Default Investment Strategies and Life-styling

Presented by:
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Purpose

- To provide views and ideas that actuaries might find useful when

  – designing a DIS,

  – assessing the appropriateness of a particular DIS or

  – comparing DISs.

- To consider whether life-styling is appropriate for a DIS.

PRSA Guidance

- Adopt an investment profile.. consistent with fulfilling the reasonable expectations of a typical contributor...for...savings for retirement.

  - Intention is to reduce 'difficulties sometimes encountered ..due to the financial inexperience of the potential contributor'.

- DIS is not intended to be free from risk or volatility.

- Reasonable expectations assessed on a prospective basis.

  - primarily determined by the communications from PRSA provider.

- PRSA Actuary should ensure sufficient information is provided

  - clear description of asset classes and asset allocation ranges

  - explanation of likely volatility of returns

  - how strategy might vary with duration to retirement

- When assessing nature of a typical contributor take account of product features, distribution, characteristics of existing contributors

Common Default Investment Strategies

	Asset Allocation in 'Pre-phasing' period	Phasing commences	Asset Allocation at retirement
Type 1 a	Managed Fund	5 years to retirement	75% Fixed Interest 25% Cash
Type 1 b	Managed Fund – more aggressive the longer the duration to retirement	5 years + to retirement	75% Fixed Interest 25% Cash
Type 2 a	Managed Fund	5 years to retirement	100% Fixed Interest
Type 2 b	Managed Fund – more aggressive the longer the duration to retirement	5 years to retirement	100% Fixed Interest
Type 3	Managed Fund – more aggressive the longer the duration to retirement	n/a	Managed Fund – balanced fund

Most common DISs = Types 1&2 = 'managed fund with life styling'

Background to our approaches

- Considered issues and developed views and ideas using three different approaches based on:
  - Prospective framework
  - Var approach
  - Modern Finance Theory

- Used very simple models of investment markets to illustrate issues
  - 'Equity fund life-styling into cash'.
  - Maximising cash value at retirement.
  - Do not consider the advantages of asset diversification.

- Frameworks illustrated by use of particular assumptions
  - Can be adapted for use with other assumptions.

How to compare DIS

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Brendan Johnston

How to compare DIS

- ## What are acceptable outcomes

How to compare DIS

- Target 10 times salary
- Achieving 12,10,8,5 times

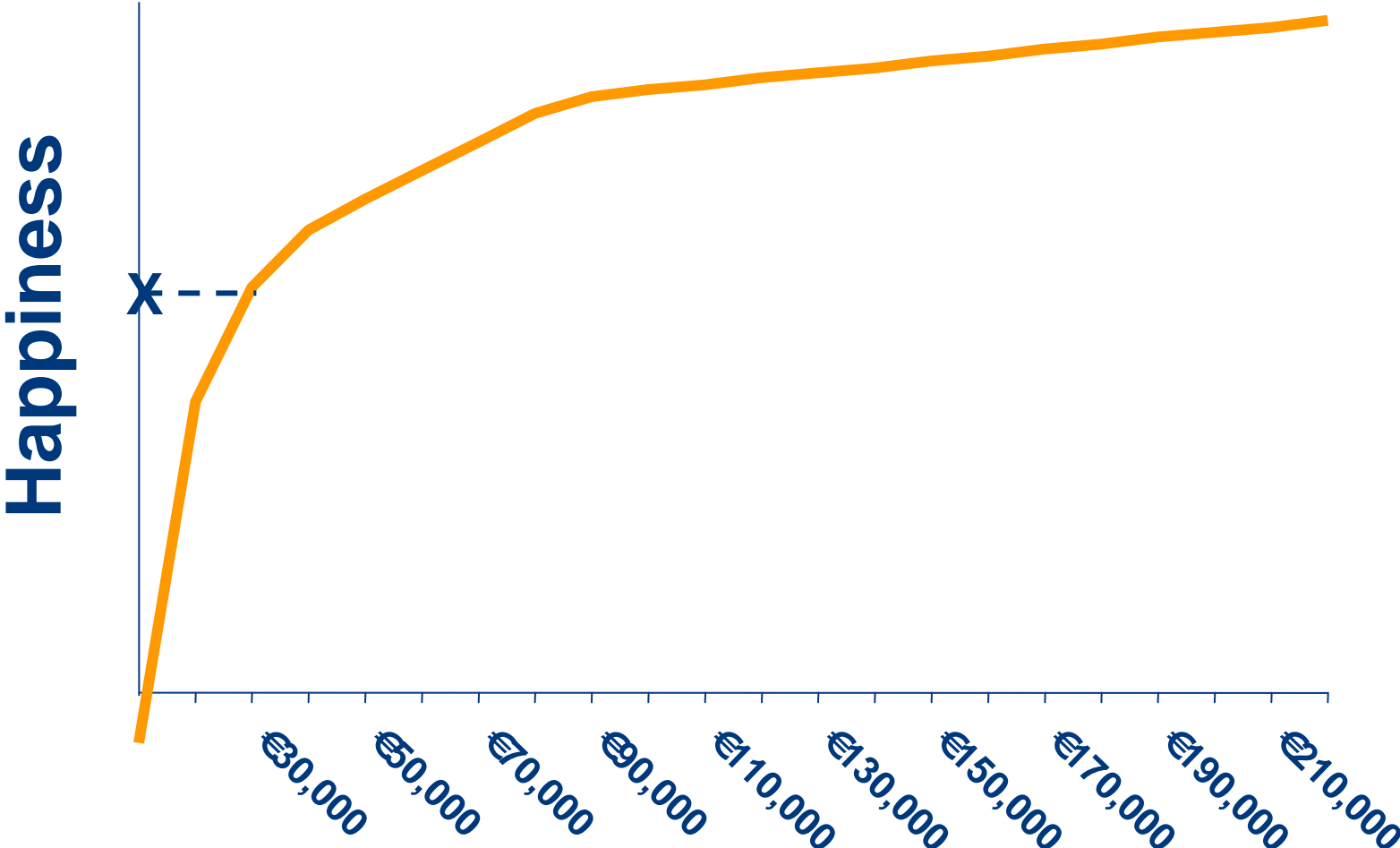# How to compare DIS

- The €10 bottle of wine
- The €12 bottle of wine

Happiness and Income

Porridge Plan

Food

- Pack of noodles   15c
- Tin of beans   9c
- Bowl of porridge   4c

Porridge Plan

Intellectual Stimulation

- Complete works of
  William Shakespeare   €7.50

- Complete works of
  Oscar Wilde   €3.00

What should be the aims of a DIS

- A DIS should reduce the possibility of unacceptable outcomes.

- Allow appropriate exposure to higher return assets.

How to compare DIS

- Stochastic Processing on equity and risk free asset portfolio

- Infinite possible variety of shapes of distributions

- Log normal distribution

- Real return over risk free assets 4% SD 15%

The Contributor

- 30 years to retirement
- Funds for 10 times salary on a 2% gap with an initial 24.17% contribution
- Two scenarios
- A. fixed contribution
- B. variable contribution
- First 10 years up to   15%
- Second 10 years up to   25%
- Third 10 years up to   40%

The Contributor Cost Basis

- Fixed contribution   Cost is 7.25 times salary

- 100 equity investment gives expectation of 10 times salary
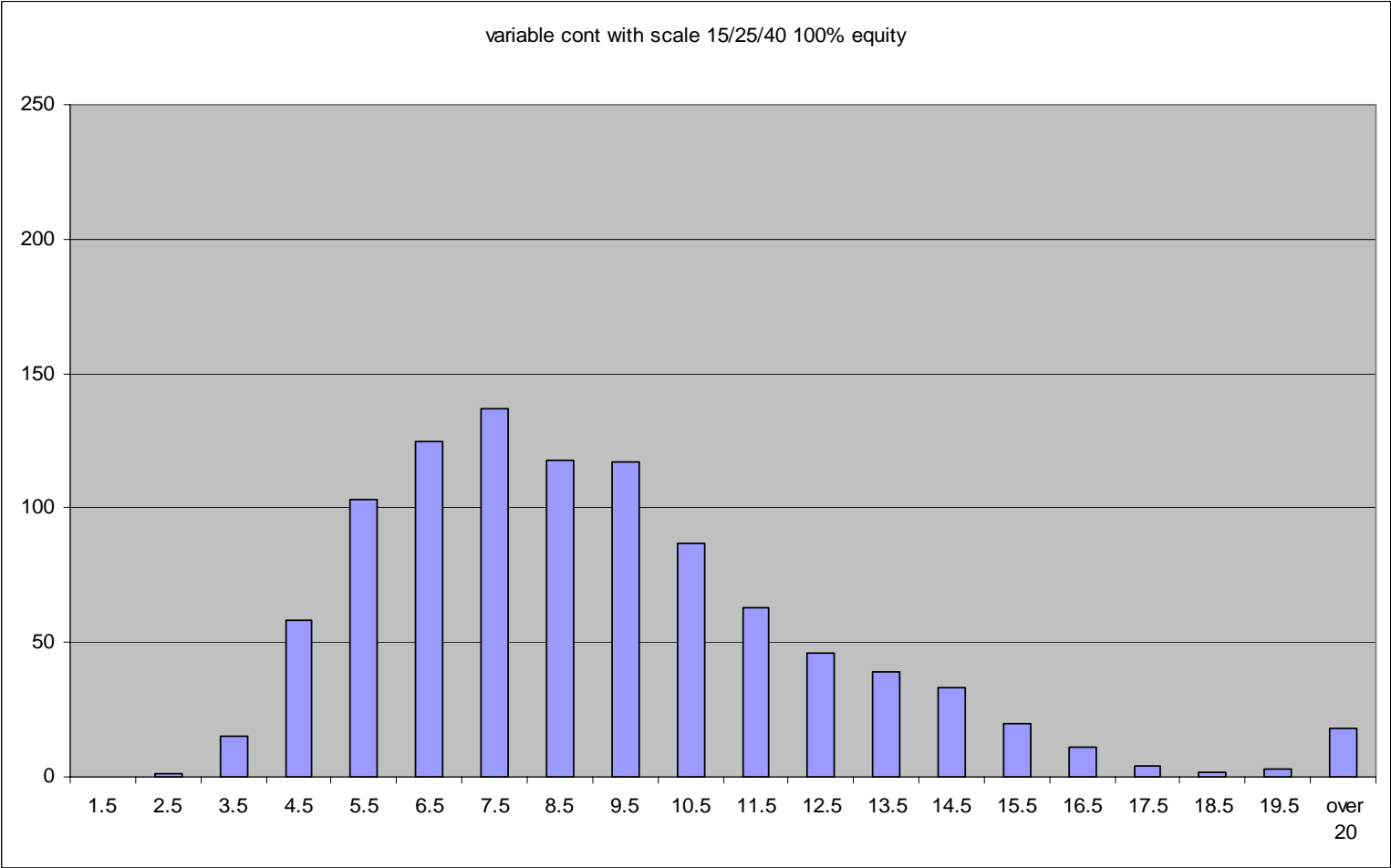
- Reduced equity leads to same cost and lower expectation

