



Towards a Sustainable Retirement Plan

The Challenges of Retirement Planning

Common pitfalls & “safe” guidelines

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November 2015

Explanation of some terminology...

- *Sustainable retirement* = ability of plan to meet income needs at retirement, ability of plan to yield inflation-adjusted income for a lengthy post-retirement period (20-30 years).
- *Savings rate* = net contributions (after costs, risk premiums), own and employer's, as a percentage of gross income, e.g. 12.5%
- *Contribution period* = accumulation phase, period of constant contributions/savings towards retirement plan, e.g. 40 years
- *Real return* = investment return above the inflation rate
- *Replacement rate* = how much of one's final pre-retirement income will be replaced/substituted by the income from your retirement plan, typically expressed as percentage, e.g. 75%
- *Retirement wealth multiple* = retirement capital expressed as a multiple of retirement income need, e.g. 15 times
- *Initial withdrawal rate* or drawdown rate = the initial withdrawal amount at retirement, expressed as a percentage of retirement capital available, e.g. 5%




The Basic (and simple) Premise...

“Designing” a sustainable retirement plan

What are reasonable net real return expectations, savings rates and contribution periods?

Targeted replacement rate = 75%

The net real return required for different savings rates & contribution periods

Contribution period (years)	Savings rate (% of gross income)				
	10.0%	12.5%	15.0%	17.5%	20.0%
30	8.1%	6.9%	6.0%	5.1%	4.4%
 35	6.3%	5.2%	4.4%	3.7%	3.0%
 40	4.9%	4.0%	3.3%	2.6%	2.1%
 45	4.0%	3.2%	2.5%	1.9%	1.4%

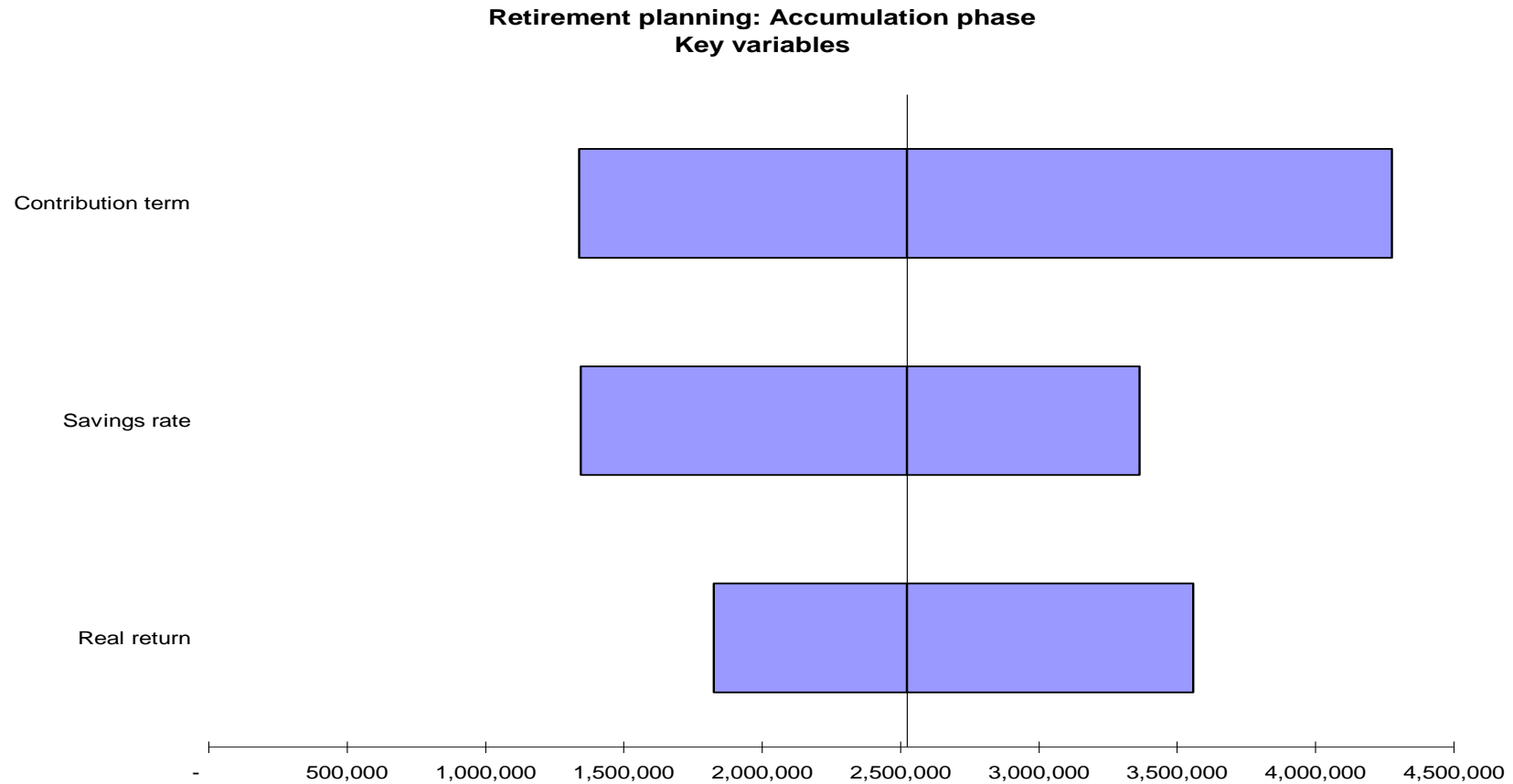
The Basic Premise...

Targeted replacement rate = 100%

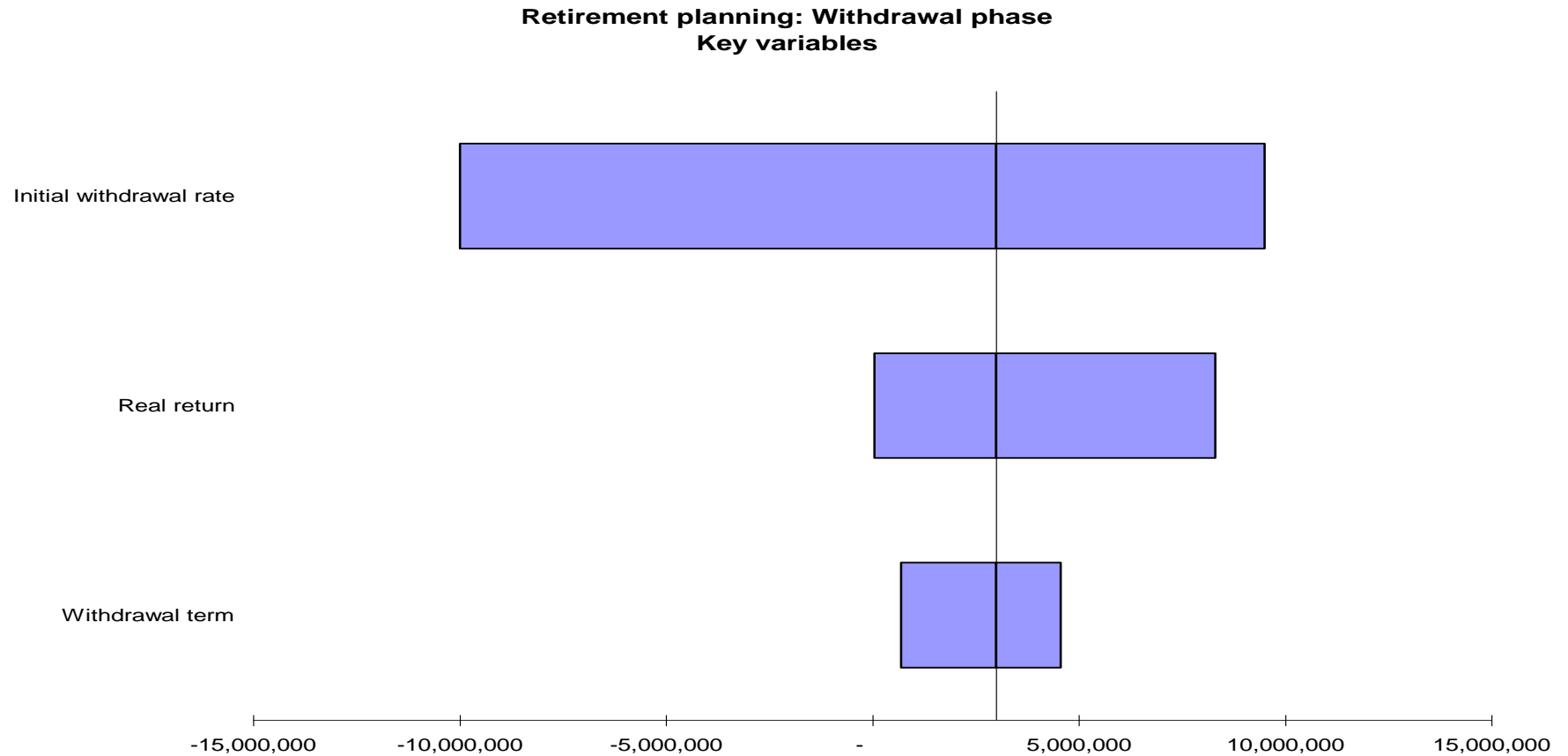
The net real return required for different savings rates & contribution periods

Contribution period (years)	Savings rate (% of gross income)				
	10.0%	12.5%	15.0%	17.5%	20.0%
30	9.6%	8.4%	7.5%	6.7%	6.0%
35	7.5%	6.5%	5.7%	5.0%	4.4%
40	6.1%	5.2%	4.5%	3.8%	3.3%
45	5.0%	4.2%	3.6%	3.0%	2.5%

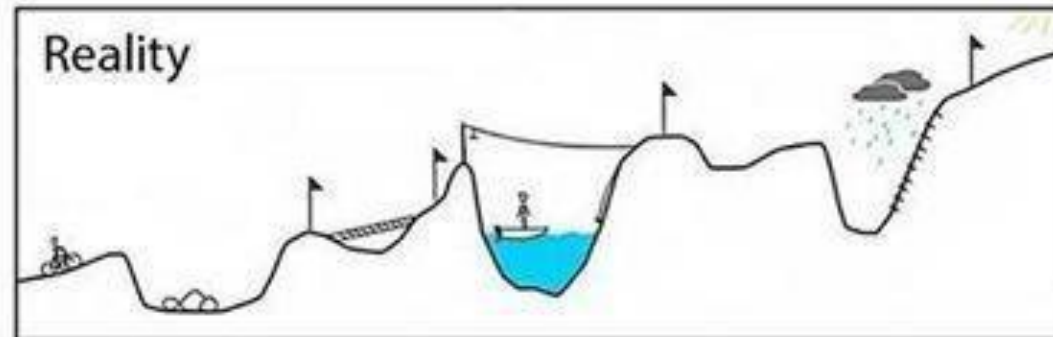
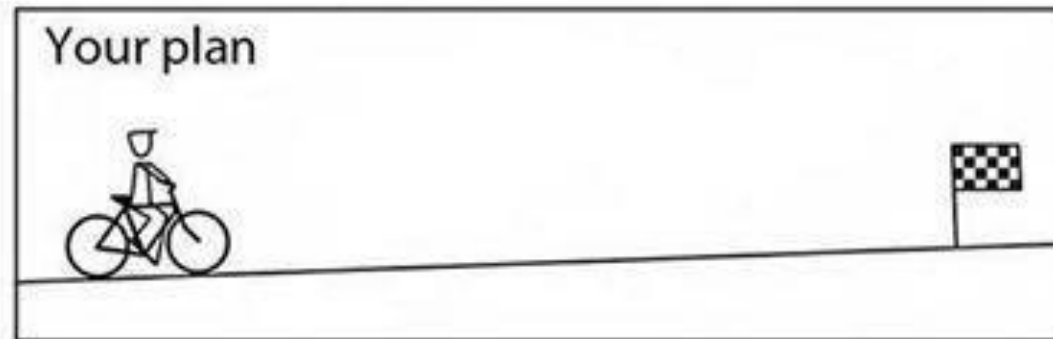
The relative importance of key variables – Pre-retirement phase



