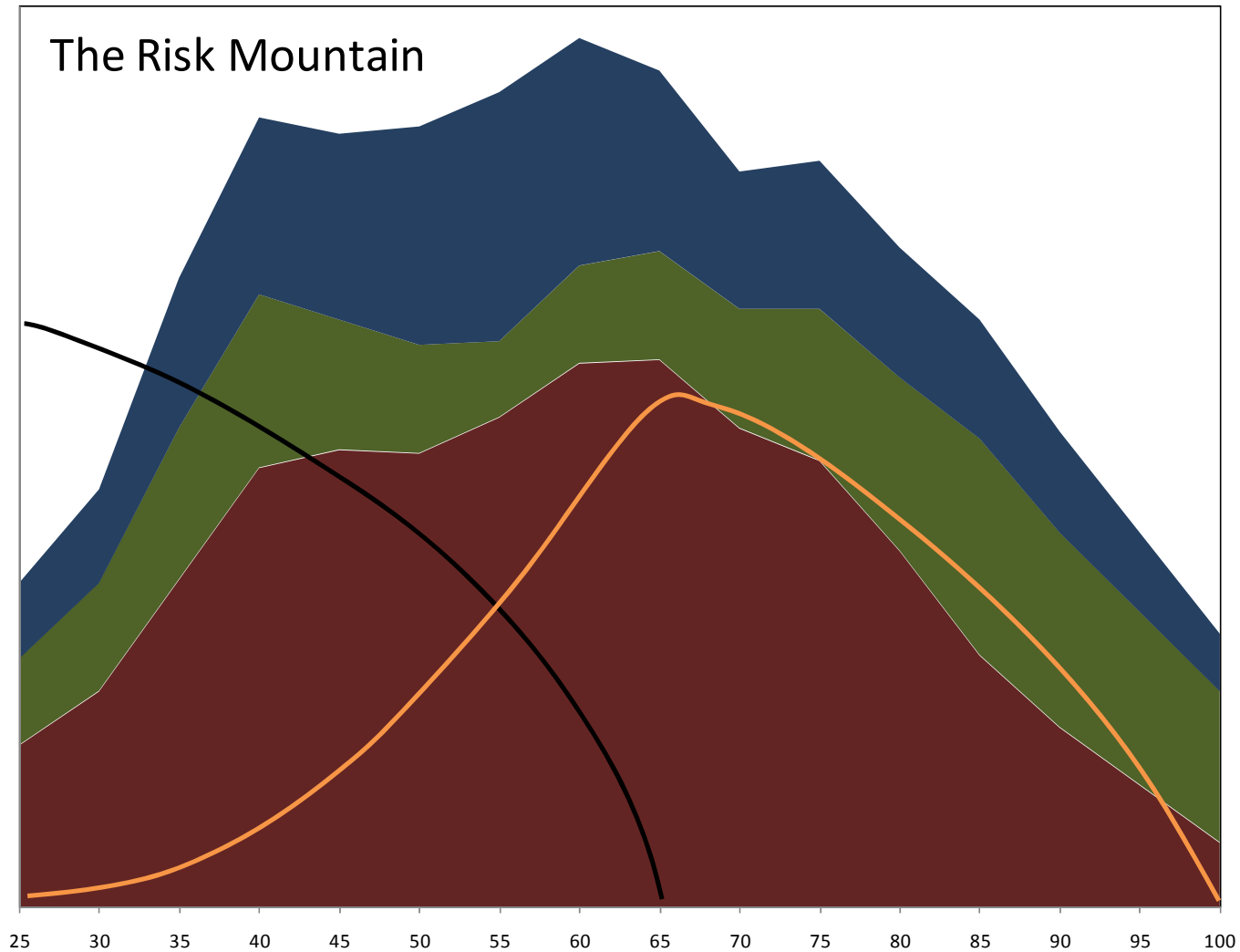
Wealth → Income

Return → Risk

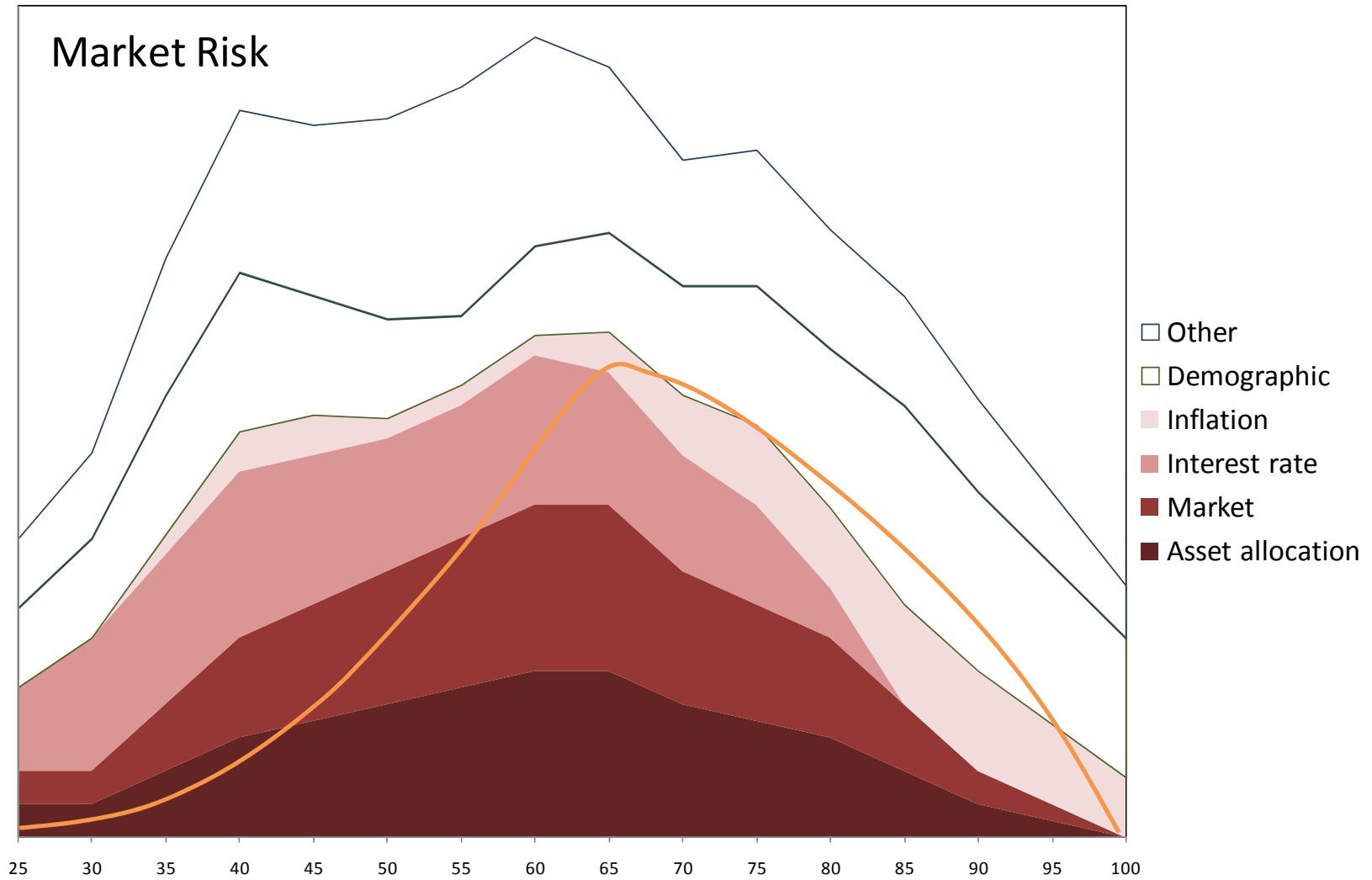
- Primary focus is on income, not financial wealth
 - Wealth is simply a means to an end → to deliver future income
 - Income is used to satisfy needs and wants
- Risks need to be explicitly identified, understood, assessed and managed in order to realise long term goals