Fixed Contribution modal score 6.5

fixed cont 24.17 100% equity investment
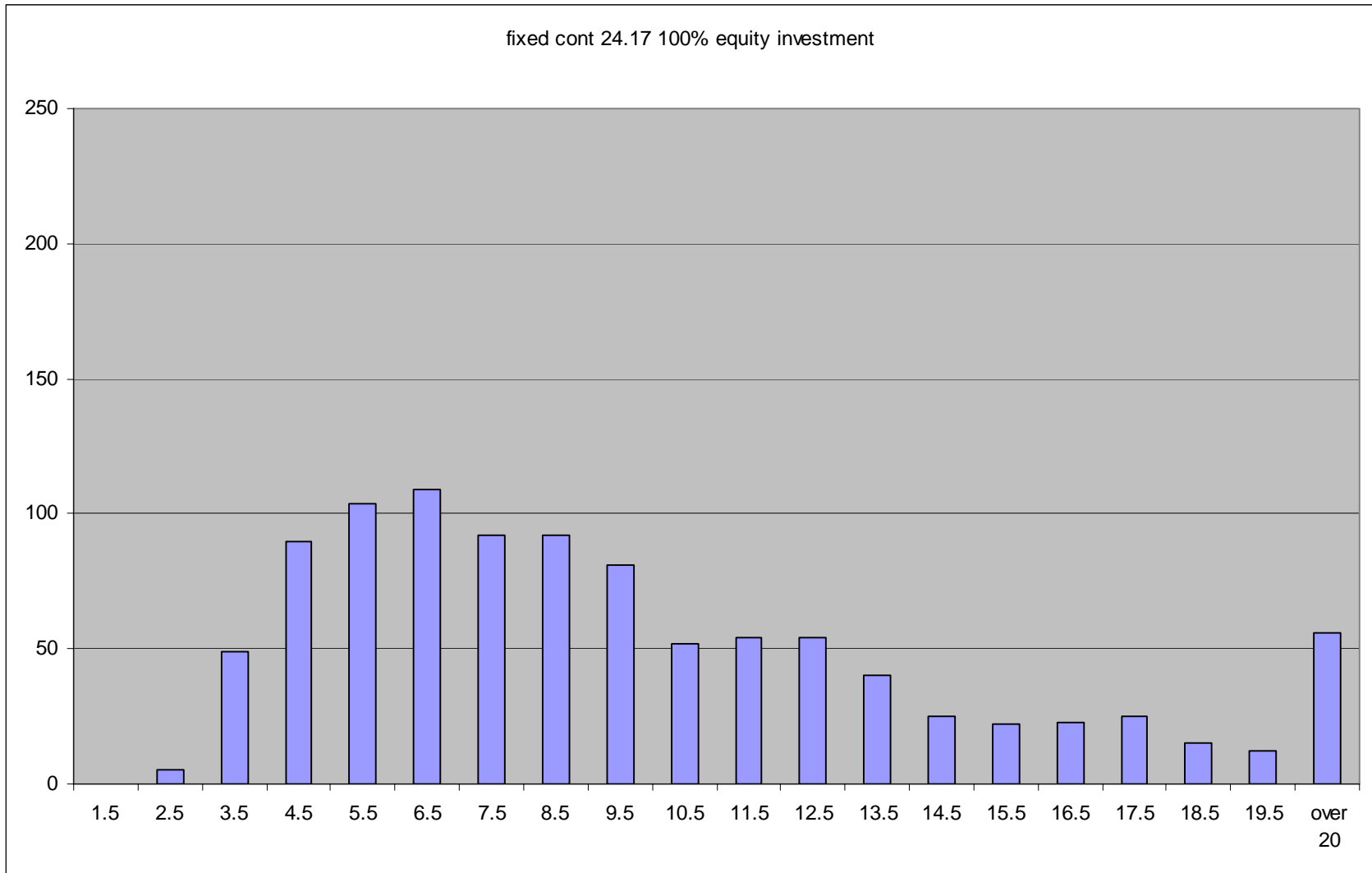
10 year switch to cash modal 6.5 expected 8.5

fixed cont 24.17 10% annum shift to cash over 10
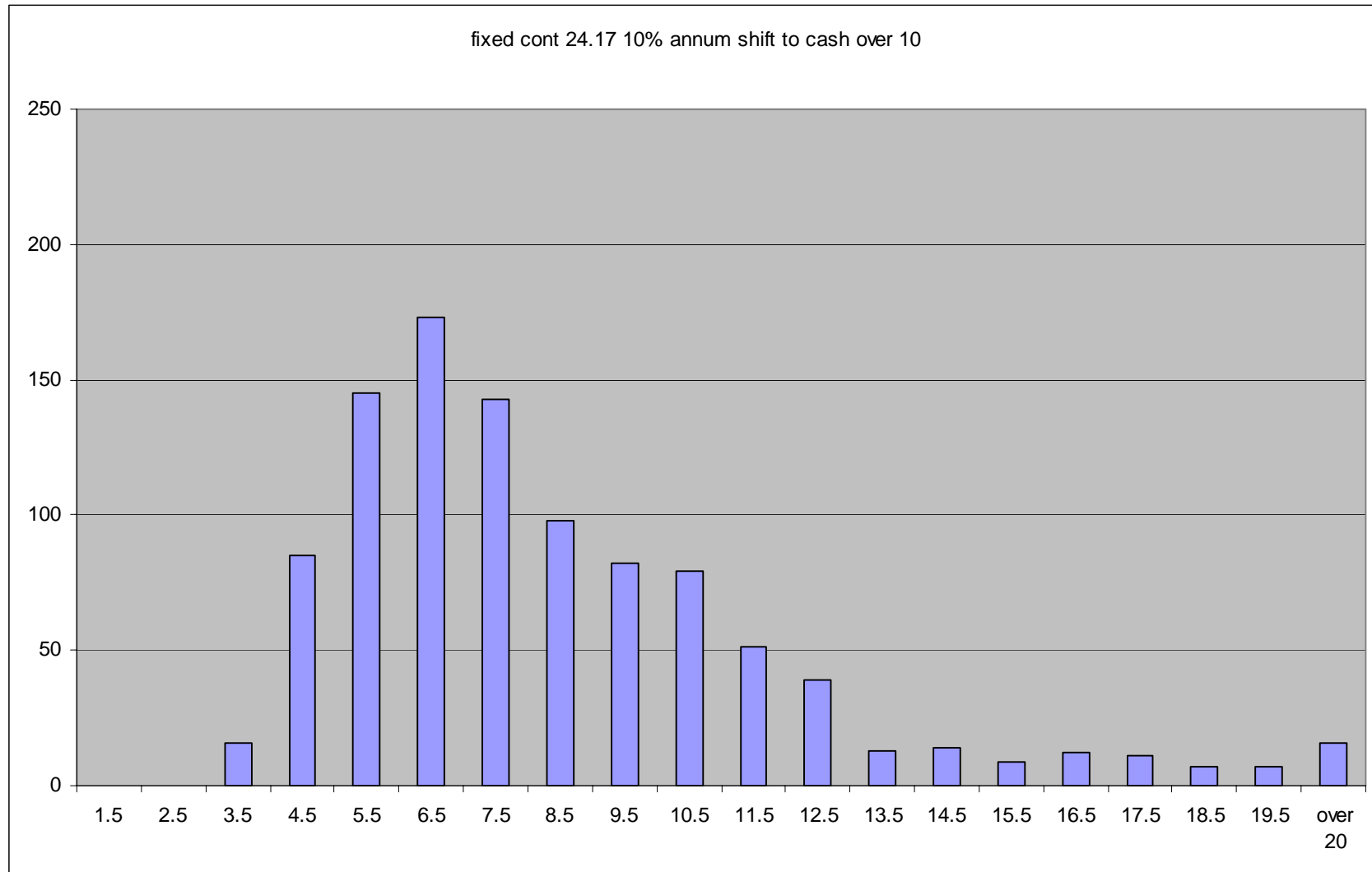
Variable contribution cost 6.9 expected 9 modal 7.5

variable cont with scale 15/25/40 100% equity

10 year switching and variable contributions cost 7.2 expectation 8 and modal 8.5