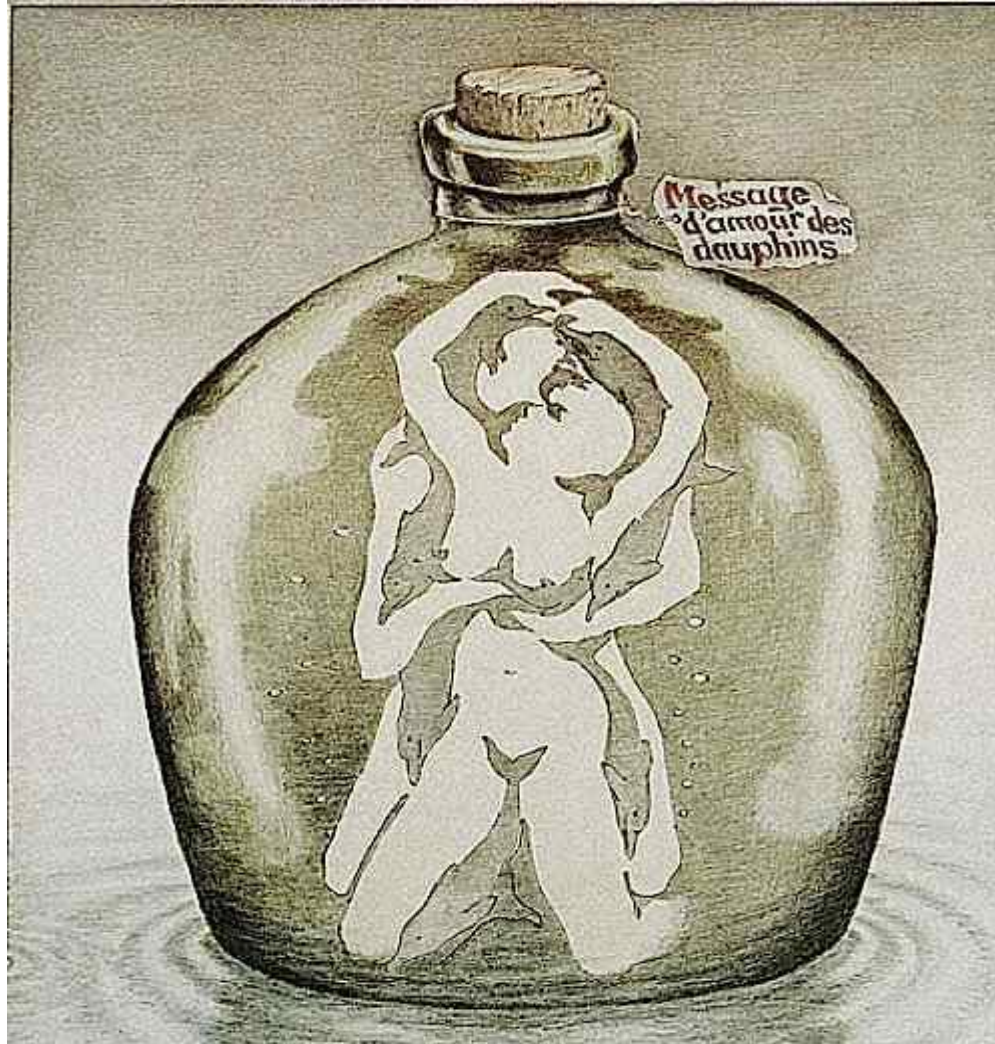
The relative importance of key variables – Post-retirement phase



A plan is a plan, and not necessarily how the reality will unfold...



Our perceptions of reality are shaped by past experiences...



What do you see at first sight? Young kids may see the dolphins; adults, however, see a couple making love. We often use our most recent experiences and extrapolate that into the future, not considering all possibilities – we do the same with return assumptions!

The challenges of retirement planning

- Changing demographics – people are getting older, paradigm shift needed for suitable retirement ages, how much retirement capital will be needed, etc.
- Changes in work and labour requirements – “soft” skills, IT, creativity
- Insufficient/unsustainable social security programmes, defined benefit schemes replaced by defined contribution schemes...

And...

- Being our own worst enemy – numerous pitfalls along the way!

Why we often fail...Beware of the many pitfalls (and ambitious assumptions)...

- Early withdrawals & investment costs
- Real return assumptions
- Investment return focus – myopia, ignoring distribution growth
- Targeting X retirement capital at retirement
- Inadequate savings rates and contribution periods
- Retiring too early
- “De-risking” one’s pre- and post-retirement portfolio
- Annuity product choice
- Initial drawdown rate at retirement
- Drawdown strategies



Pitfalls of retirement planning...

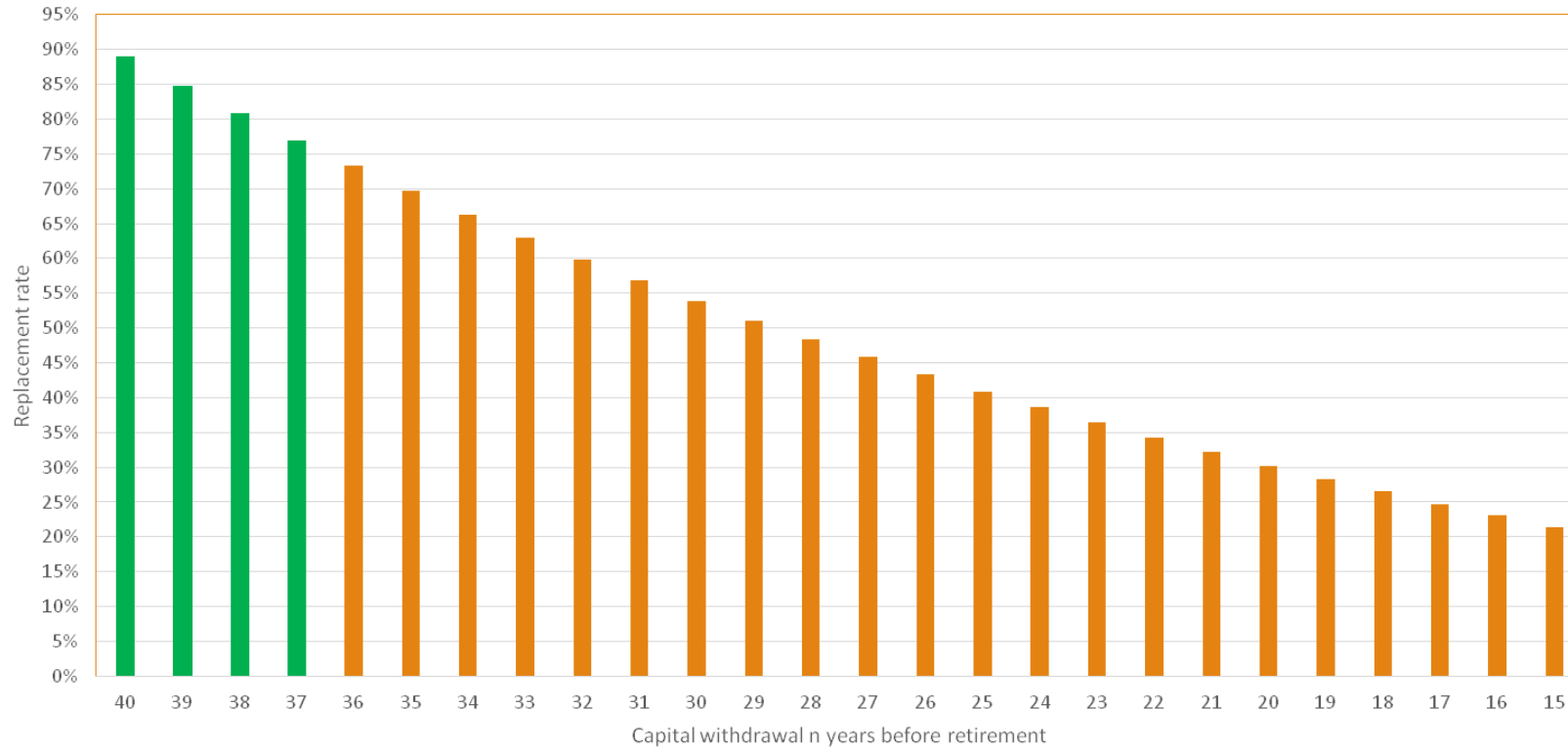
- How early withdrawals and investment costs (no value added) can wreck your retirement plan

Graphical illustration:

- Green bars = at least a 75% replacement rate at retirement
- Orange bars = not meeting a 75% replacement rate at retirement

“Party spoilers”early withdrawals n years prior to retirement...

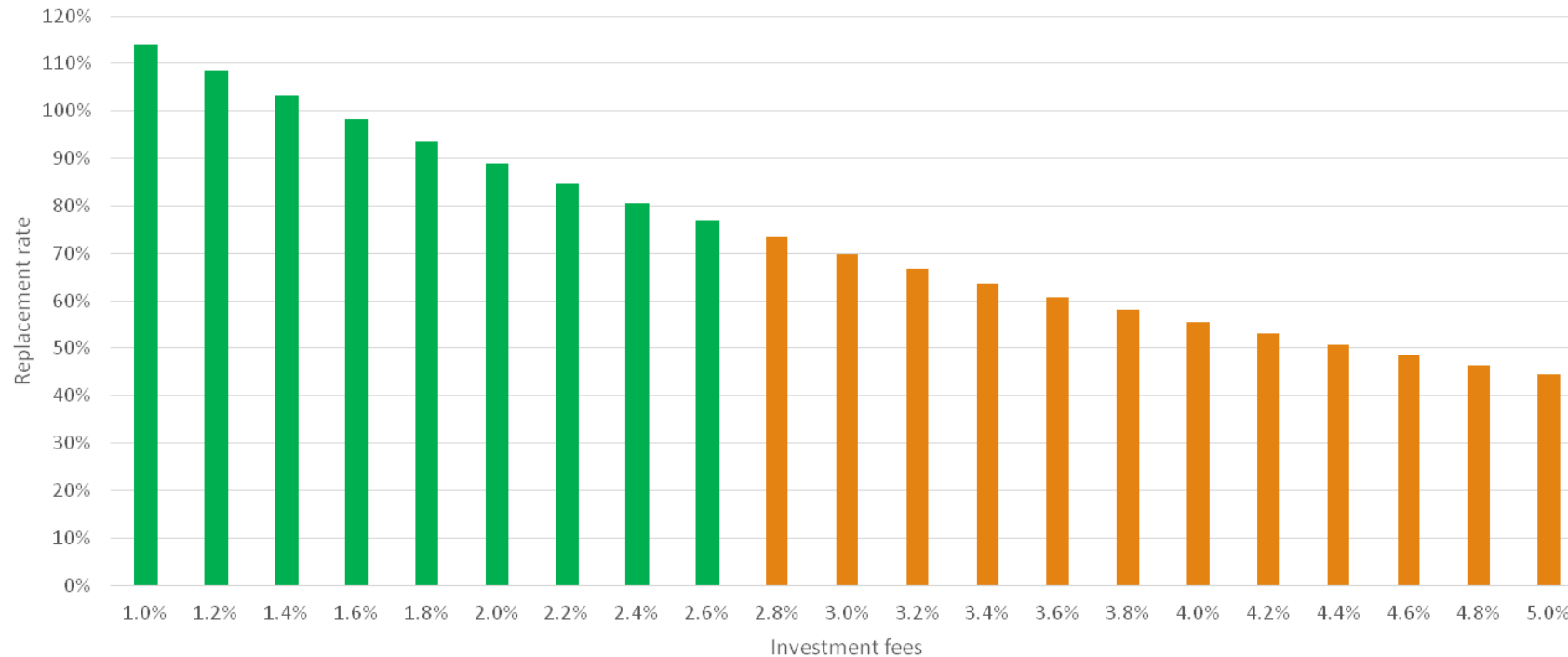
Sustainable replacement rate with retirement capital withdrawal made n years before retirement
Net real return = 4%, contribution period = 40 years, savings rate = 15%



“Party spoilers” ...investment costs[#]

Sustainable replacement rate at different levels of fund management, product, administrative and advice fees

Gross real return = 6%, contribution period = 40 years, savings rate = 15%



Assuming no value added

But how much cost can be “absorbed” by your plan really depends on your gross return assumption (and actual outcome)...ultimately you would need a certain net (after costs) portfolio return to attain some desired level of income replacement at retirement

Targeted replacement rate = 75%

The net real return required for different savings rates & contribution periods

Contribution period (years)	Savings rate (% of gross income)				
	10.0%	12.5%	15.0%	17.5%	20.0%
30	8.1%	6.9%	6.0%	5.1%	4.4%
35	6.3%	5.2%	4.4%	3.7%	3.0%
40	4.9%	4.0%	3.3%	2.6%	2.1%
45	4.0%	3.2%	2.5%	1.9%	1.4%



And when combined...