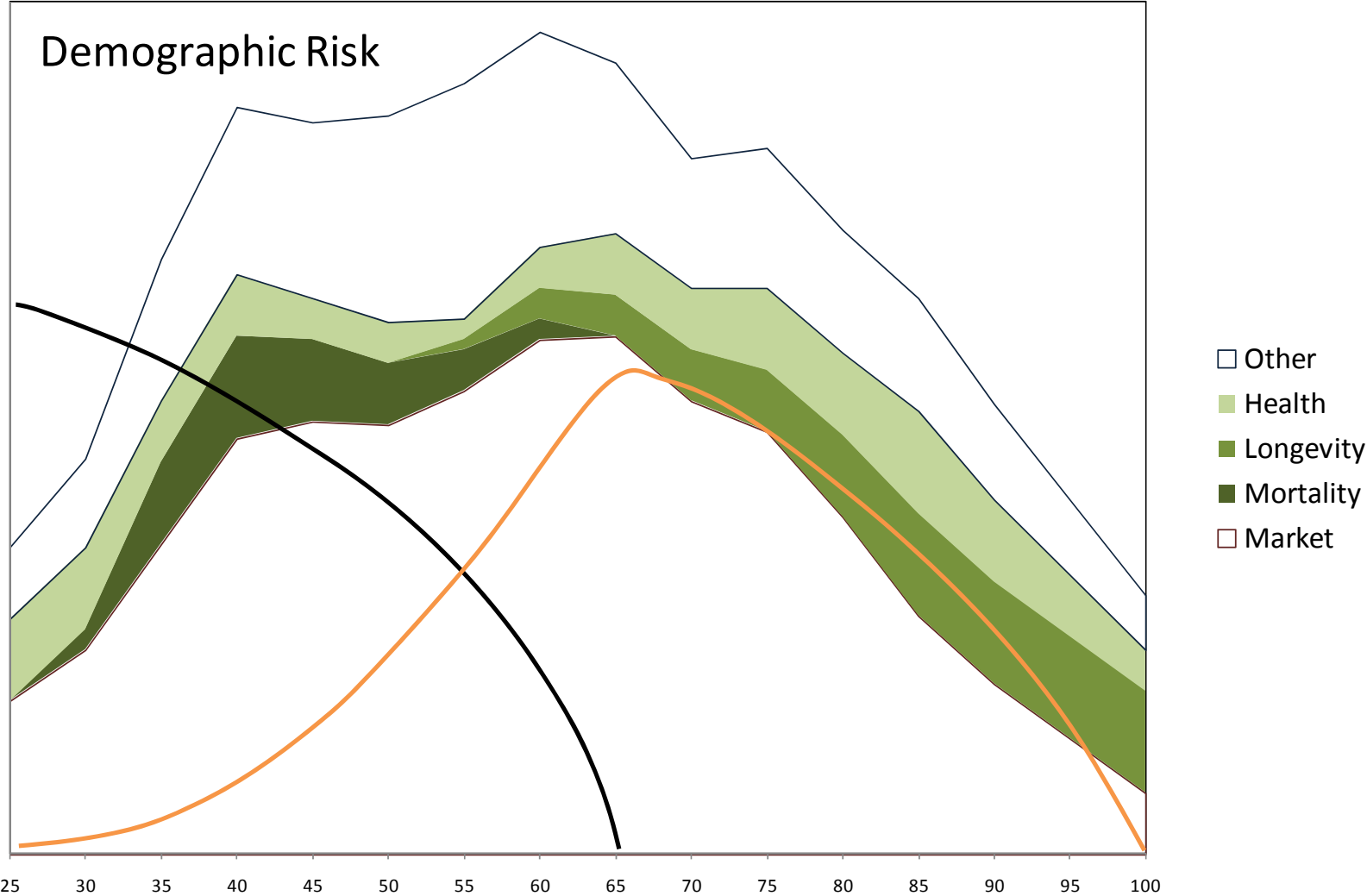
Lifecycle Risk Assessment



Market risk: function of financial capital



Demographic risk: function of FC and HC



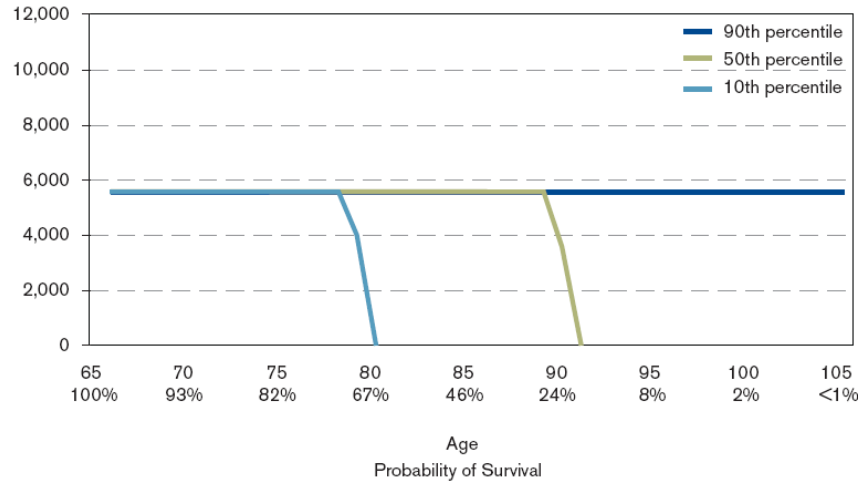
Impact on Residual Risks

Strategy	A	B	C	D	E
Product	Income Drawdown	GMWB for life	Indexed Annuity	Fixed Annuity	Drawdown + Longevity Annuity
Benefit Level	5.5%	5.5%	5.7%	7.7%	5.2%
Benefit Increase	None	3 yr ratchet	3%	0%	N/a
Flexibility	High	High	Low	Low	High
Residual Risk Assessment (post-purchase)					
Income	High	Low	Low	None	Moderate
Market	High	Low	None	None	Moderate
Interest rate	Moderate	Low	None	None	Low
Inflation	Moderate	Moderate	Low	High	Moderate
Liquidity	None	None	High	High	Low
Mortality	None	None	High	High	Low
Longevity	High	None	None	None	Low
Health	Low	Low	High	High	Moderate