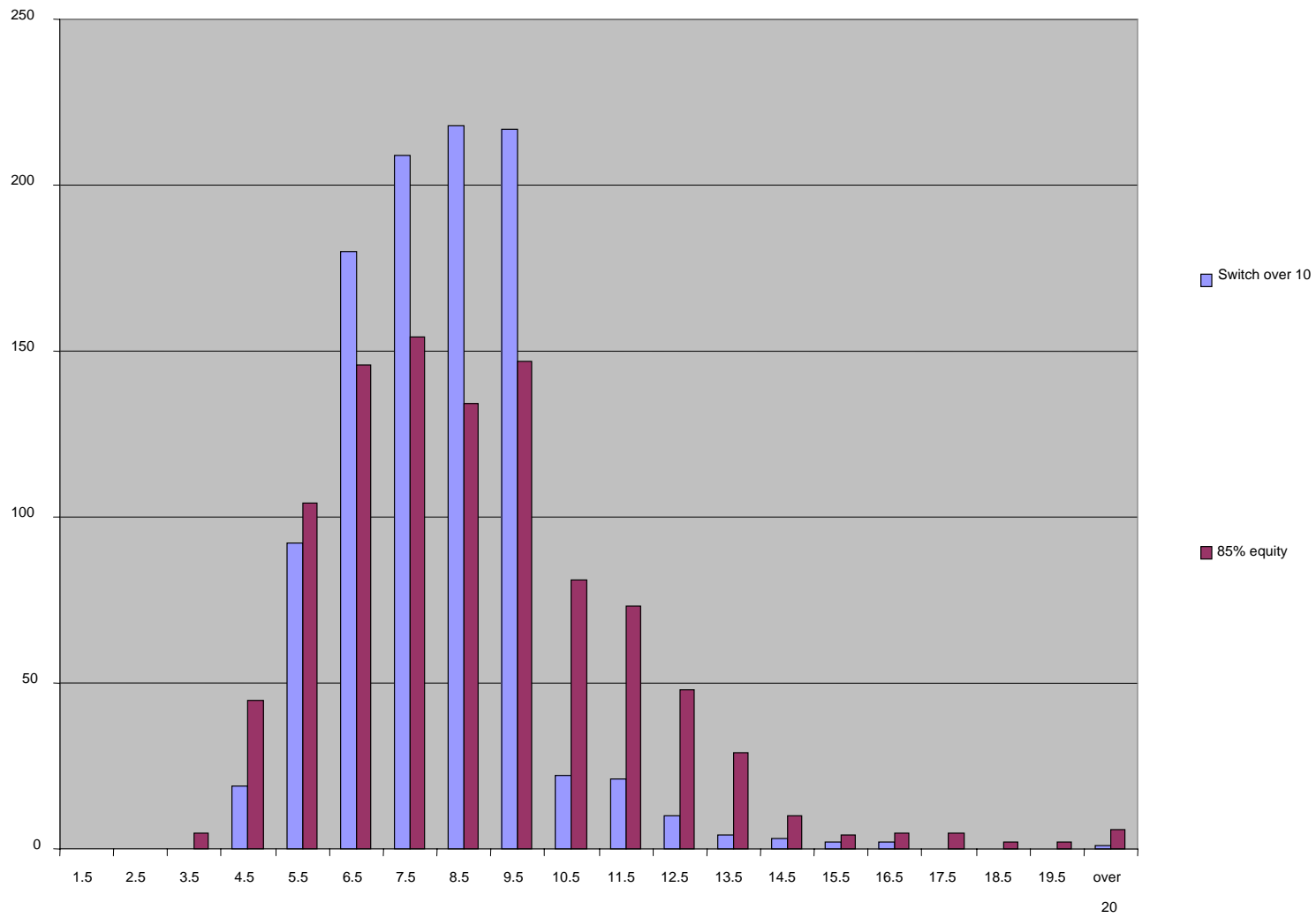variable cont with scale 15/25/40 10% annum shift to cash over 10
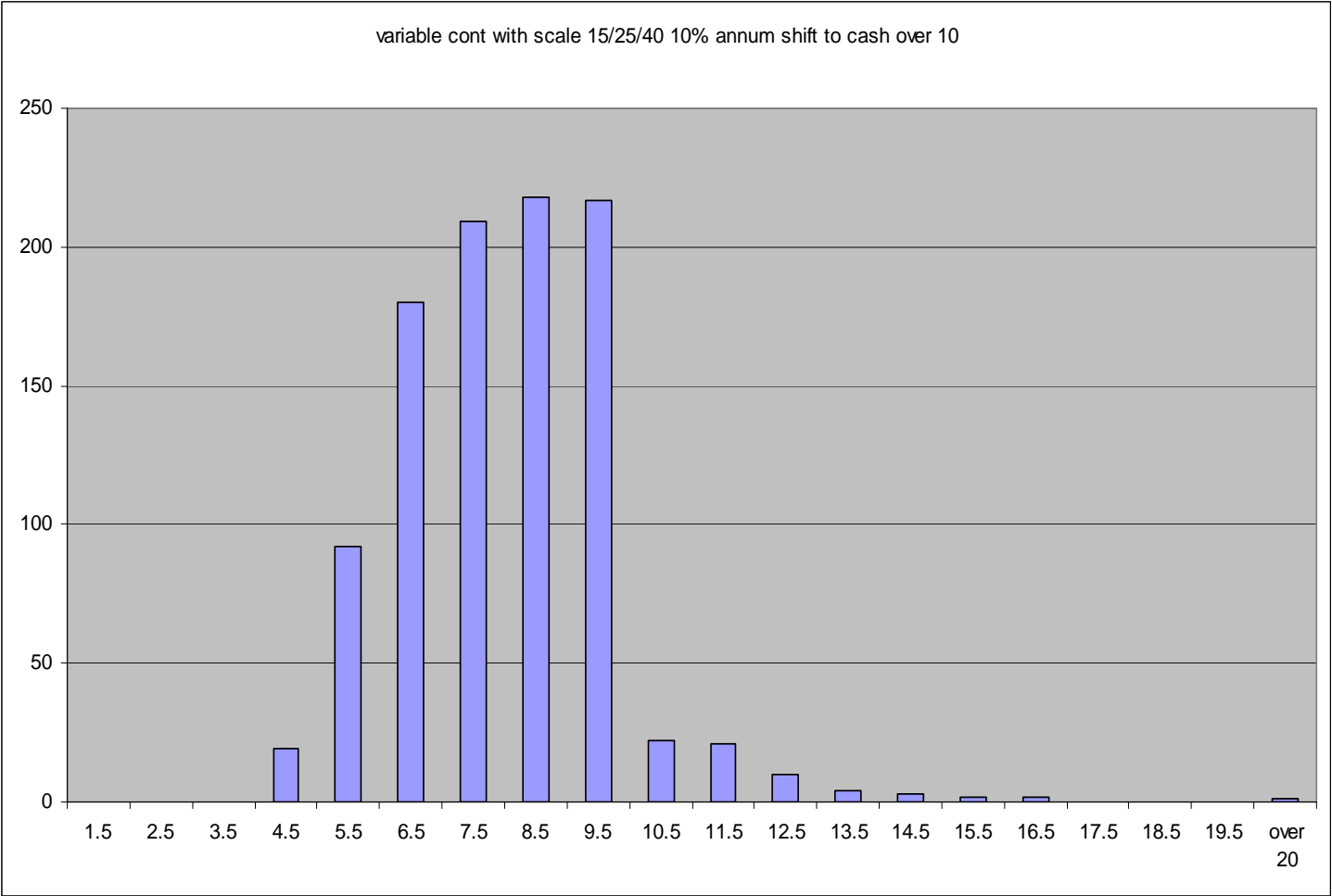
Clearly no uniquely right answer
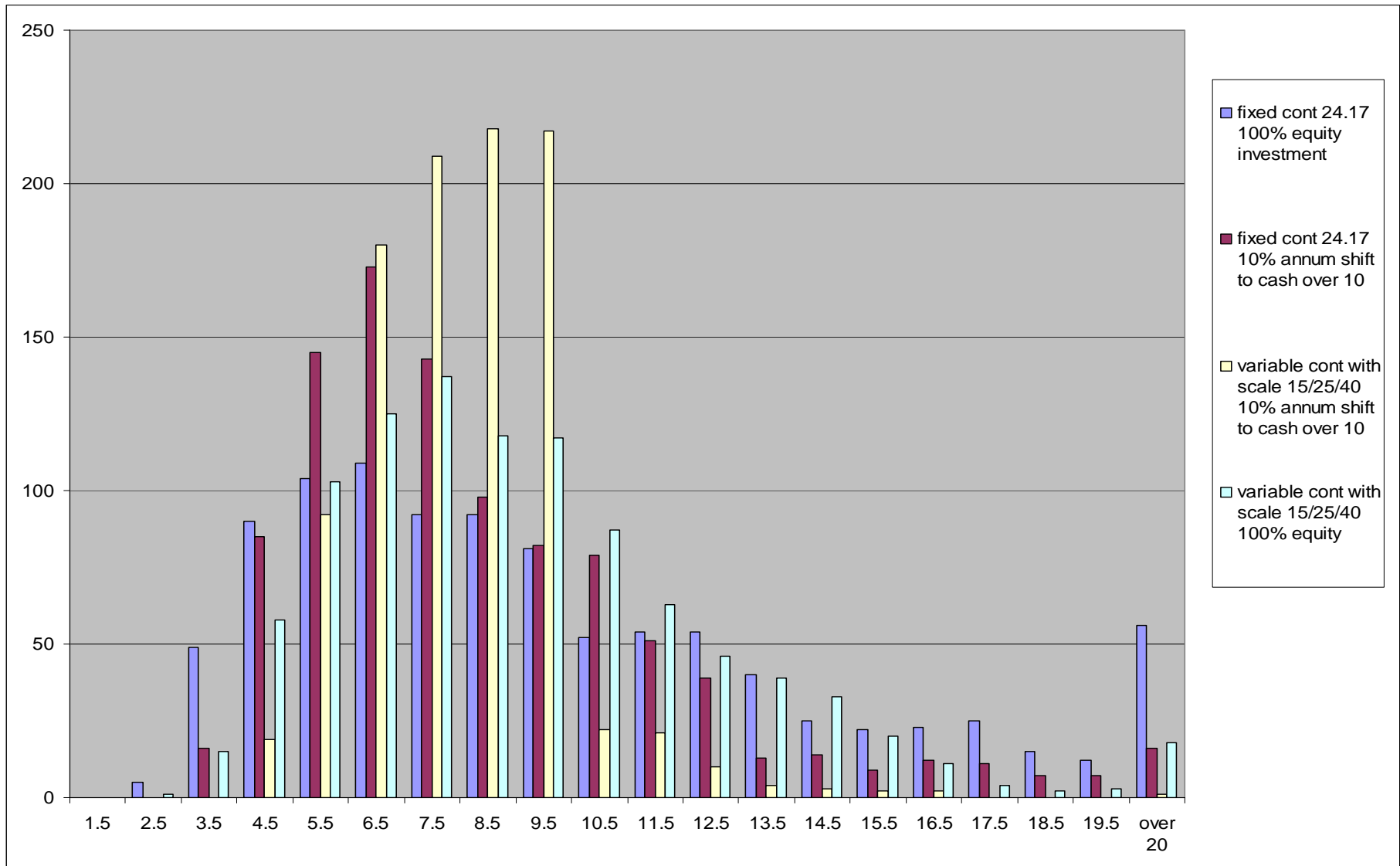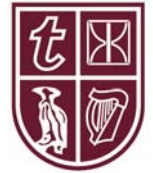
Fixed contribution 10 year switch and 70% equities
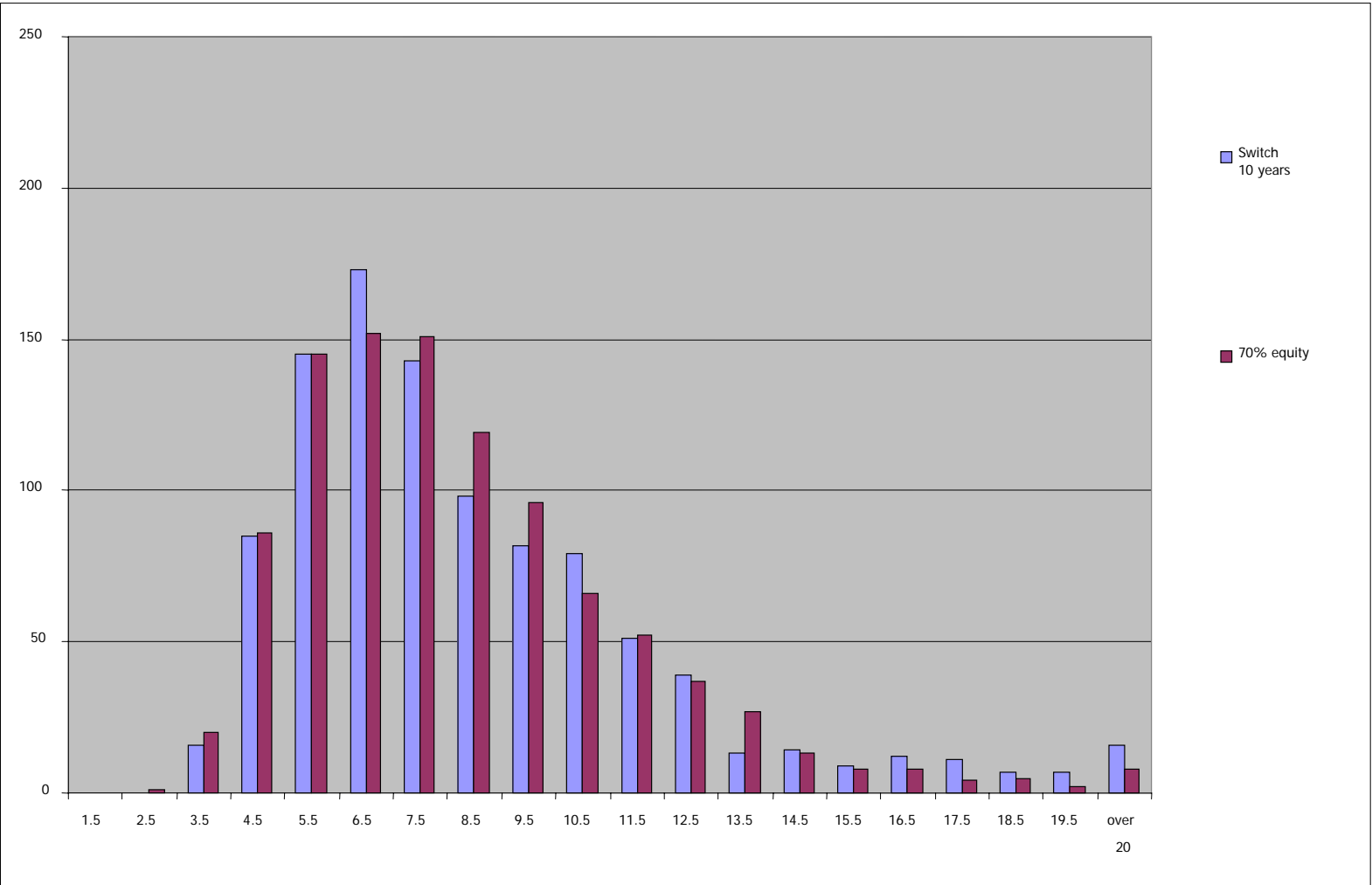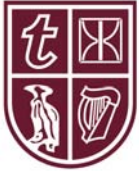
Variable contributions