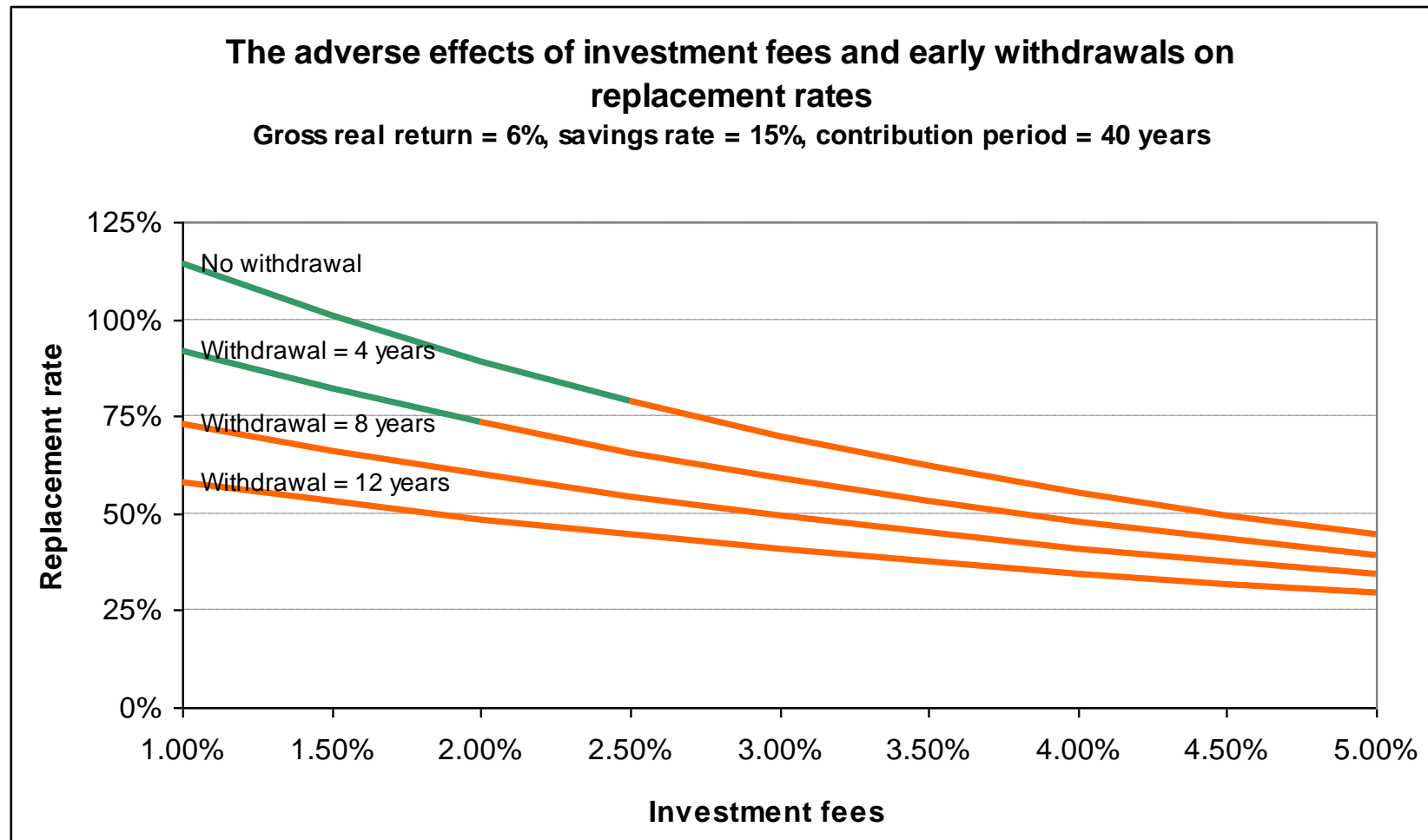
For example, gross real return = 6% p.a., contribution period = 40 years, savings rate = 15%

Replacement rate attained

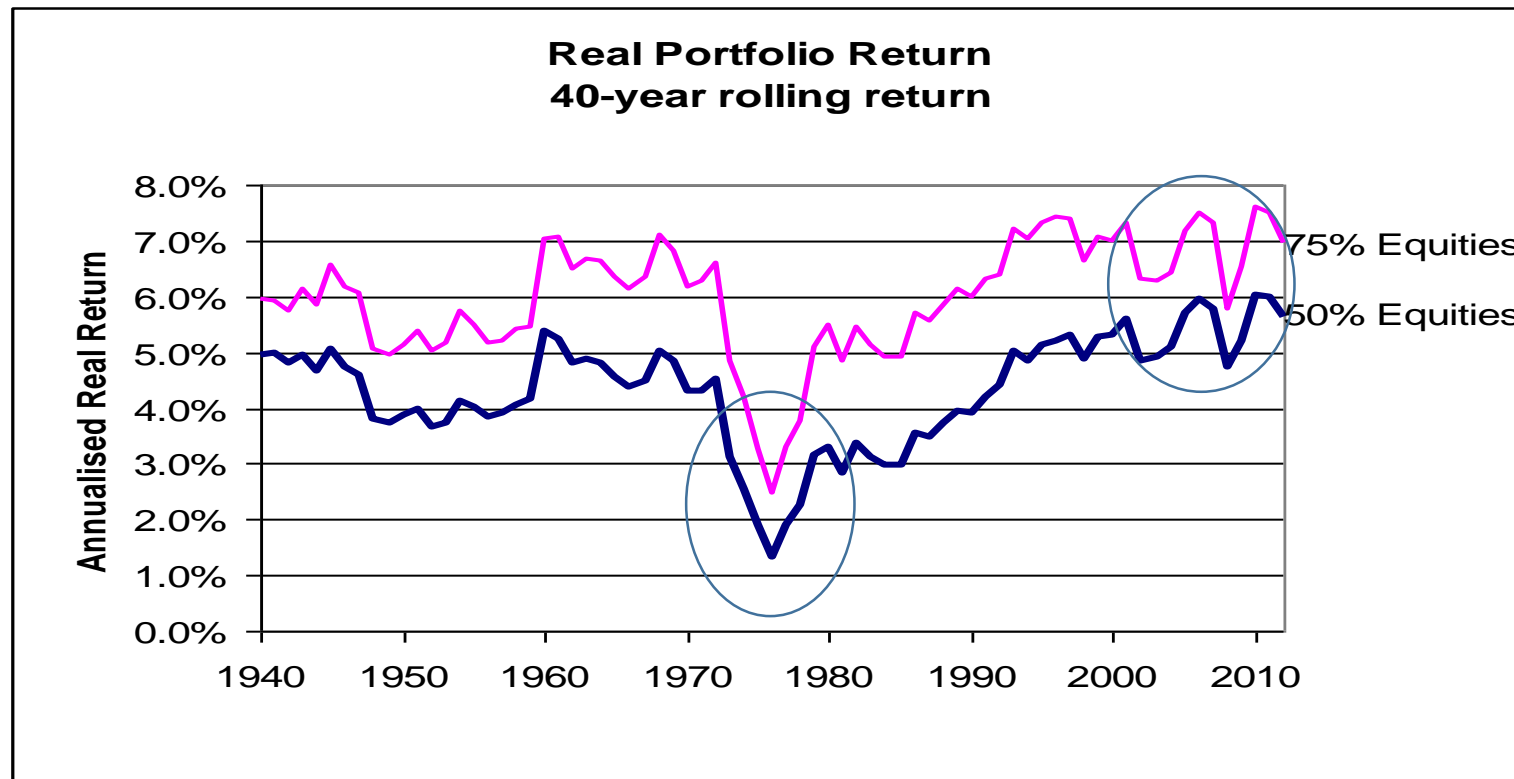


Charges	1.0%	1.5%	2.0%	2.5%	3.0%
No withdrawal	114%	101%	89%	79%	70%
Withdrawal after two years	102%	91%	81%	72%	64%
Withdrawal after four years	92%	82%	73%	66%	59%
Withdrawal after six years	82%	74%	66%	60%	54%
Withdrawal after eight years	73%	66%	60%	54%	49%
Withdrawal after ten years	65%	59%	54%	49%	45%
Withdrawal after twelve years	58%	53%	48%	44%	41%
Withdrawal after fourteen years	51%	47%	43%	40%	37%

Party spoilers...



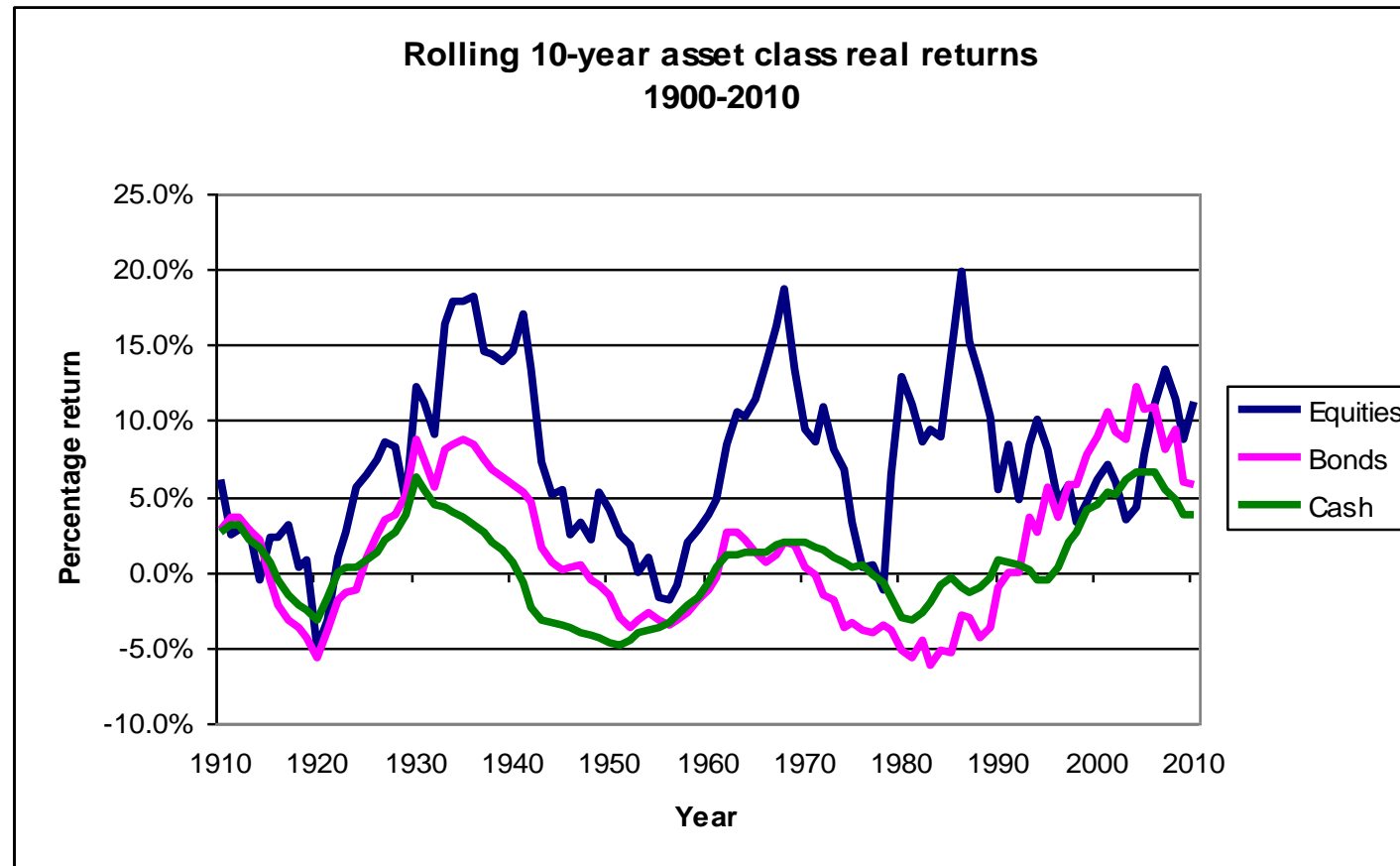
Faulty assumptions...long-term portfolio returns... not a constant!