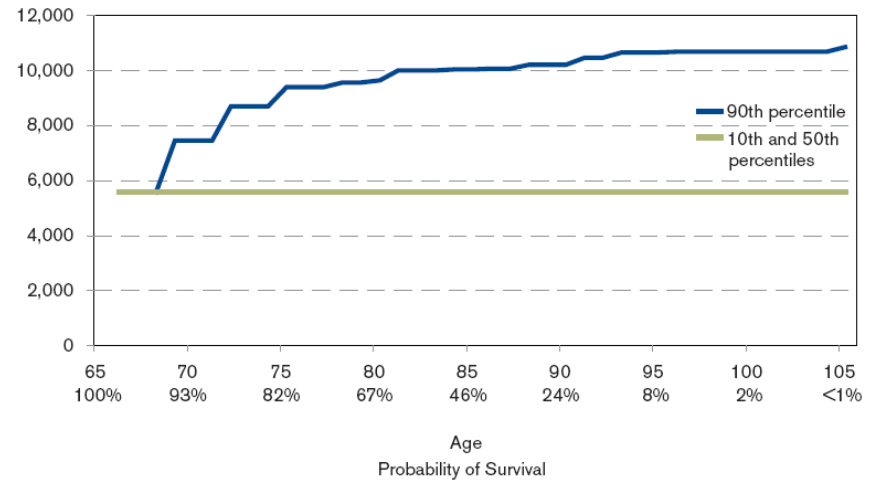
Objective Consistent Outcomes Analysis

Comparison of Income Distributions by Product

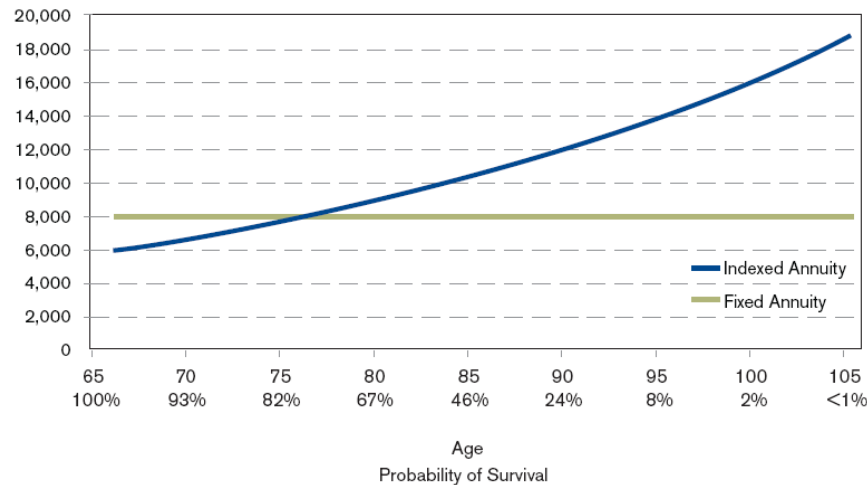
Income Drawdown



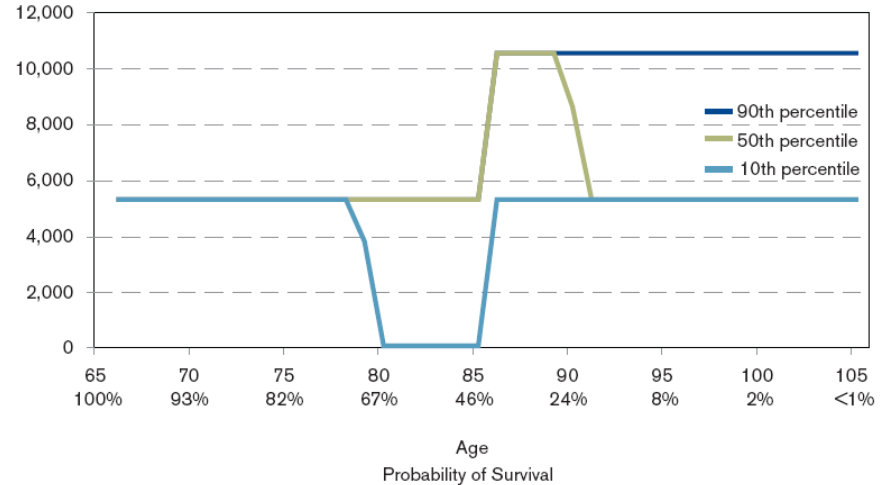
GMWB for Life with 3yr ratchet



Fixed and 3% Indexed Annuities



Income Drawdown + Deferred Annuity



Value Assessment

Risk Aversion and Behavioural Biases

- Whilst outcomes are objectively assessed, value is subjective
- Although most people are risk adverse, behavioural biases play an important role in the utility maximisation decision making process

Availability Heuristic

Incorrect assignment of outcome probabilities based upon what individual perceives

Mental Accounting

Incorrect framing of the decision, usually too narrow

Cumulative Prospect Theory

Subjective weights assigned to outcomes relative to a reference point

Ambiguity Aversion

More averse to uncertain gambles than to risky gambles (known probs)

Conjunction Fallacy

An event (e.g. death) can be easily perceived to happen in multiple ways, → over-weighted



Pride and Prejudice

Not wanting to admit failure e.g. sell bad assets as to avoid crystallising a loss

Myopia

Lack of foresight or interest

Inertia

To maintain current positions and choose default options

Hyperbolic Discounting

High discount rate for future income

Annuity Market Behavioural Biases

Why so few inflation linked or increasing?

Hyperbolic discounting
No choice: need to maximise initial income
Declining real income needs?

Why so many with guaranteed periods?

Mental accounting: viewed as a gamble on personal mortality

Why are GMxB guarantees not more popular?