Insights

- Variability of outcomes is surprising

- Late switching and fixed proportion can give remarkably similar distributions.

- This is changed if client actively changes contributions.

Comparison table of 5 and 8 times critical points

Investment Strategy	Contribution Strategy	Number of times fund Less than 5	Less than 8	Cost
F 100% throughout	Variable with max*	74	439	6.91
G First 26 years 100% year 27 - 80% year 28 - 60% year 29 - 40% year 30 - 20%	Variable with max*	43	454	7
H First 21 years 100% year 22-90% ----- year 29 - 20% year 30 - 10%	Variable with max*	19	500	7.17
I First 25 years 100% Last 5 - 0%	Variable with max*	46	543	7.1
J 85% Equities throughout	Variable with max*	50	454	7.17

Additional Point

- What is not measured is the clients emotional position throughout the period and this may implicitly be a driver for design.

Client	Year prior	At Retirement
A	15	10
B	10	10
C	5	10

A Value at Risk approach to Life-styling

Presented by:
Brian Woods

Let us compare two DIS strategies

First strategy

100% equities throughout

Second strategy

100% equities with life-styling into cash over last 10 years

Wilkie investment model with 4% equity risk premium and 15% volatility

30 year regular contributions

	100% Equity	Life-styling	A/B
10th percentile	41.9	40.3	104%
Lower Quartile	54.8	49.9	110%
Median	74.8	63.3	118%
Upper Quartile	101.1	82.0	123%
90th percentile	133.9	98.9	135%
Runs better	*733*	*267*	*274%*

Accumulated fund 1 year to go

	100% Equity	Cash	A/B
10th percentile	0.86	1.0	86%
Lower Quartile	0.94	1.0	94%
Median	1.04	1.0	104%
Upper Quartile	1.15	1.0	115%
90th percentile	1.26	1.0	126%
Runs Better	*605*	*395*	*153%*

A Var definition of risk appetite

Prepared to take a 10%* chance

that the outcome will not be **Y**% worse than cash

in pursuit of an average **R**% risk premium/reward

** 10% can be fixed without loss of generality as we will
be considering the same lognormal shaped distributions*

Y = 10% R = 5% p.a.

Letting **Y** vary with time to retirement - *t*

R, the risk premium, increases in direct proportion to *t*

S, the standard deviation, increases in proportion to √*t*

Plausible to let **Y** vary with R/S i.e. √*t*

Y varying with √*t*
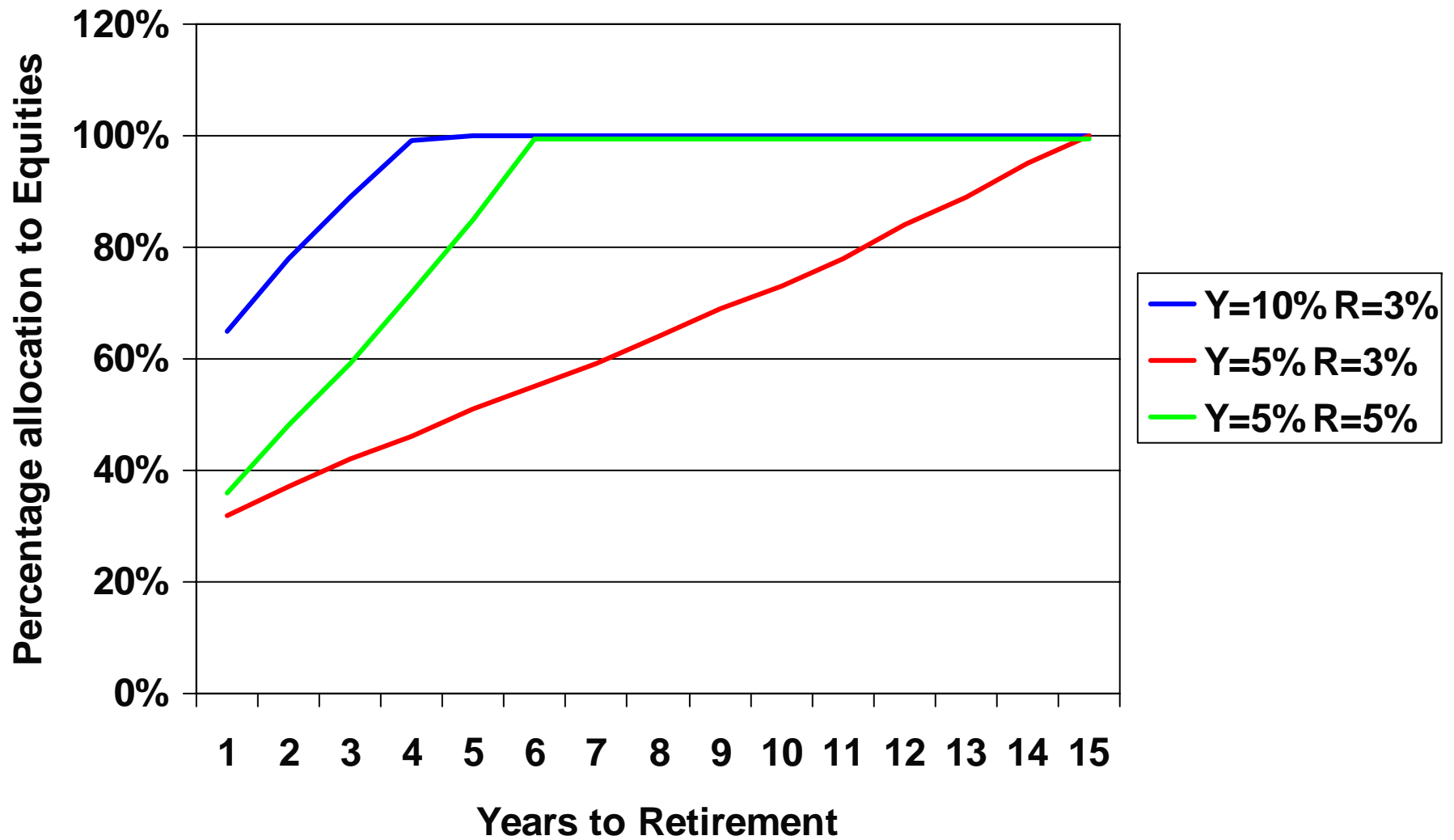
A Modern-Finance-Theory Approach to Designing a Default Investment Strategy