It is convenient to use recent experiences of long-term real returns (5-7%) as the norm going forward, although it has been low as 1.5-2.5% in the past!

Long-term asset class real returns

The real returns of bonds and cash investments have increased significantly over the last decades, thus boosting overall portfolio real returns. But can those asset classes from current price levels still deliver the same real returns?



Regular (short-term) review of your investments: Does it lead to better investment behaviour and investor returns?

- Consider an investment portfolio with an expected return of 15% p.a. and 12% volatility (standard deviation)
- Annual review: **9 out of 10** years the investment will yield a positive return – most likely investors will be happy with performance
- Quarterly review: **c.75%** of periods will yield positive outcome, but is not 90%!
- Monthly review: **c.60%** of periods will yield positive outcome – nervous investors!
- Weekly (daily) review: **c. 50%** positive outcome - investor anxiety!

Over the short term investment appears risky and investors react, but losing out on the long-term returns

Investor returns versus fund returns – not the same thing, one is money-weighted, other is time-weighted...



	Investor Returns ¹					S&P 500	Barclays Aggregate Bond Index
	Equity Funds	Asset Allocation Funds	Fixed Income Funds	Composite Fund Investor	Inflation		
30 Year	3.79	1.76	0.72	2.47	2.70	11.06	7.36
20 Year	5.19	2.47	0.80	3.34	2.28	9.85	6.20
10 Year	5.26	2.25	0.69	3.51	2.13	7.67	4.71
5 Year	10.19	5.09	1.21	6.84	1.69	15.45	4.45
3 Year	14.82	7.15	0.72	9.57	1.34	20.41	2.66
12 Months	5.50	2.24	1.16	3.98	0.75	13.69	5.97

¹. Returns are for the period ending December 31, 2014. Average equity investor, average bond investor and average asset allocation investor performance results are calculated using data supplied by the Investment Company Institute. Investor returns are represented by the change in total mutual fund assets after excluding sales, redemptions and exchanges. This method of calculation captures realized and unrealized capital gains, dividends, interest, trading costs, sales charges, fees, expenses and any other costs. After calculating investor returns in dollar terms, two percentages are calculated for the period examined: Total investor return rate and annualized investor return rate. Total return rate is determined by calculating the investor return dollars as a percentage of the net of the sales, redemptions and exchanges for each period.

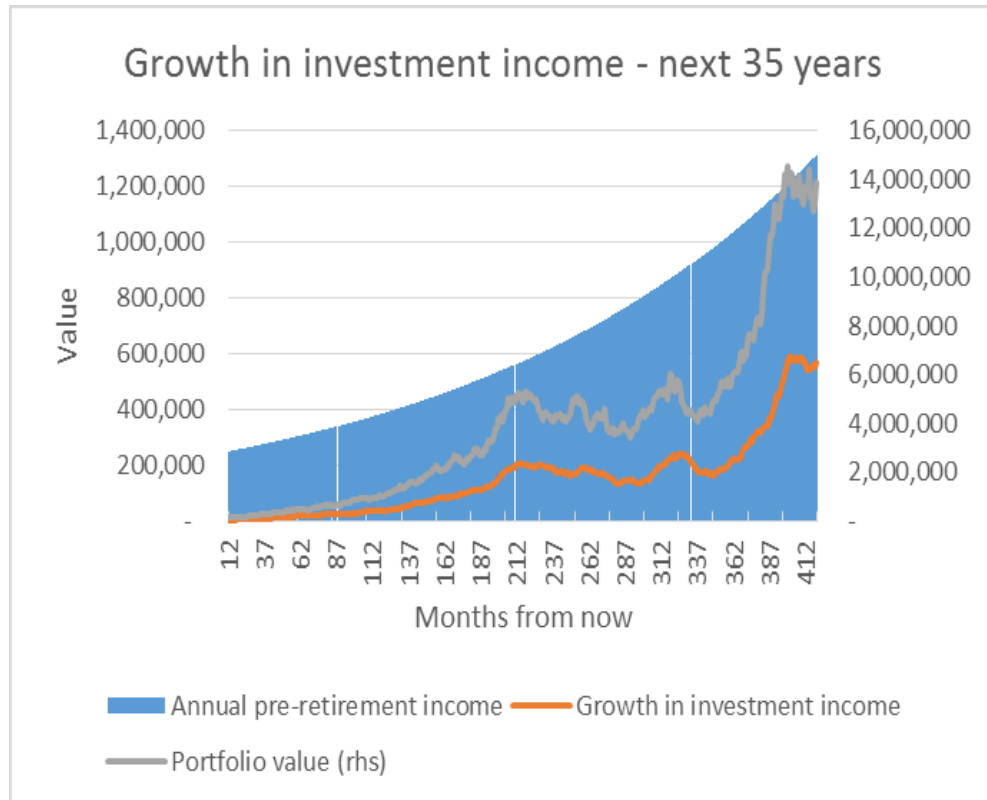
Reporting (feedback) to investors: Over-emphasising on investment returns, but not focusing on distribution (income) growth of portfolio...

- Capital gains (growth) are unpredictable; dividends, however, are much more reliable...
- For example, long-term average capital growth of equities = 1.1% per month, but with a standard deviation of 5.4% (19% p.a.)
- Dividend yield = 3% p.a. and monthly volatility of only 0.6% (2.1% p.a.)

Consider the following example...

- Inflation p.a. = 5%
- Salary/Income growth = 5%
- Net Savings Rate (percentage of gross income) = 12.5%
- Current annual income = 200,000
- Years to retirement = 35
- Investment portfolio: 50% dividend-paying equities, 15% properties, 35% fixed interest
- Expected portfolio return = 10.8% p.a. and volatility = 15%
- Current income yield = 4% p.a. and volatility = 2.8%

The concept of “income coverage” ...




Value at retirement	13,863,199
Present Value at retirement (PV)	2,417,837
Final year's income pre-retirement	1,313,337
Ratio of capital to income	10.56
Annual income from investment at retirement	776,882
Coverage	0.59
Yield from investment at retirement	5.6%

Coverage = income/distributions from investment portfolio covering one's income need at retirement

Income/salary increases with inflation (blue bar), changes in portfolio value (grey line) more volatile than distribution growth (orange line). At retirement, income distribution from investment about 60% of pre-retirement income.

What is an adequate “income coverage” ratio?

For how many years will my retirement plan be able to sustain inflation-adj. income needs?



Coverage	0.4	0.5	0.6	0.7	0.8	0.9	1
Less than 10 years	73%	31%	11%	5%	1%	0%	0%
Between 10 and 15 years	19%	32%	25%	16%	7%	4%	2%
Between 15 and 20 years	5%	16%	22%	17%	12%	8%	5%
Between 20 and 25 years	1%	7%	10%	14%	12%	9%	8%
Between 25 and 30 years	1%	4%	6%	9%	8%	9%	6%
30 years and more	1%	9%	26%	39%	60%	70%	79%

Adequate coverage = at least 0.8 or 80% of income need at retirement can be provided by distributions/income of investment portfolio

Note, when planning for retirement, financial planners often use constant return assumptions, but the reality is very different!

e.g. How much to save to reach certain amount of retirement capital (or factor of final salary) at retirement n years from now?



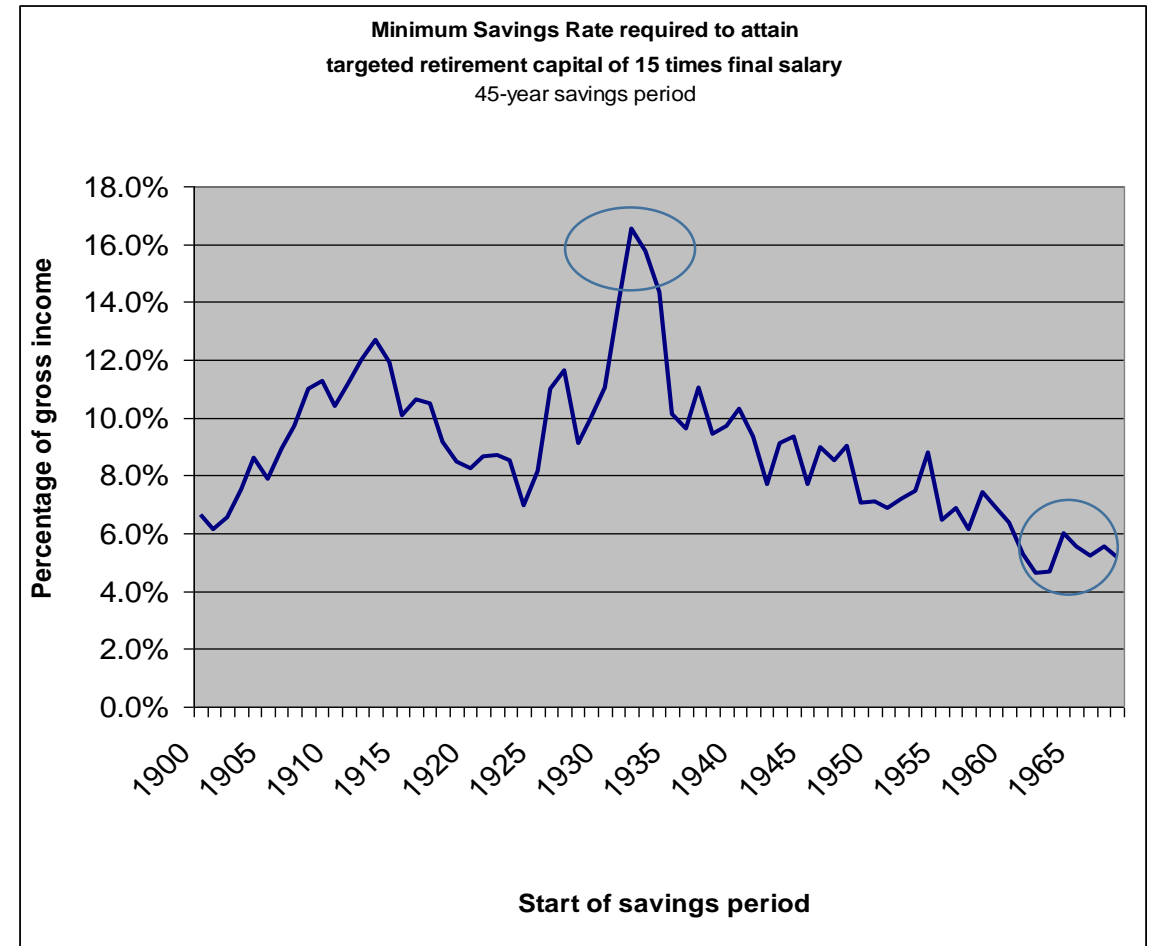
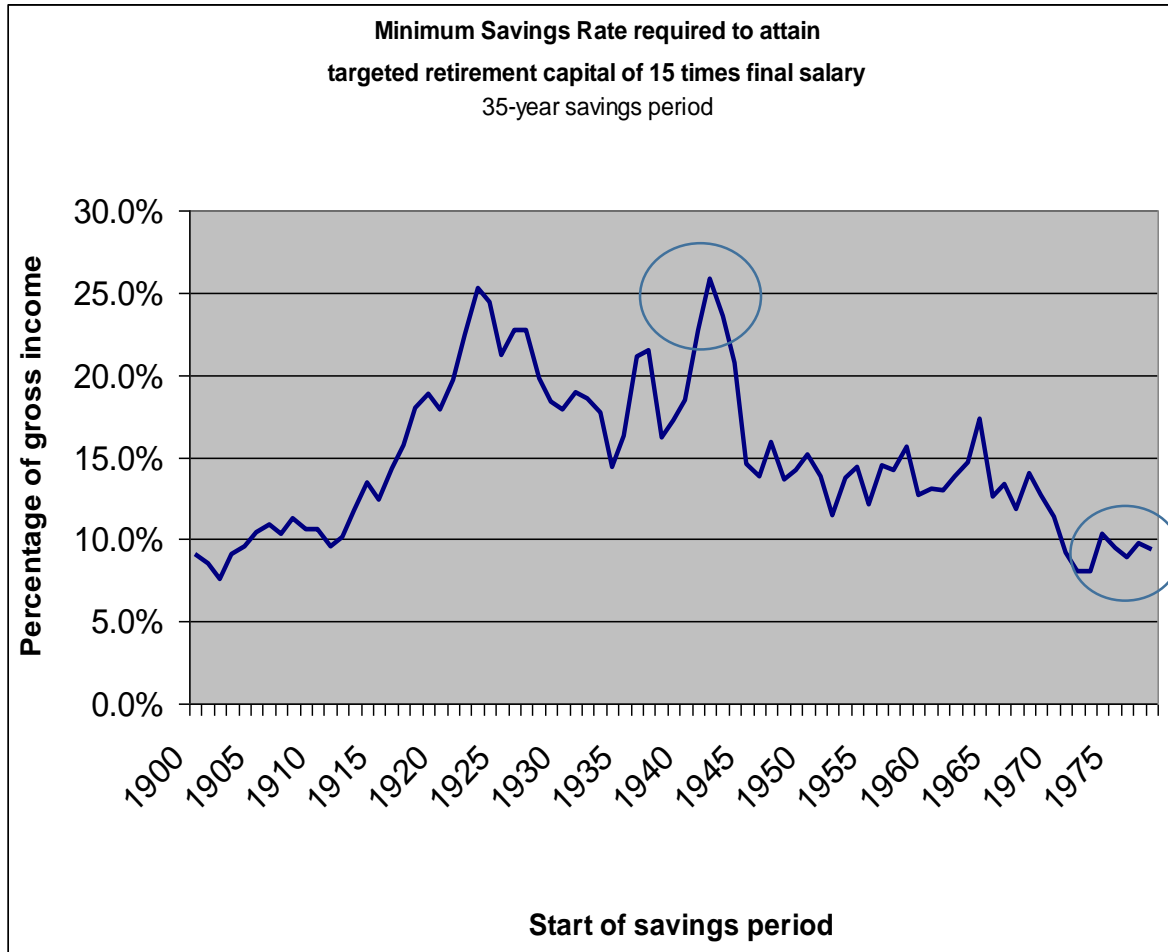
It may be convenient to use a fixed number for your retirement goal, but just as easy way off the mark....