Mental accounting: extra cost may be viewed as being more tangible than the protection benefits

Behavioural Finance Research Findings

“Consumer Understanding of Risk” 2004 Report

Financial Consumer Support Committee, The Actuarial Profession

- People are not rational and don't learn, but use simple heuristics
- People tend to be twice as sensitive to wealth losses (disutility) compared to equally sized increases (utility)
- People are myopic – cannot adopt optimal long term solutions
- People tend to:
 - Allocate wealth evenly across funds
 - Choose the middle option, regardless of it's level
 - Discount future gains more than losses
 - Overvalue small probabilities
- Communication of outcomes should use everyday language

The Challenge

Systems and
technology

Training

To develop a **tool** that Financial Advisers can **use** to be able to **communicate** financially difficult **concepts** in simple ways so that **all types** of clients are able to make informed decisions.

Presentation

Framework
and Scope

Expertise

Solution Requirements

- Knowledge of the product landscape and the ability to critically compare alternative product solutions
- Ability to generate credible stochastic economic scenarios
- IT infrastructure solutions to perform and deliver the analysis
- Understanding of lifecycle planning to bring it all together



Integrating the Lifecycle Framework



- Model outcomes across the investors lifecycle
- Compare numerous income and wealth strategies along with bundled lifecycle strategies
- Incorporate alternative income sources to produce a holistic income assessment