Presented by:
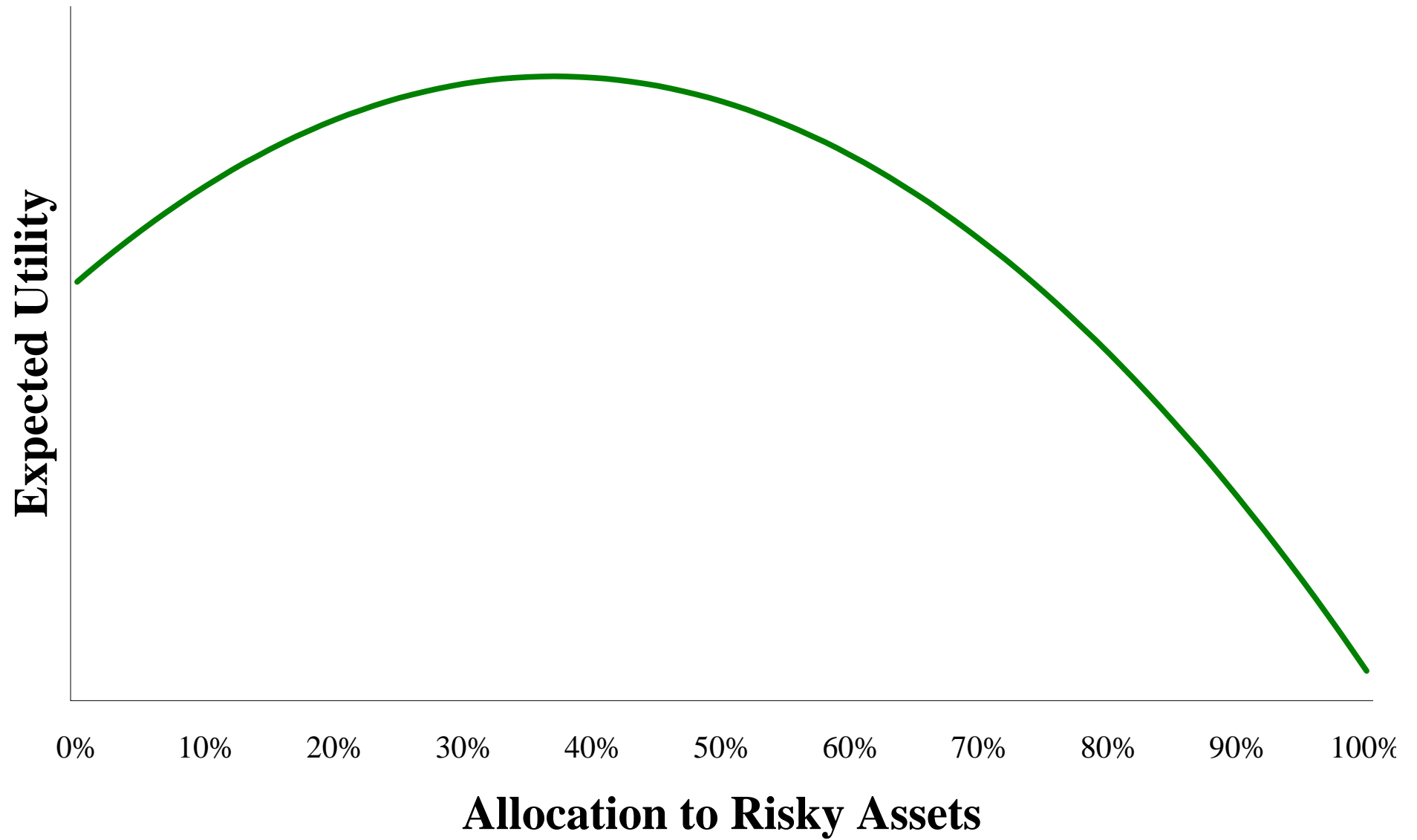**David Kavanagh**

Return
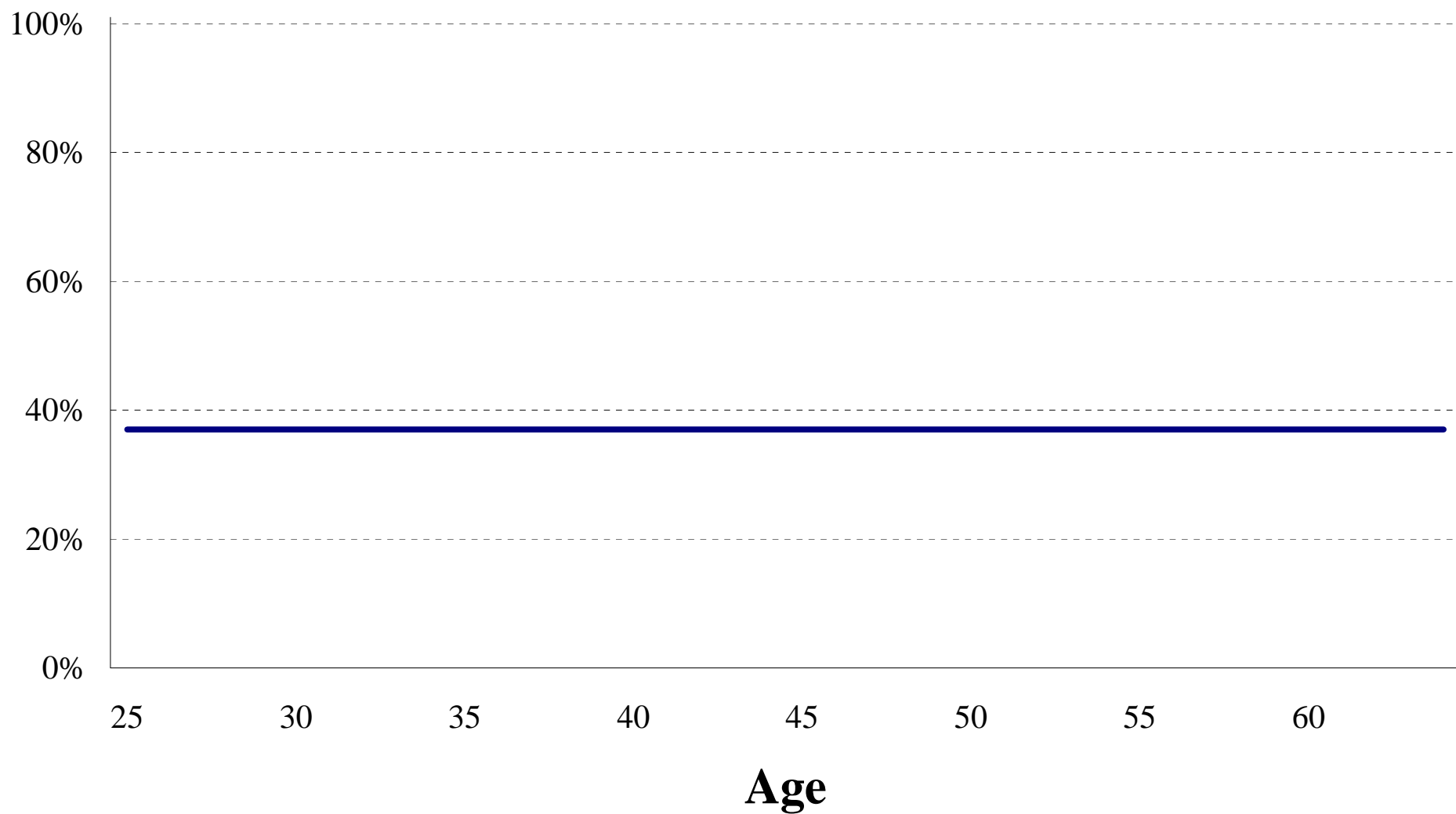
—— Probability density

Return
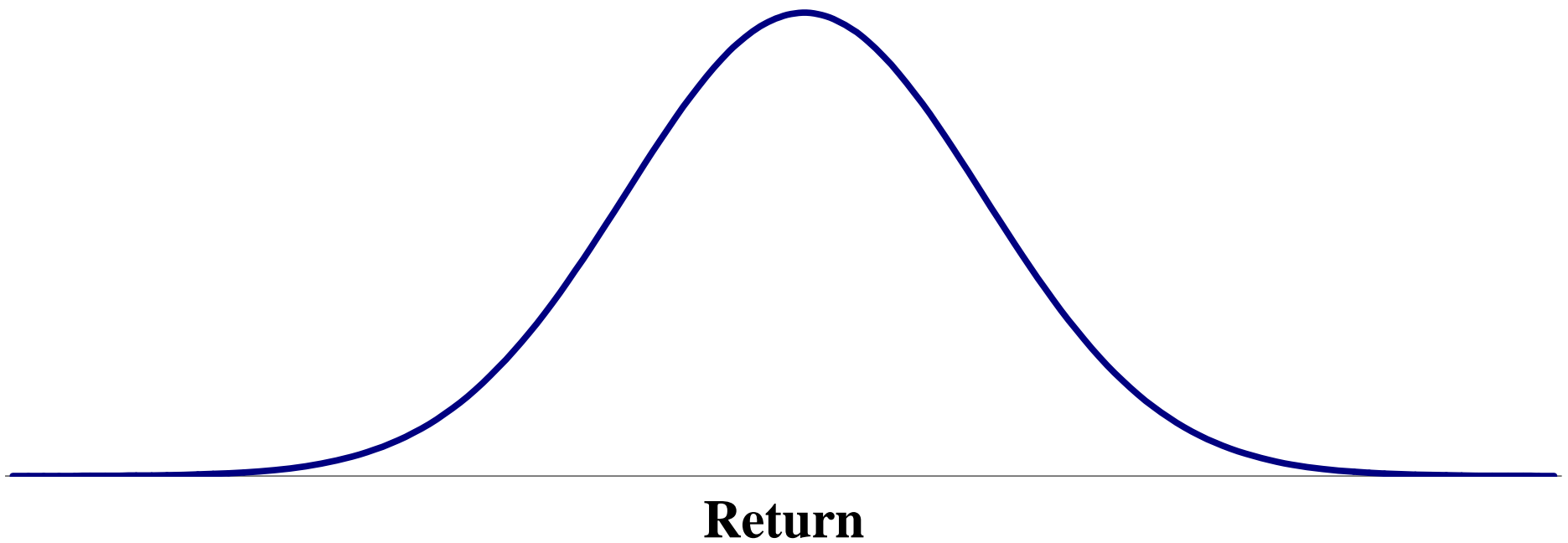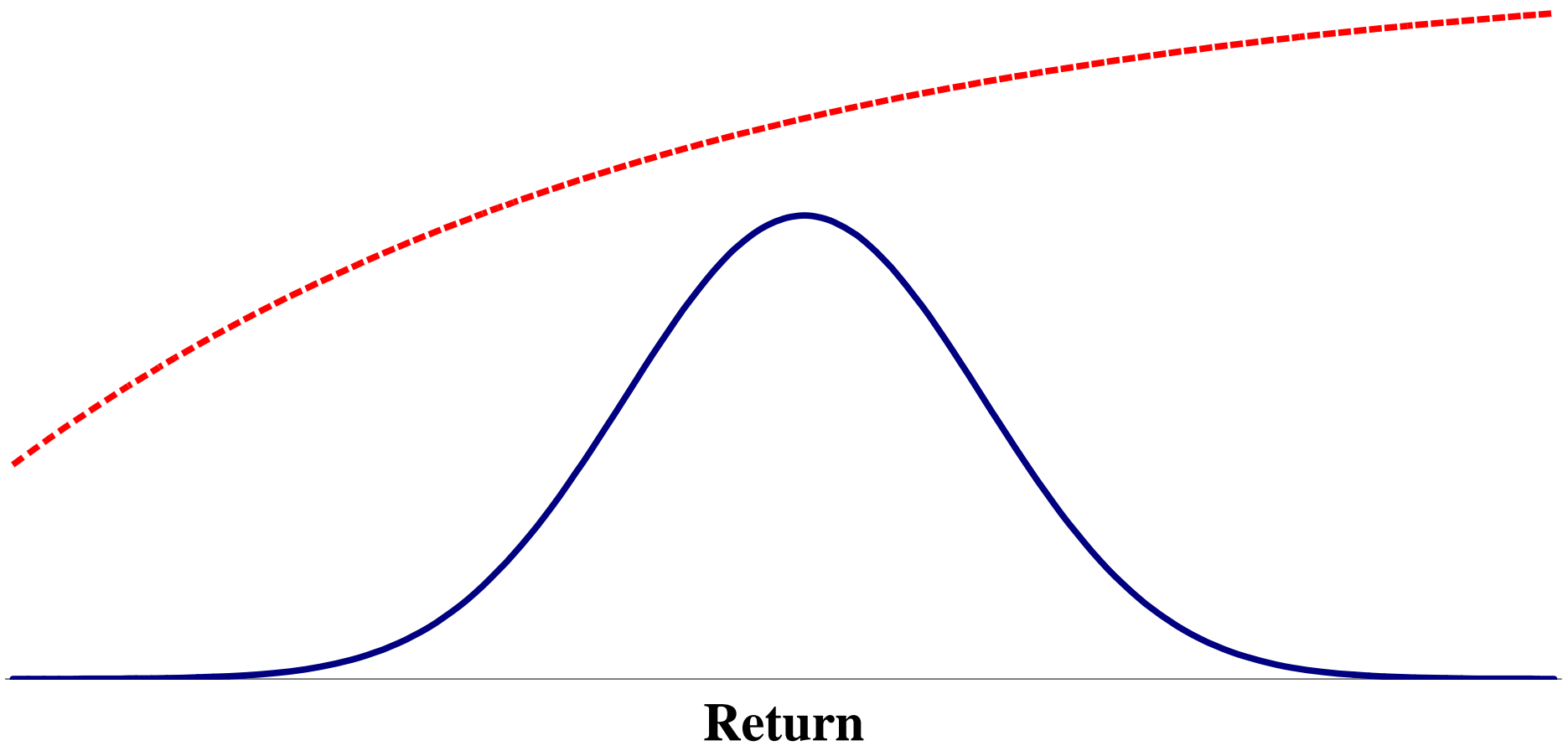