For example, what should one's savings rate be to achieve a retirement amount target of 15 times final salary...based on historical market returns it would have been as high as 25% for 35-year period or 16% over a 45-year period!

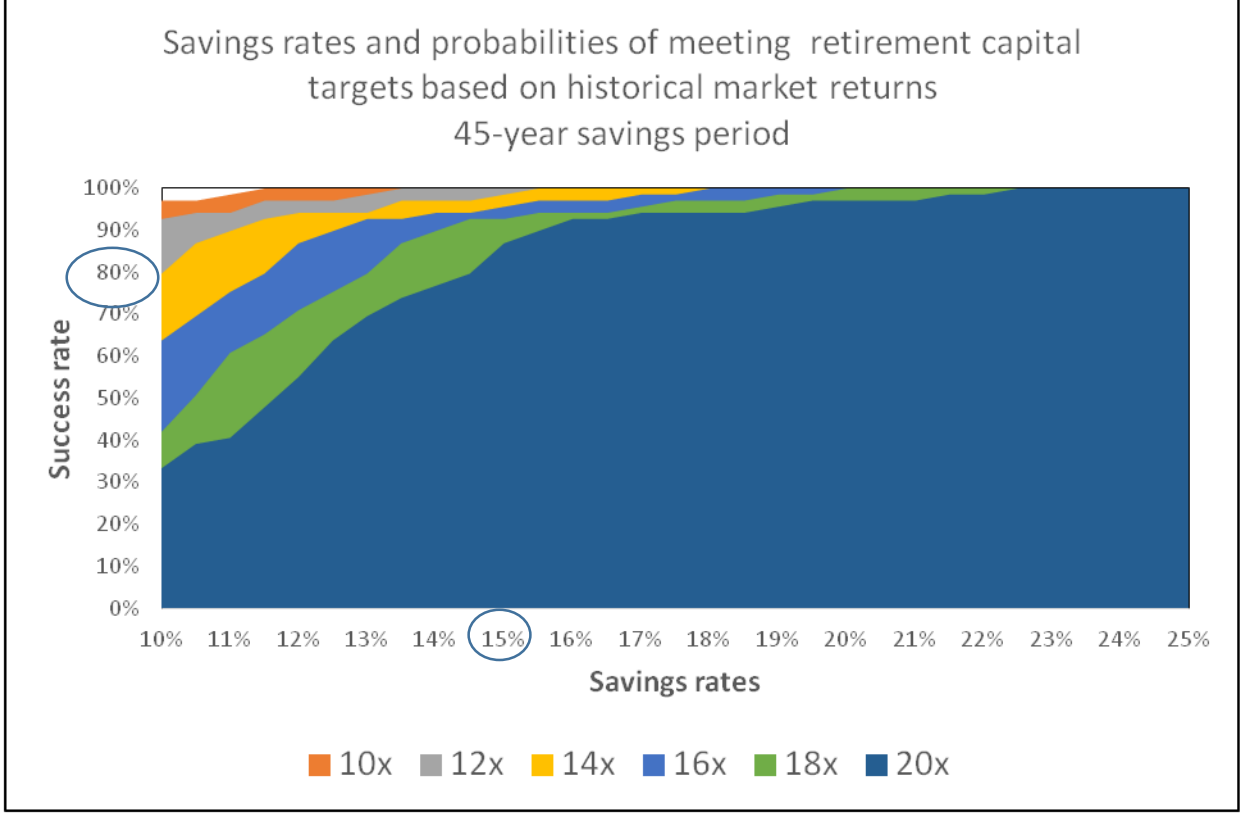
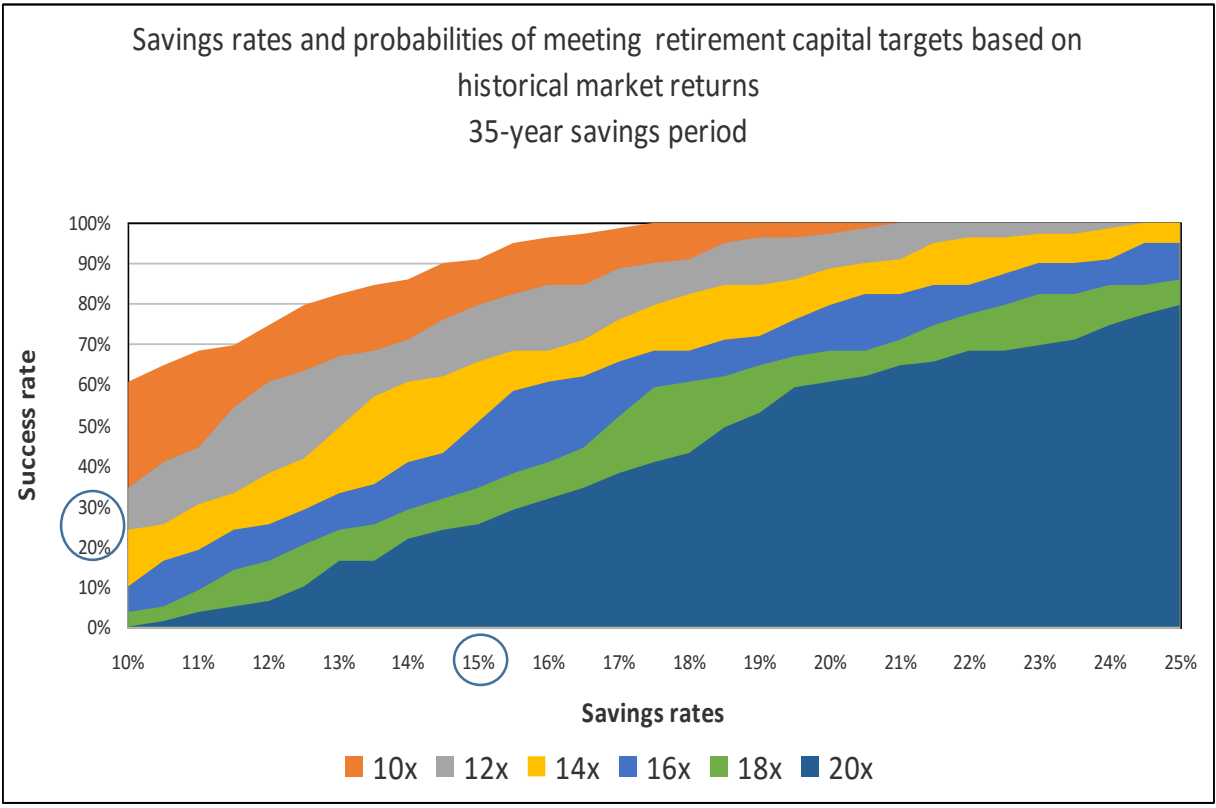
It is actually not such a reliable indicator...it really depends on the market returns you'll experience...

But the longer the period you're saving (contribution period), the more likely it is to reach the target and at achievable savings rates...

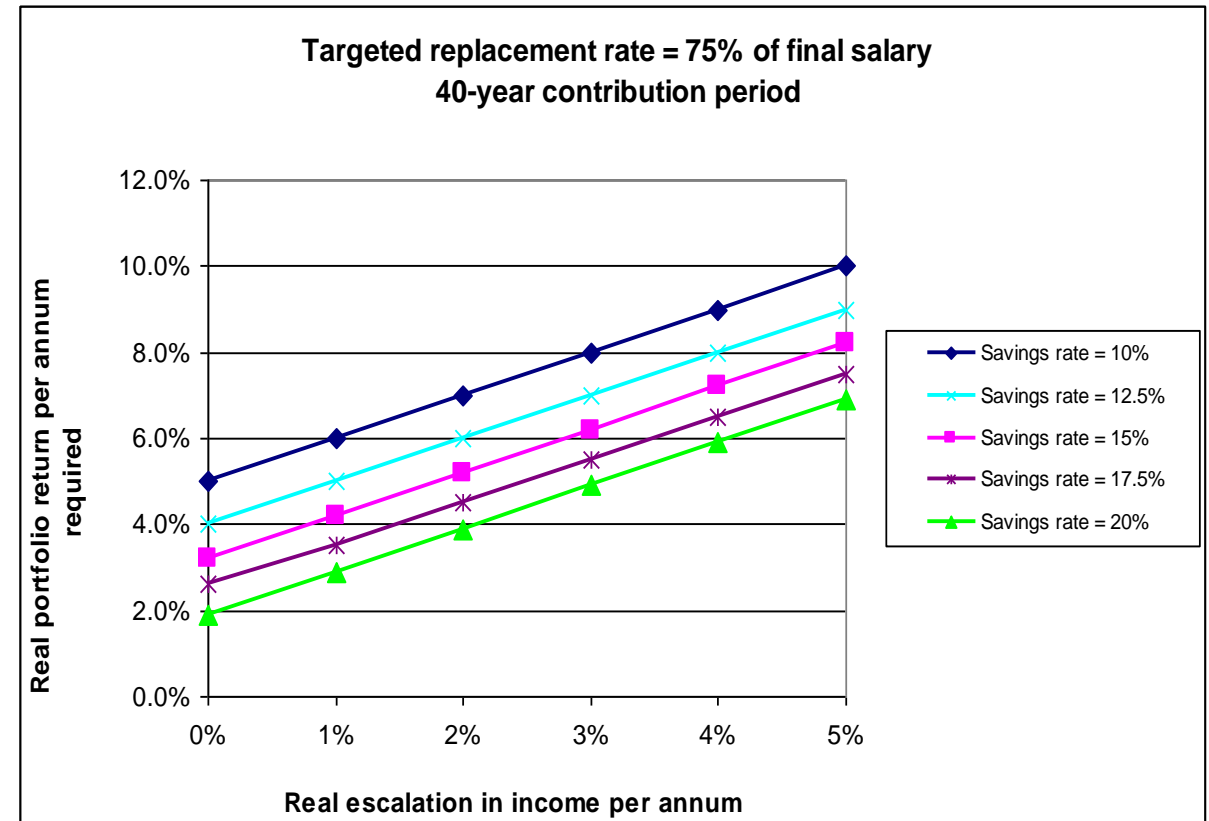
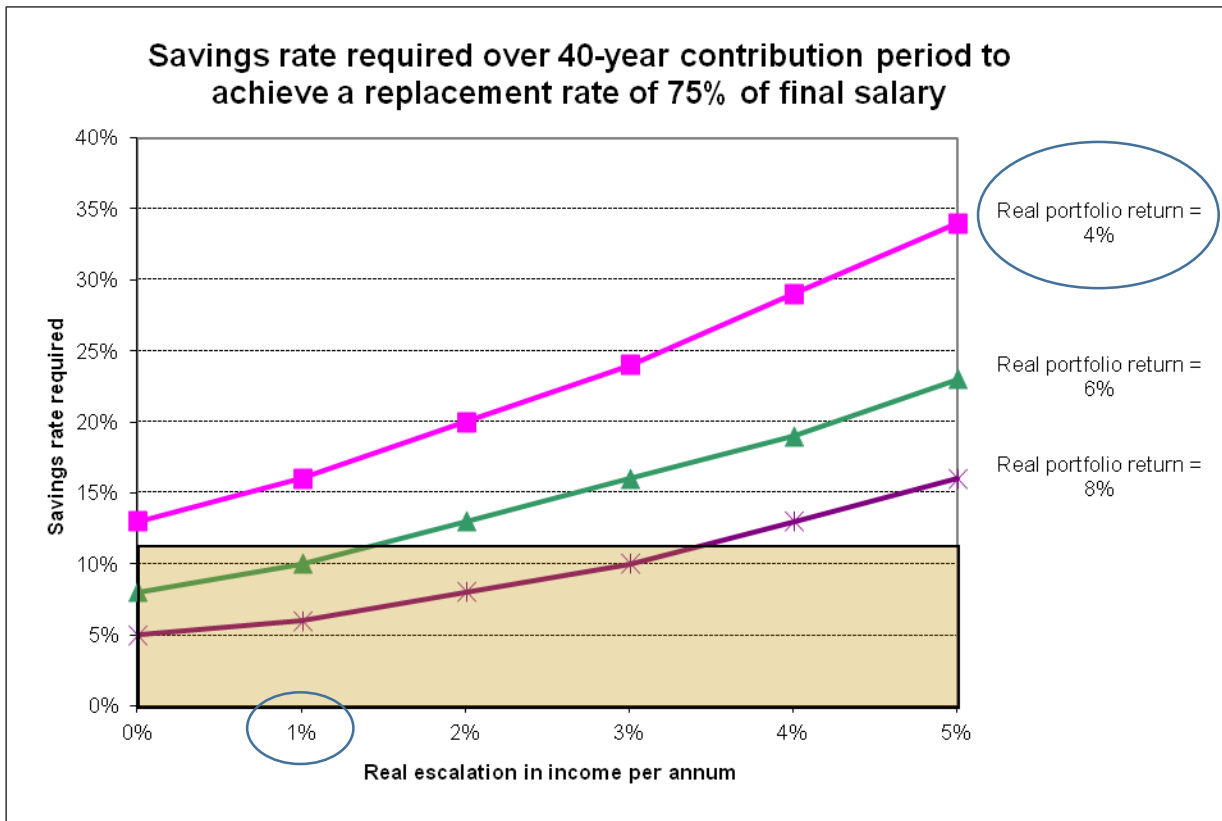
Targeting x amount of retirement capital at retirement... at retirement...