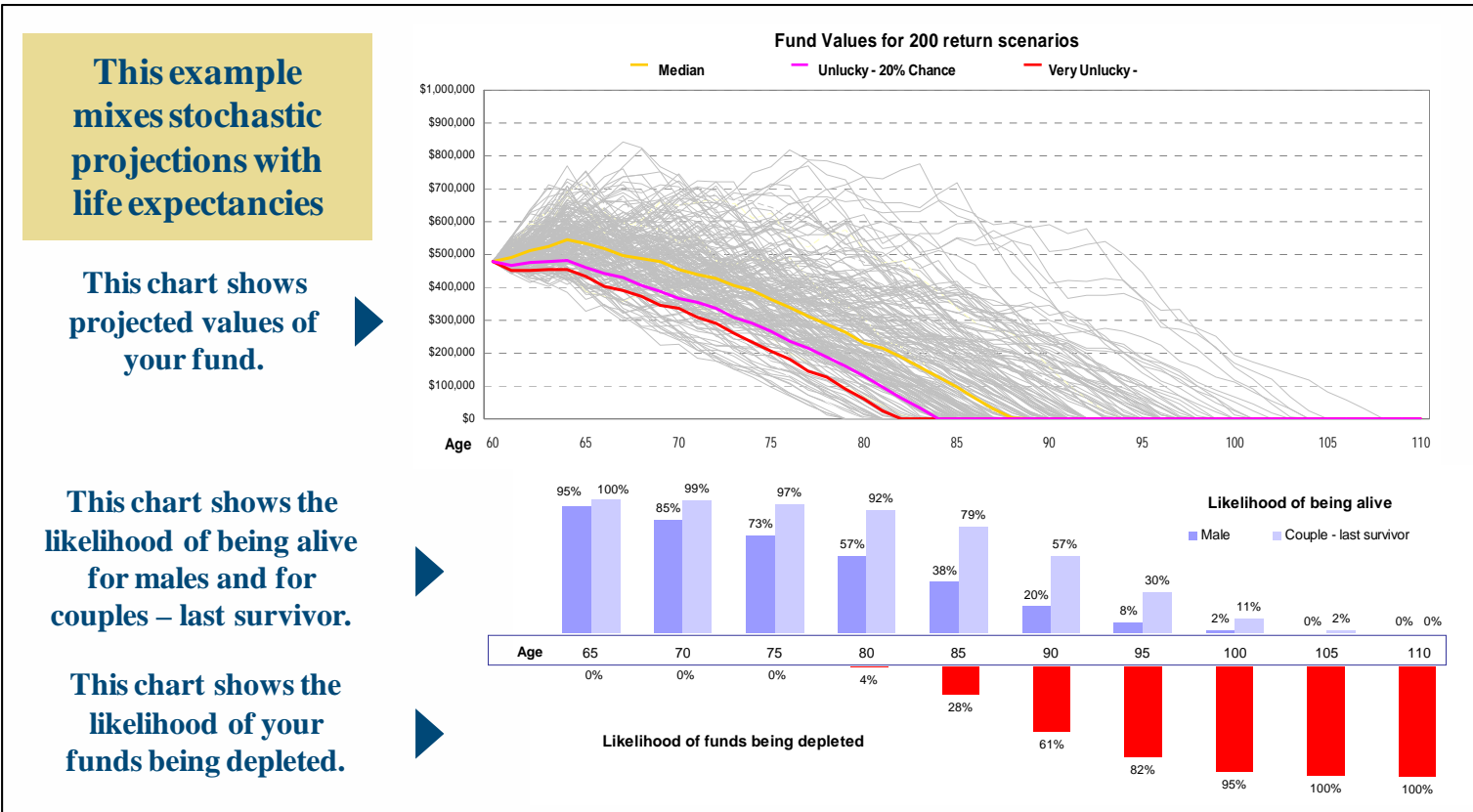
Communication is a MAJOR Hurdle

- Illustrating complex concepts in an easily understandable way
- How can we highlight the importance of volatility when investors struggle with simpler concepts like life expectancy?
- Ideally we can distil the impacts of a variety of behavioural changes into a single easy to comprehend visual aid



Illustration Examples

Illustrative Only



Example Sensitivity Heat Map

- Heat maps enable advisers to provide clear visual examples of the effects of various assumption changes
- Colour schemes can be customised by the adviser to suit the investors risk tolerance
- Communicate risk with colours rather than / in addition to probabilities



Idealised Illustration Requirements

Basis

- “Market referenceable”
 - Returns based upon risk free rate term structure
 - Risk neutral or real world?
 - If real world, then use standardised risk premia assumptions
- Volatility
 - Market consistent or real world
 - Stronger case for real world?
- Correlations? Standardised?

Presentation

- Base case is minimum risk strategy
- Graphical / tabular output, summarised into natural language
- Risks communicated qualitative and quantitatively via impact scenarios
 - How is each being mitigated
 - Expected risk premia associated with bearing residual risks

What Can Go Well?

Standard Life Experience with Client Planner

- Winner of Best Online IFA tool 2008 at Online Finance awards
- Better advice for consumers

"I can now consider phased income drawdown again, which I knew was better for the client but was previously too hard to explain"

Adviser A

"As soon as I started to talk about tools the 2 gentlemen immediately said they were very impressed with Client Planner because of the ease of use and the options it opened up for customer planning."