Probability density — — Utility

Expected Utility (y-axis)

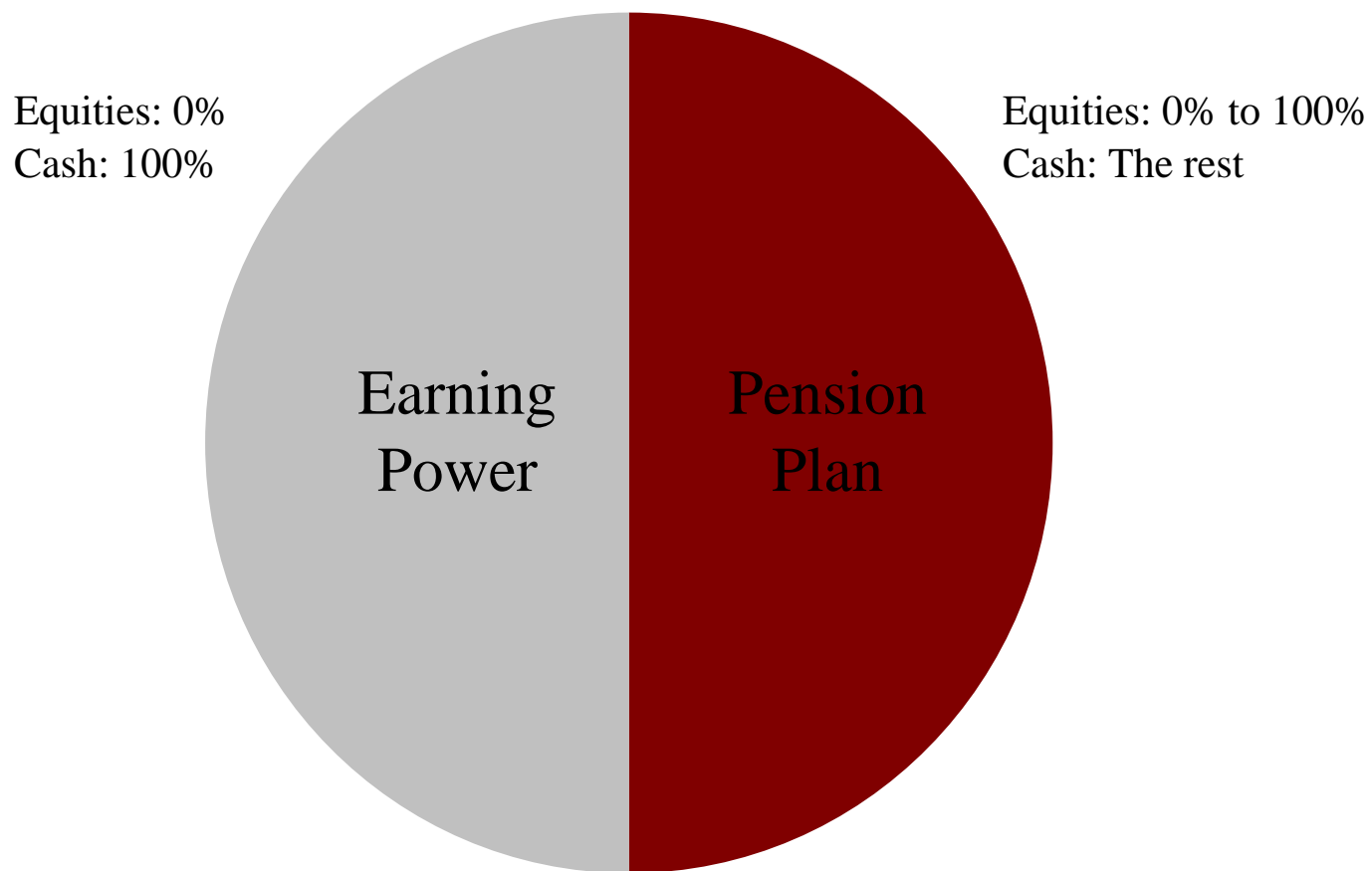**Allocation to Risky Assets** (x-axis): 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%