Saving for retirement...contribution period (term) is the key...



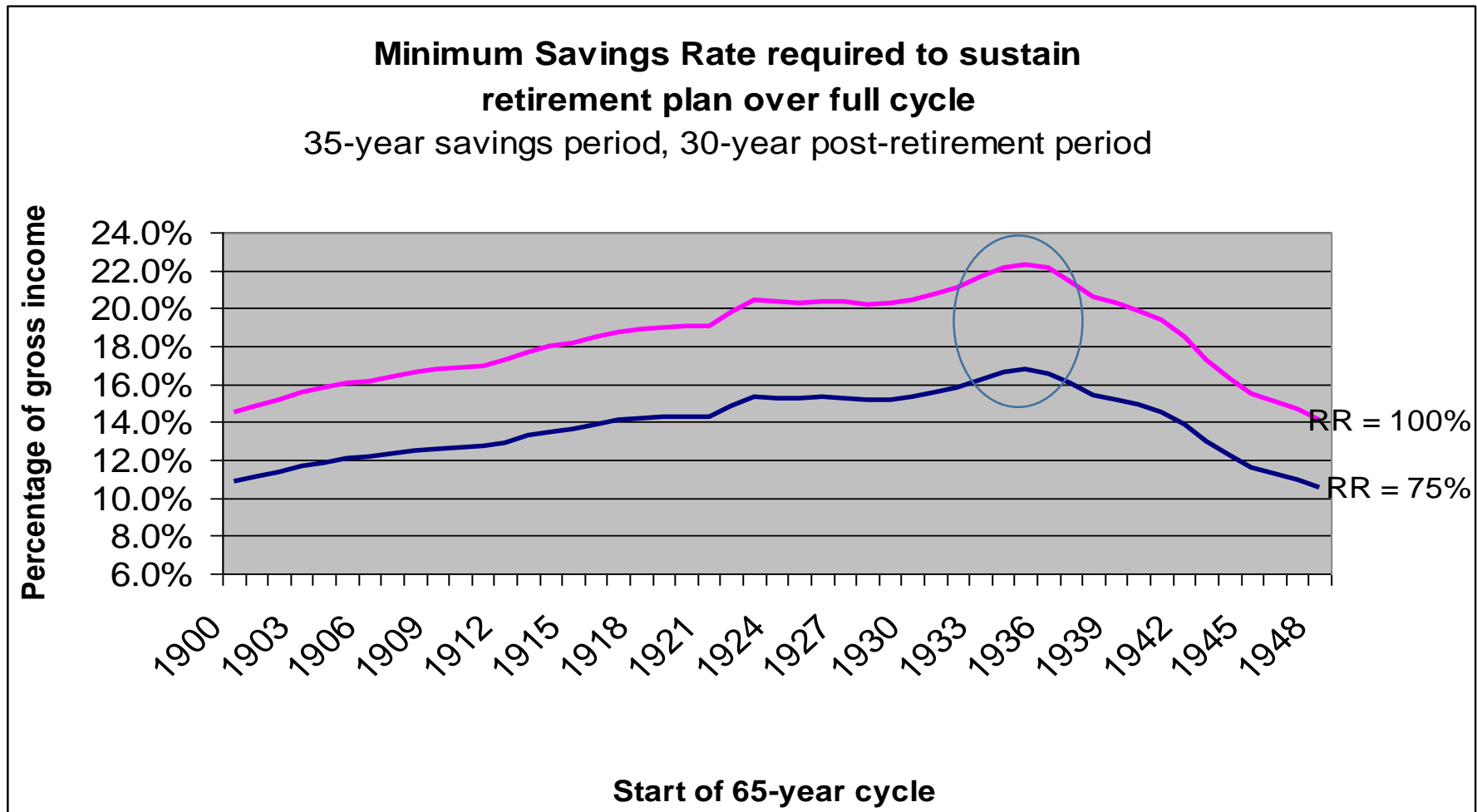
Saving for retirement...what if my annual gross income escalates faster than the inflation rate?



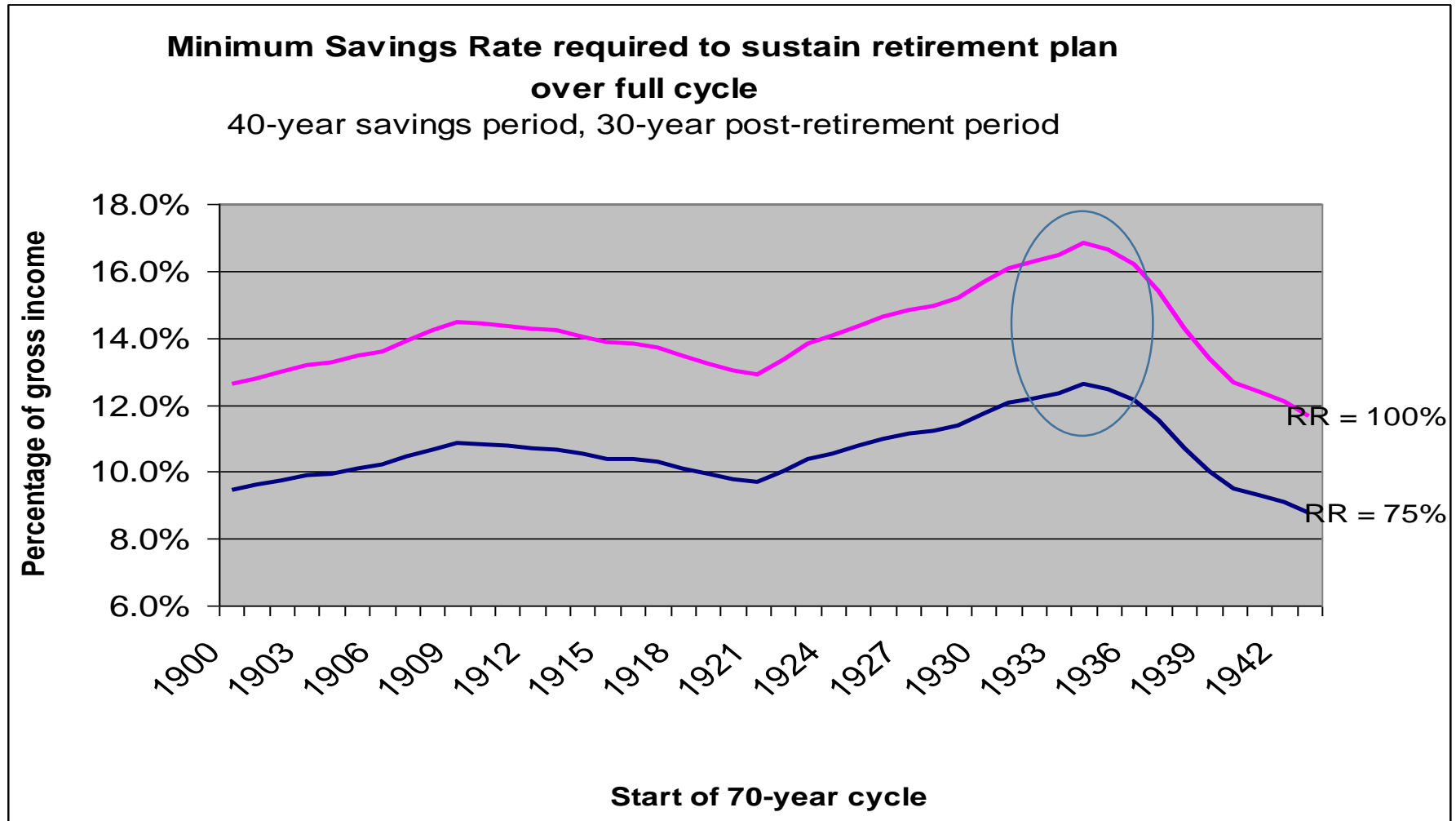
An Alternative...