SL Sales Consultant

- Better consumer understanding of their options

"Just wanted to tell you that client this afternoon found the report really useful, has gone off to study it in depth, was just what was needed - so if anyone needs feedback, it has been very positive!"

Adviser B

- Publicity for Standard Life

*This is **an excellent example** of how a product provider can offer valuable planning tools to advisers to help them evolve their services and move towards an ongoing service-driven model. **Standard Life deserves considerable credit for this.**"*

Ian McKenna, FTRC

*"The new At Retirement tool launched a few months ago has had a **significant impact on their overall proposition** and shows the way ahead for such services in future."*

Money Marketing, E-commerce ratings

- But... disappointing adviser take-up

What are the Challenges?

Standard Life Experience with Client Planner

- Energising the field force
- Avoiding the need for adviser training...
- ... training advisers
- Universal coverage – e.g. including the spouse
- Setting assumptions (and Compliance)
- Changing the habits of a mature audience
- Ahead of it's time? Bringing advisers on the journey.

Areas for Future Research

Illustration Assumptions Risk neutral / market consistent
Risk premiums, volatilities, correlations

Human Capital Valuation: e.g. discount rates
Risk assessment
Impact on pre-retirement planning decisions

Goal Framing Heirachy of various goals
Practical vs quantitative

Communication and Presentation Risks – qualitatively or quantitatively
Percentile levels
Framing of options
Level of detail

Behavioural Finance Utility functions
Advice to advisors
Framing of product choices

Discussion

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