Age
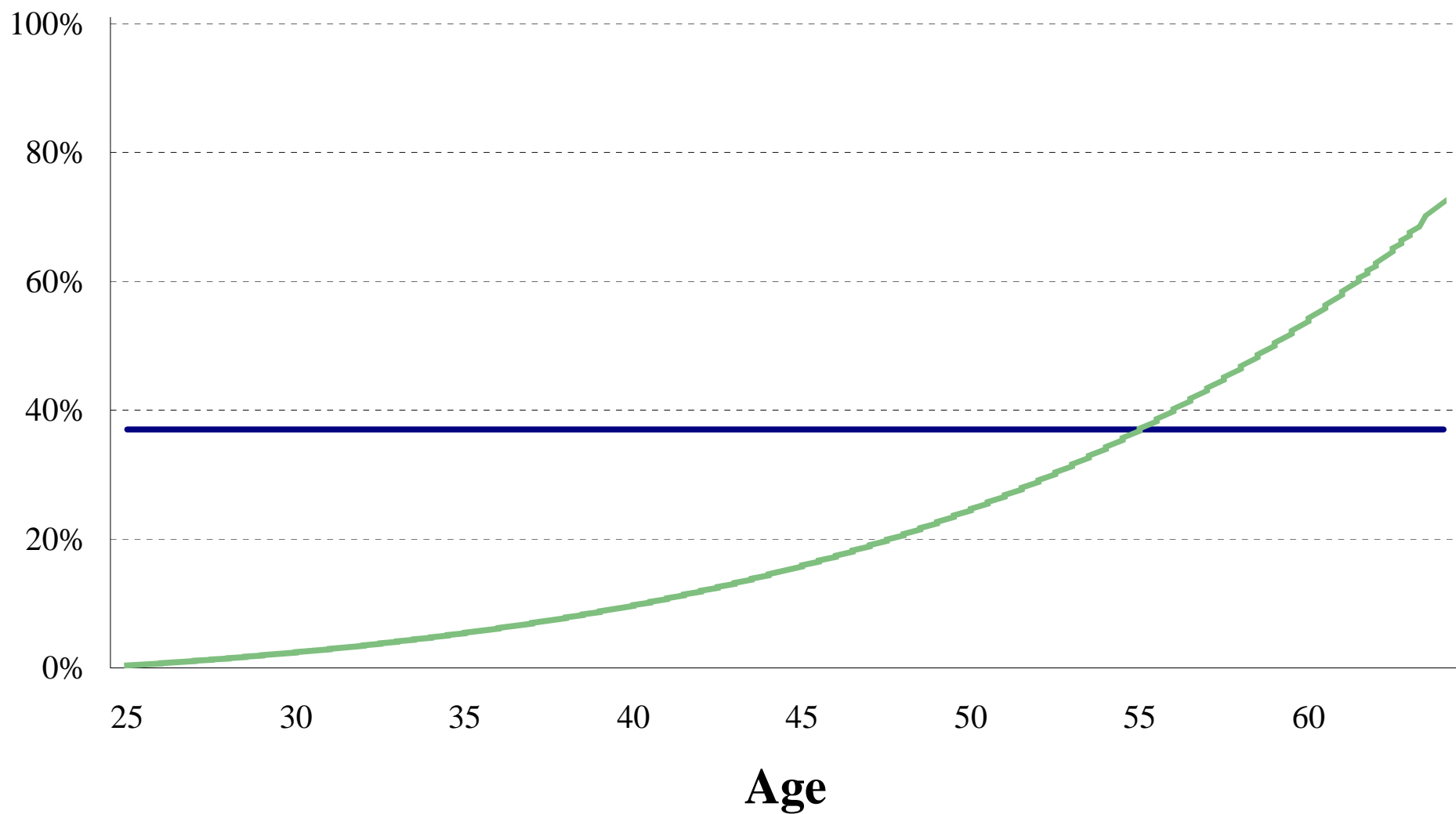
Total in risky assets

Investor's Total Wealth

Equities: 0%
Cash: 100%

Equities: 0% to 100%
Cash: The rest

Earning
Power

Pension
Plan
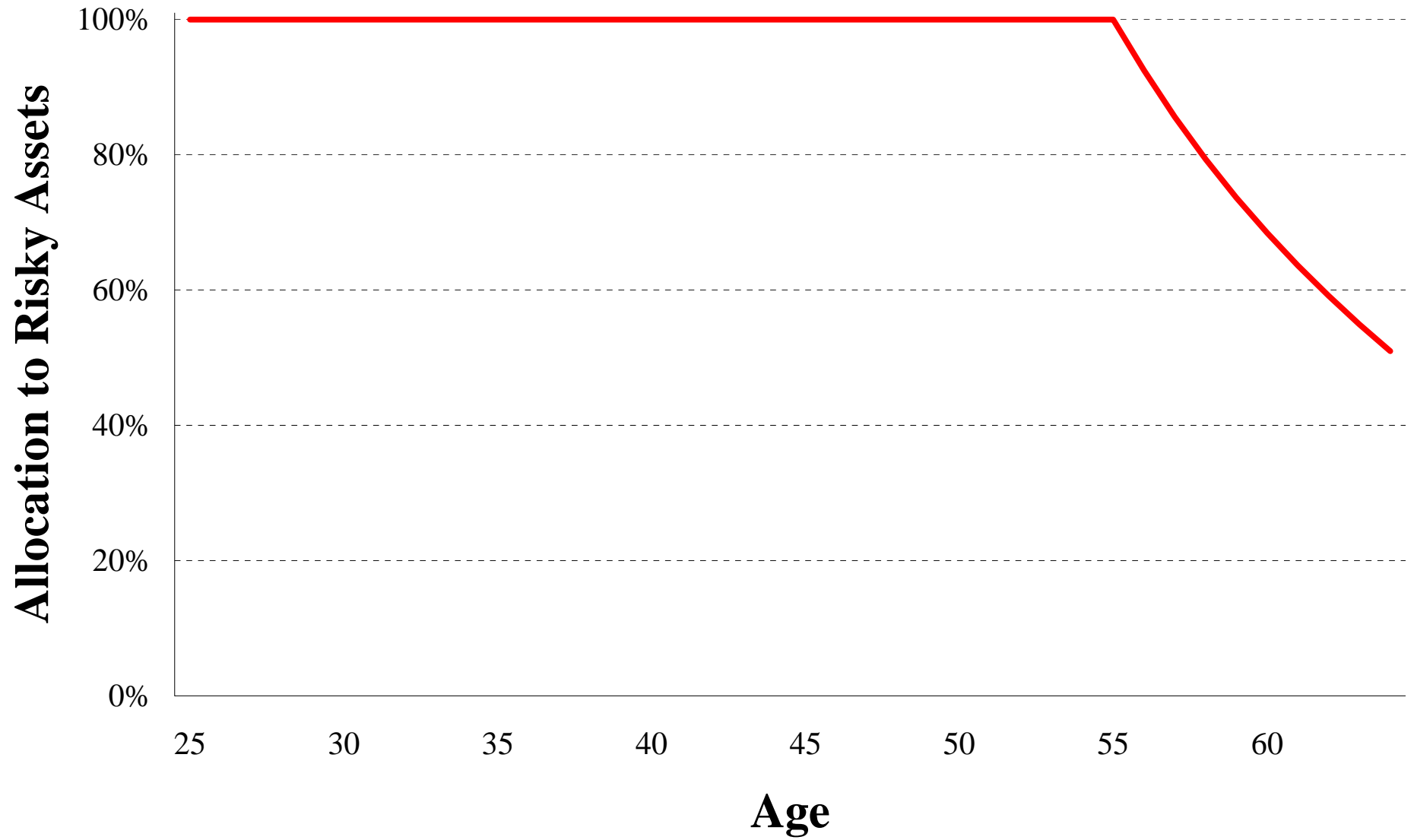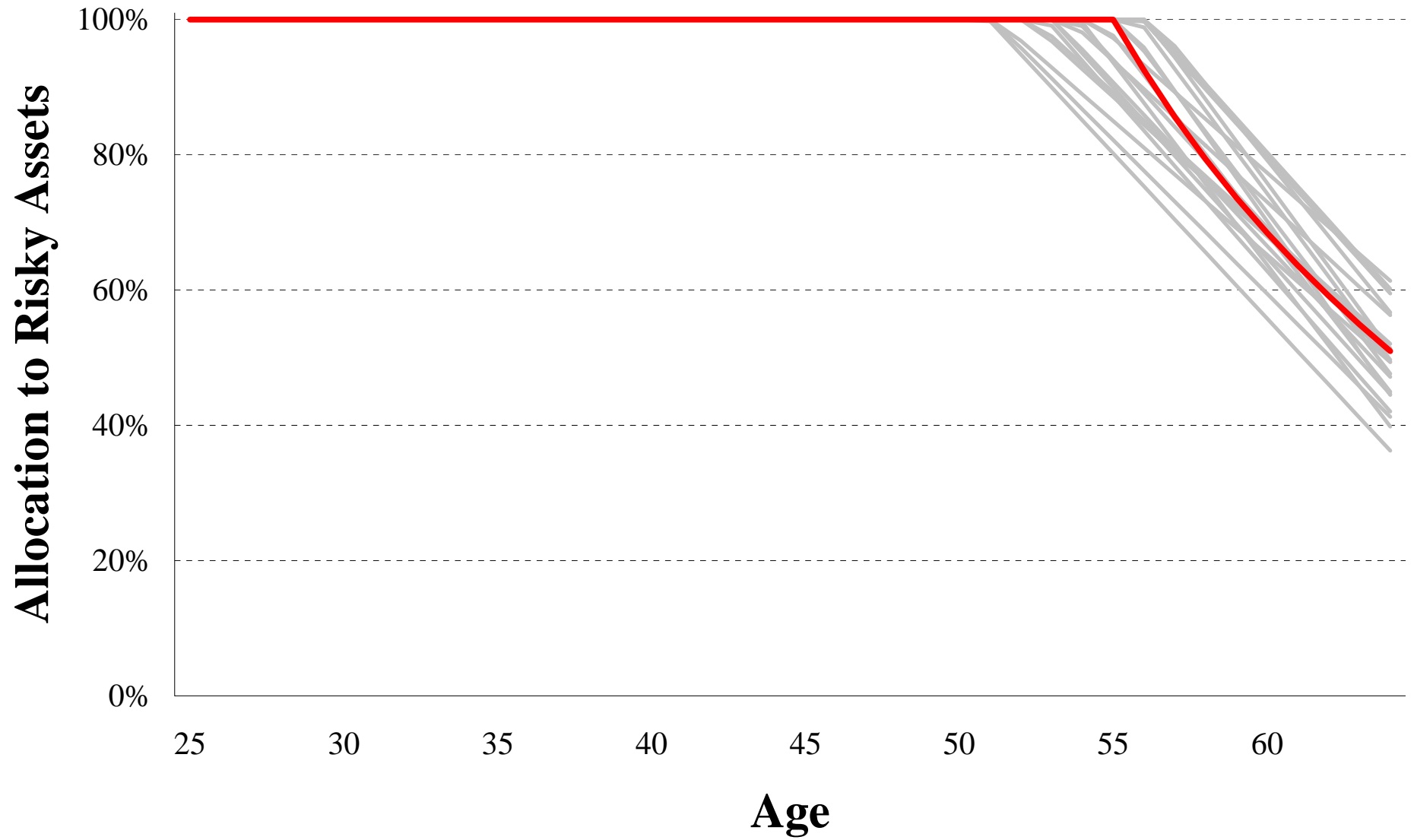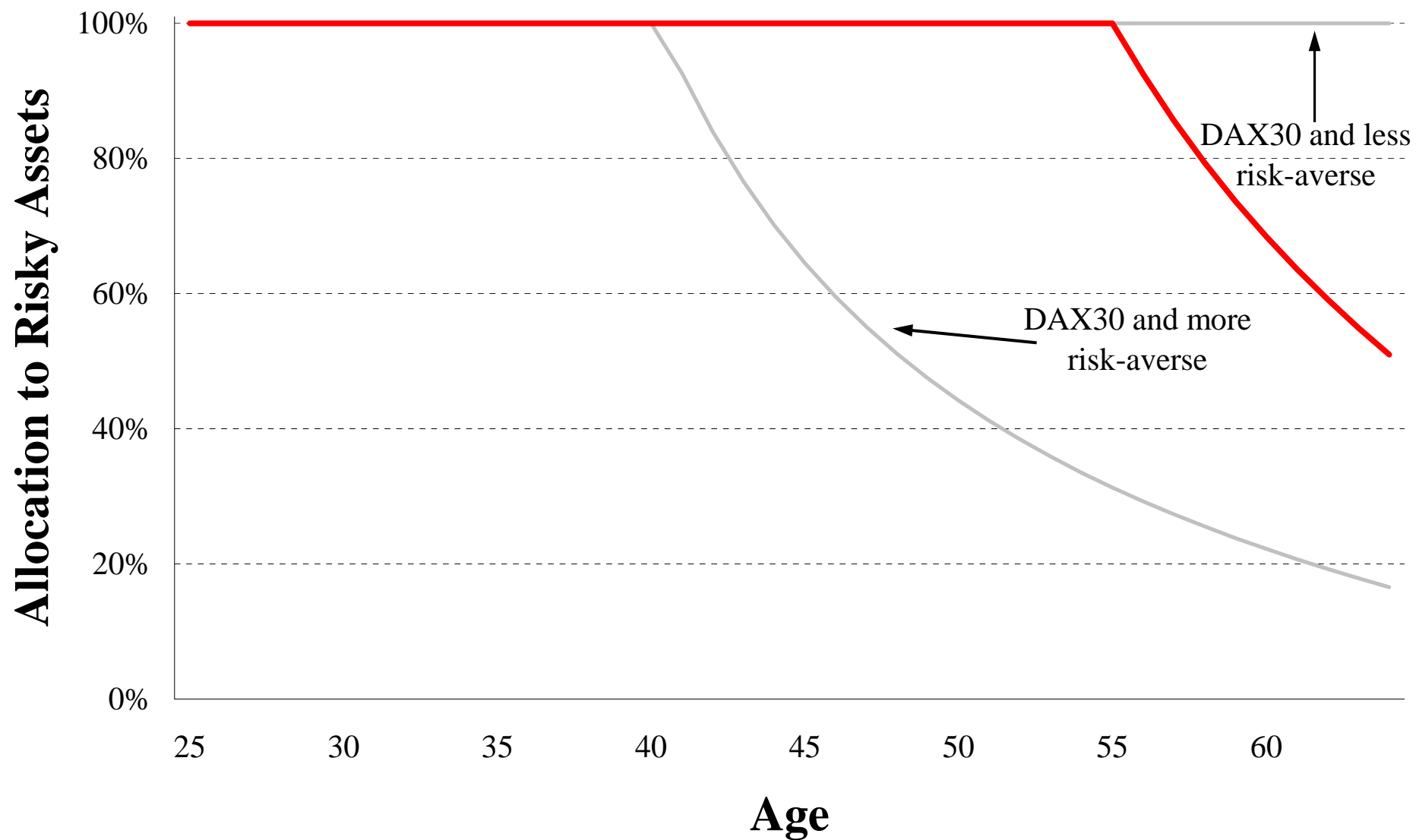
Legend: Total in risky assets — Total in pension plan — Pension plan in risky assets
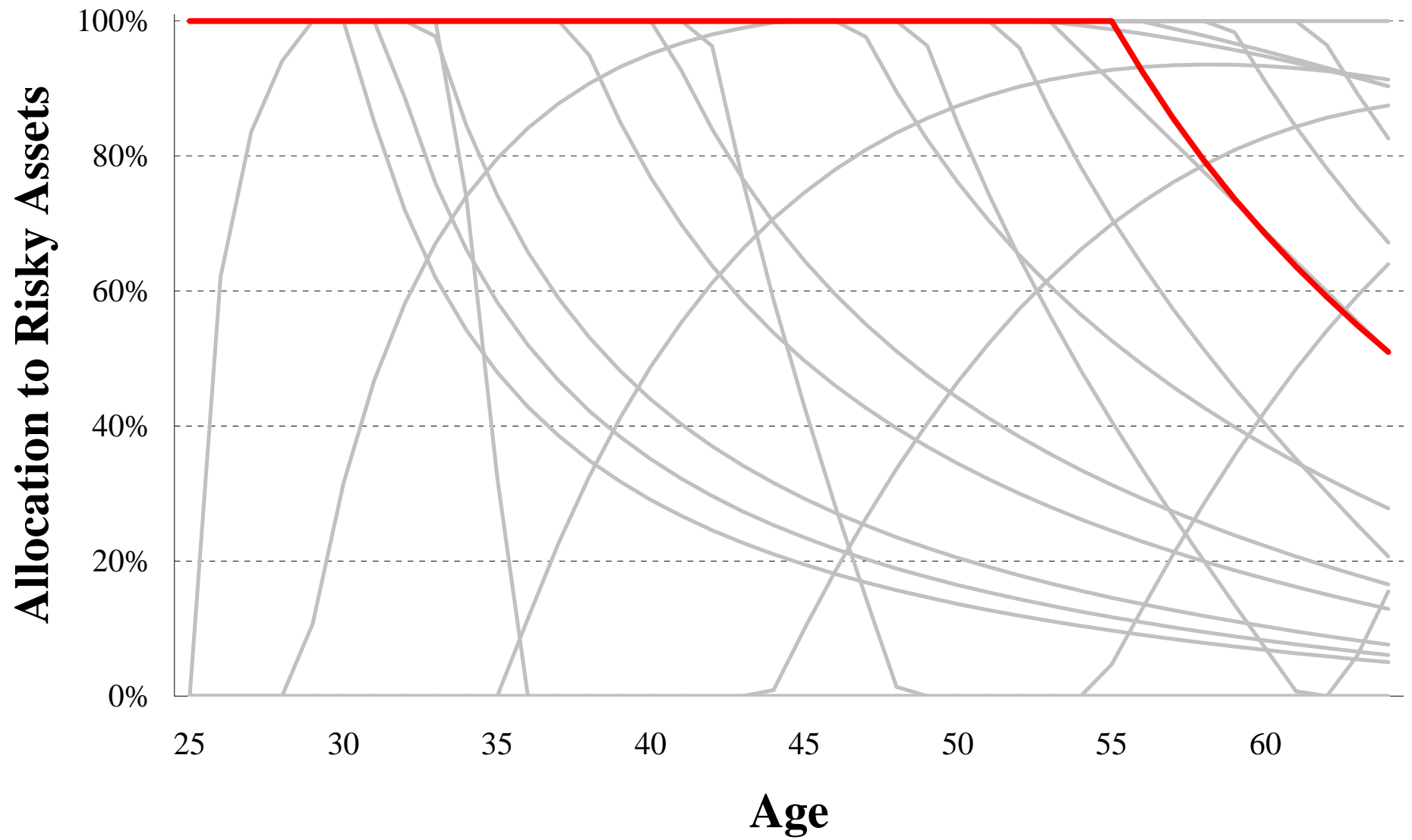
Investor holds property

Salary treated as a risky asset

Allocation to Risky Assets (y-axis): 100%, 80%, 60%, 40%, 20%, 0%

Age (x-axis): 25, 30, 35, 40, 45, 50, 55, 60

Conclusions
and
Recommendations

Presented by:
Dervla Tomlin

Conclusions

- Broad shape of 'managed fund with life-styling' DIS can be justified based on plausible assumptions.

- Not possible to 'accurately' set parameters.

- Hence, not possible to determine 'ideal' DIS. Judgement is required.

- No guarantee that a contributor's expectations will be met:

  – A contributor's circumstances and attitude to risk may change

  – Only one set of actual investment outcomes – wide variability

- Extent of variability in potential returns is probably not appreciated by contributors.

Recommendations

- Set a strategy which actuary *believes* is reasonable to meet what actuary *believes* are the expectations and objectives of a typical contributor.

- Descriptions of a DIS should:

  – explain the strategy and the working of the DIS and

  – also highlight its limitations and risks.

- Potential variability in outcomes should be communicated.

- Contributors should be encouraged to regularly review contribution rates and investment strategy.

- Contributors approaching planned retirement age should be given option to defer or accelerate switching.

Comments or questions?