What if one could have look at the full retirement cycle – both the accumulation and drawdown periods – and then determine how much (based on historical market returns) one needed to save for a sustainable retirement plan – “safe” savings rate

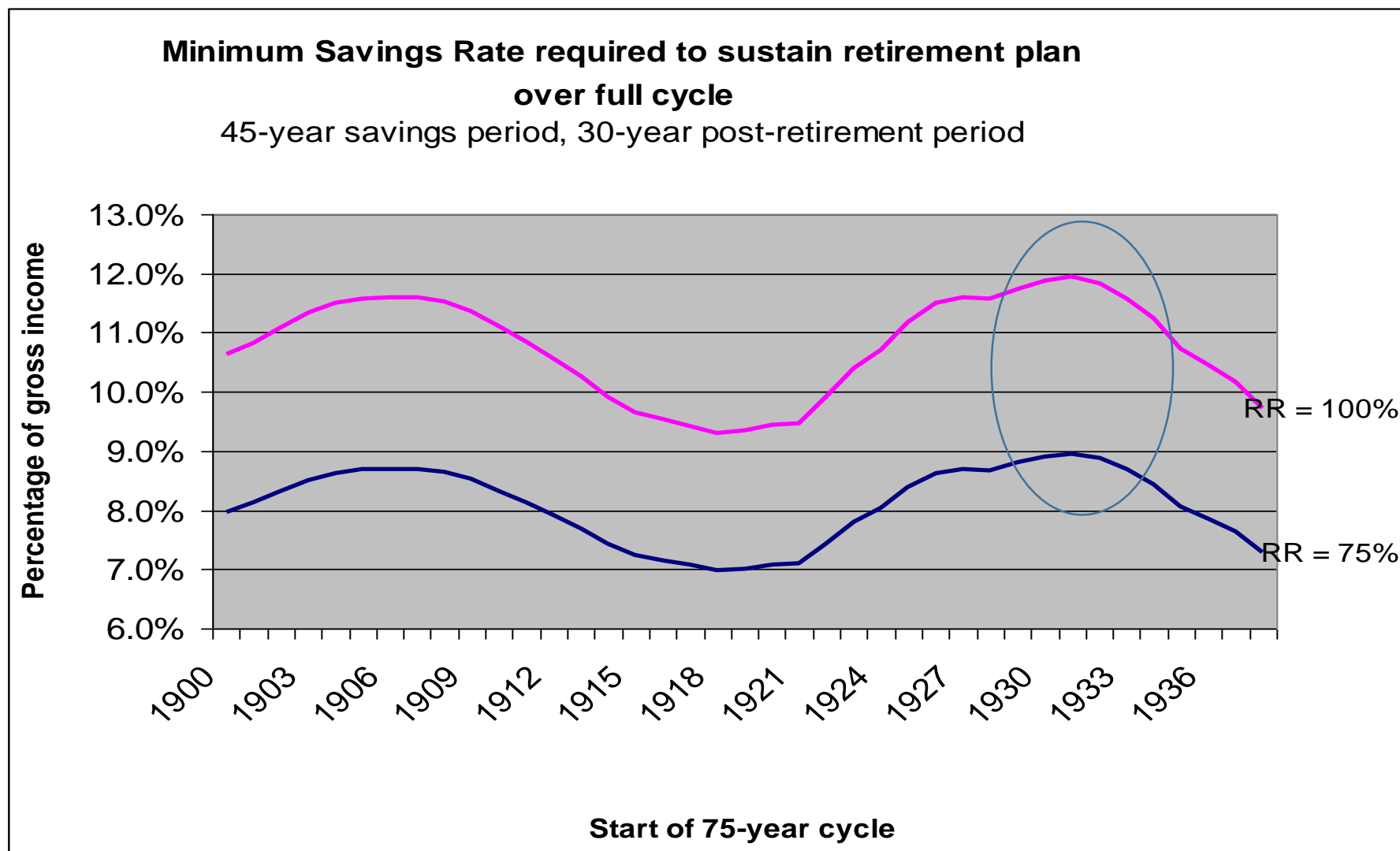
“Safe” savings rates...



“Safe” savings rates...



“Safe” savings rates...



Safe savings rates

Investment portfolio 60% equities, 25% bonds, 15% cash

Contribution period	Replacement rate = 75%	Replacement rate = 100%
35 years	17.0%	22.7%
40 years	12.9%	17.2%
45 years	9.1%	12.1%

Investment portfolio 70% equities, 20% bonds, 10% cash

Contribution period	Replacement rate = 75%	Replacement rate = 100%
35 years	13.7%	18.3%
40 years	10.1%	13.5%
45 years	6.8%	9.1%

Safe Savings Rates

For example, a portfolio of 60% invested in equities, contribution period of 40 years, the savings rate required would be 12.9% and 17.2% for replacement rates of 75% and 100% respectively.

Thus, looking from this (look-through) perspective, a sustainable retirement plan is achievable, but the challenge will be to keep investors calm during periods of market volatility / poor returns, and not worry too much whether they will achieve their expected retirement capital targets at retirement.

Nearing retirement...

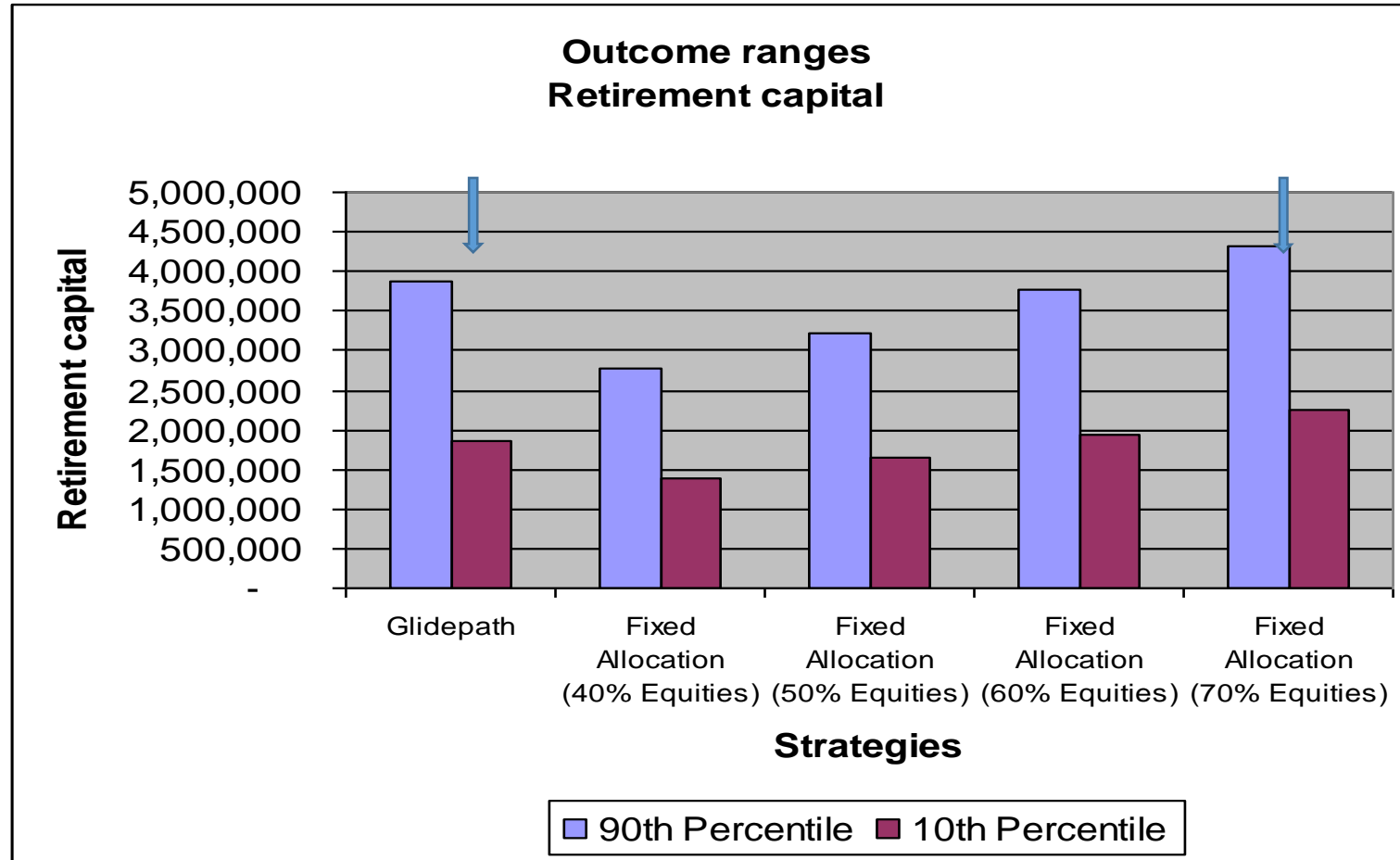
“Life-stage” (glide-path) approach?

“De-risking” your investment portfolio

- “Risk comes from not knowing what you're doing” [Warren Buffett]
- “In investing, what is comfortable is rarely profitable” [Robert Arnott]
- “To be alive at all involves some risk” [Harold MacMillan]
- “Adventure without risk is Disneyland” [Doug Coupland]
- “Investing means putting your money on something that has a good chance of winning in the short to medium term, and an even better, if not dead-certain, chance of winning in the long term”
[Paul Clitheroe]

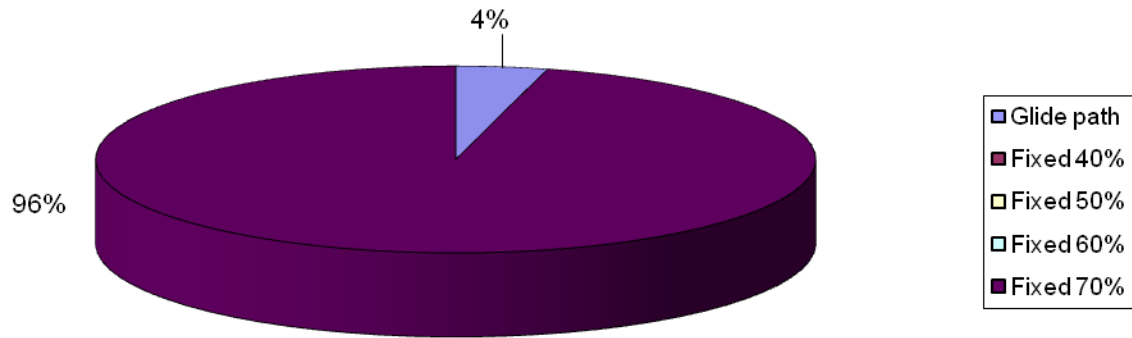


“Life-stage” versus a fixed asset allocation approach...

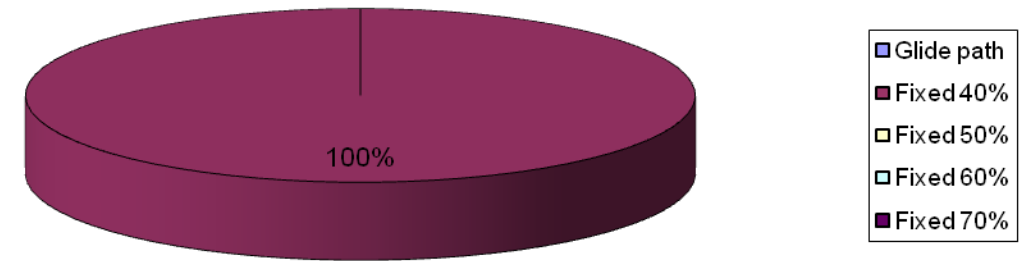


“Life-stage” versus a fixed asset allocation approach...

Asset Allocation Strategies
Best outcome

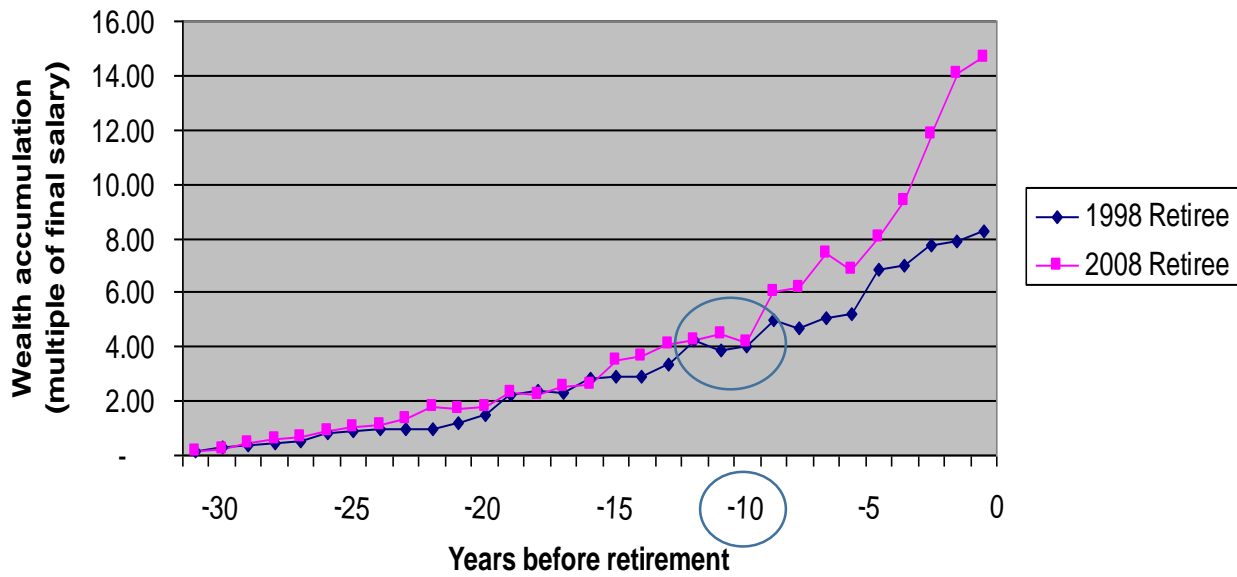


Asset Allocation Strategies
Worst outcome

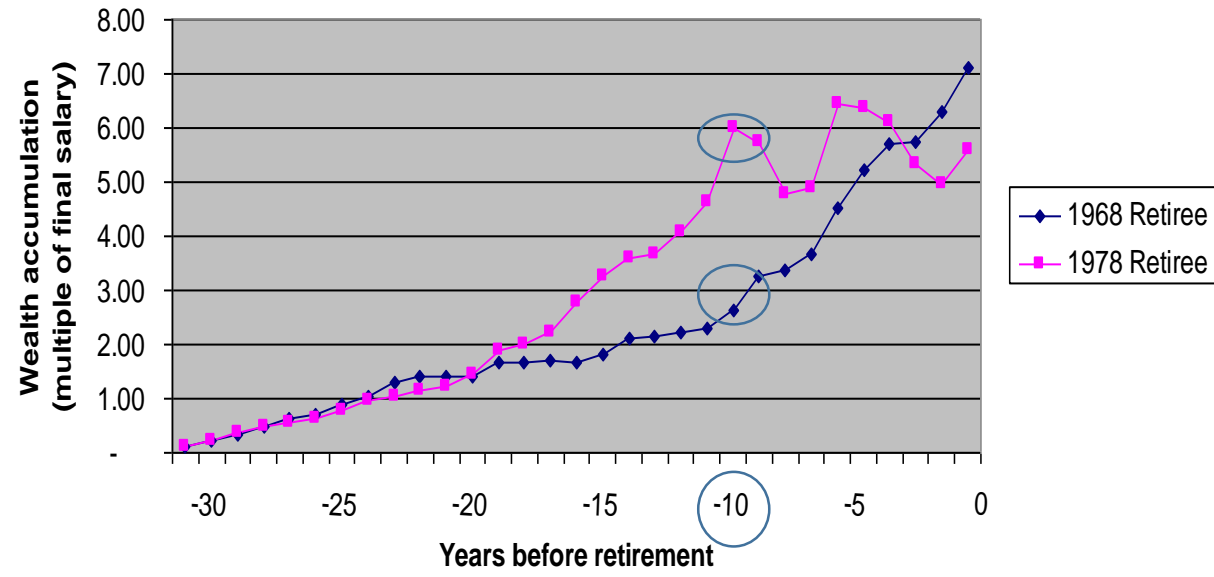


Nearing retirement...what do we know? Actually not a lot...

Am I on track?
The luck of the draw



Am I on track?
The luck of the draw



The luck of the draw...

Consider the tale of four potential retirees, ten years from their retirement, each retiring in different decades. First example, two retirees (1998 and 2008 retiree) have basically the same retirement value ten years before retirement. Are they heading for a comfortable retirement?

Well, the 2008 retiree was very lucky because in the next decade (1998-2008) fantastic market returns was achieved, the 1998 retiree was not as lucky and retired on a retirement wealth multiple of only 8 times – remember both invested and contributed the same amount of monies during their last ten years.

Now consider a more extreme example. Ten years before retirement, the 1978 retiree accumulated retirement wealth of 6x final salary versus the 1968 retiree that had only a multiple of 2-3 times. Guess what happened in their respective final ten years before retirement. The 1968 retiree accumulated more retirement capital because of much more favourable market returns. The luck of the draw!

Nearing retirement...predictability of final retirement values n years from retirement...

Years prior to retirement	Portfolio exposure to risky assets					
	0%	25%	50%	60%	75%	100%
-10	0.20	0.14	0.10	0.10	0.08	0.07
-9	0.29	0.20	0.13	0.13	0.10	0.07
-8	0.39	0.28	0.17	0.16	0.12	0.09
-7	0.50	0.37	0.23	0.21	0.15	0.12
-6	0.60	0.47	0.29	0.26	0.19	0.15
-5	0.70	0.56	0.36	0.31	0.23	0.17
-4	0.79	0.66	0.45	0.39	0.28	0.20
-3	0.86	0.75	0.55	0.49	0.38	0.29
-2	0.92	0.85	0.69	0.64	0.54	0.44
-1	0.97	0.94	0.86	0.83	0.76	0.69



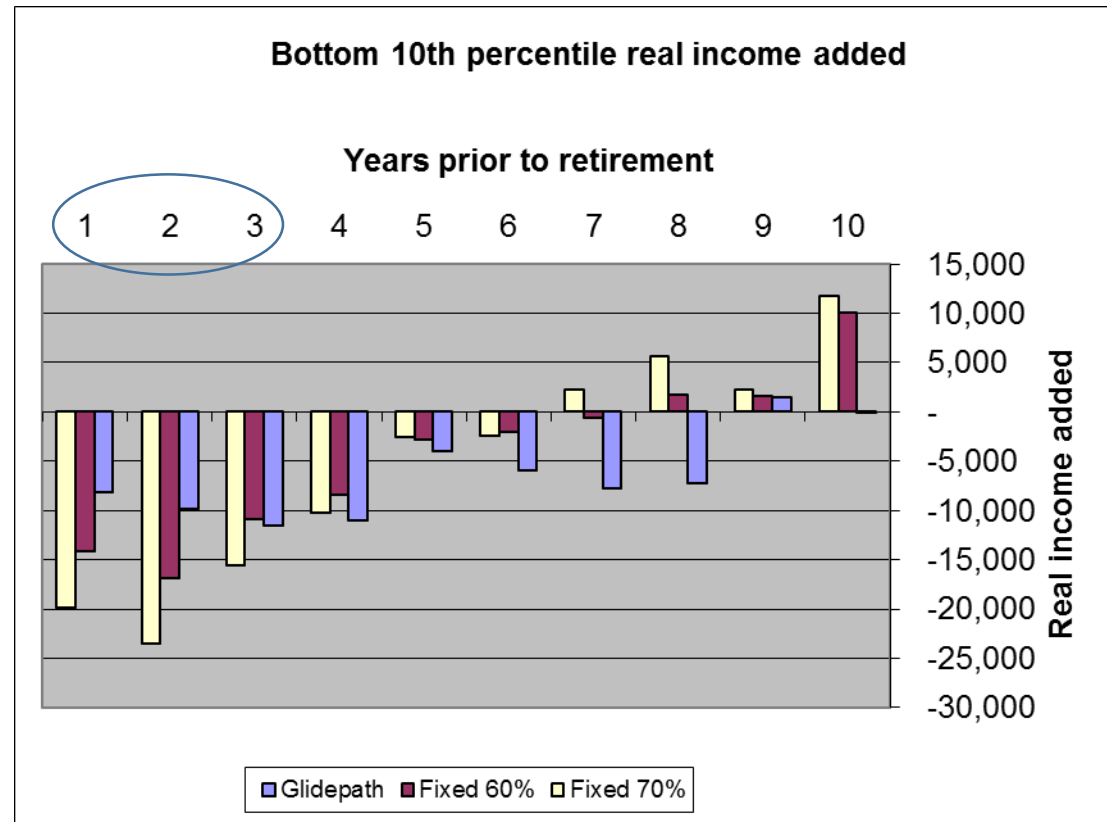
Nearing retirement – when do you know what to expect...

Refer to table on previous page...

Green areas indicate the significance of confidence in the predictability of final retirement values, depending on the portfolio choice.

No risky assets, up to seven years before retirement one will have a good idea of final values whereas with a portfolio of 60 -70% risky assets, one will have some confidence only 2-3 years before retirement.

But life stage approach not without merit...



- It's better than no strategy!
- Protecting value at least in the immediate years prior to retirement

Retirement age...should not be cast in stone

Age	Value	Annuity p.m.
62	1,000,000	4,167
63	1,091,134	4,546
64	1,190,527	4,961
65	1,298,924	5,412
66	1,417,140	5,905
67	1,546,061	6,442
68	1,686,654	7,028
69	1,839,973	7,667
70	2,007,166	8,363

- Not retiring when you are supposed to will make a big difference in your post-retirement income!
- Continuous learning, improving your skill set, staying relevant in the workplace...and good health!

Assuming person earns 100,000 that escalates 5% each year, contribution (savings) rate of 12%, and investment portfolio grows by 9% p.a.



“Safe” Retirement Age

Can I retire at my planned retirement age, given what I’ve accumulated thus far?

For example, I’m age 55, ten years from retirement, the value of my retirement savings is currently 13 times my income needs. Based on historical market returns (and 90% probability of success) could I retire at 65 years of age?

“Safe” retirement age...current age & accumulated retirement savings

90% Success Rate (based on historical market returns)

Safe Retirement Age	Age 						
Retirement wealth multiple now	Age 40	Age 45	Age 50	Age 55	Age 60	Age 65	Age 70
-	77	78	81	83	85	86	88
3	71	73	76	78	81	83	85
5	66	69	72	74	78	80	83
8	62	65	69	72	75	78	81
11	59	63	67	70	73	76	78
 13	57	61	64	68	71	74	76
16	54	58	62	65	69	72	73
19	52	56	60	63	67	69	71
21	50	54	58	61	64	66	70
24	48	52	55	59	62	65	70
27	45	49	53	56	60	65	70
29	43	47	51	55	60	65	70
32	41	45	50	55	60	65	70

Retirement wealth multiple = ratio of investment value to income need

At retirement: Product choice/investment vehicle

- Guaranteed life annuity (GLA) - single life, joint life, annuity guaranteed by life assurer, no capital available on death of annuitant or surviving spouse
- Living annuity (ILLA) – choose your own investment portfolio, withdrawal (drawdown) rate, flexibility, transferability of plan to next generations/beneficiaries, longevity and market risks

Retirement and two primary objectives

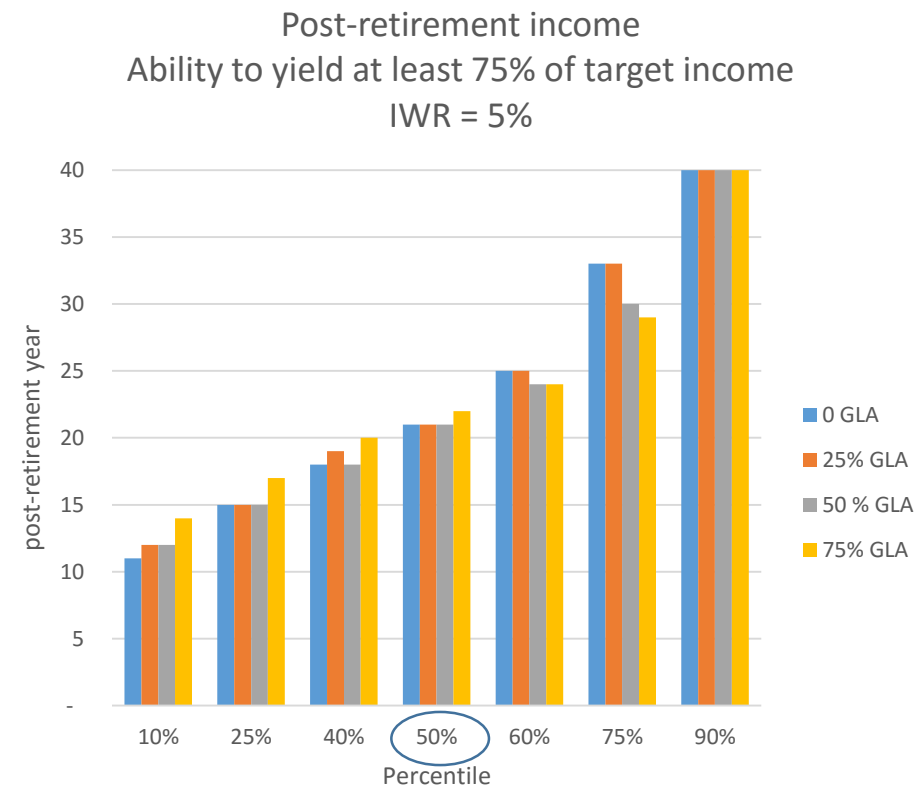
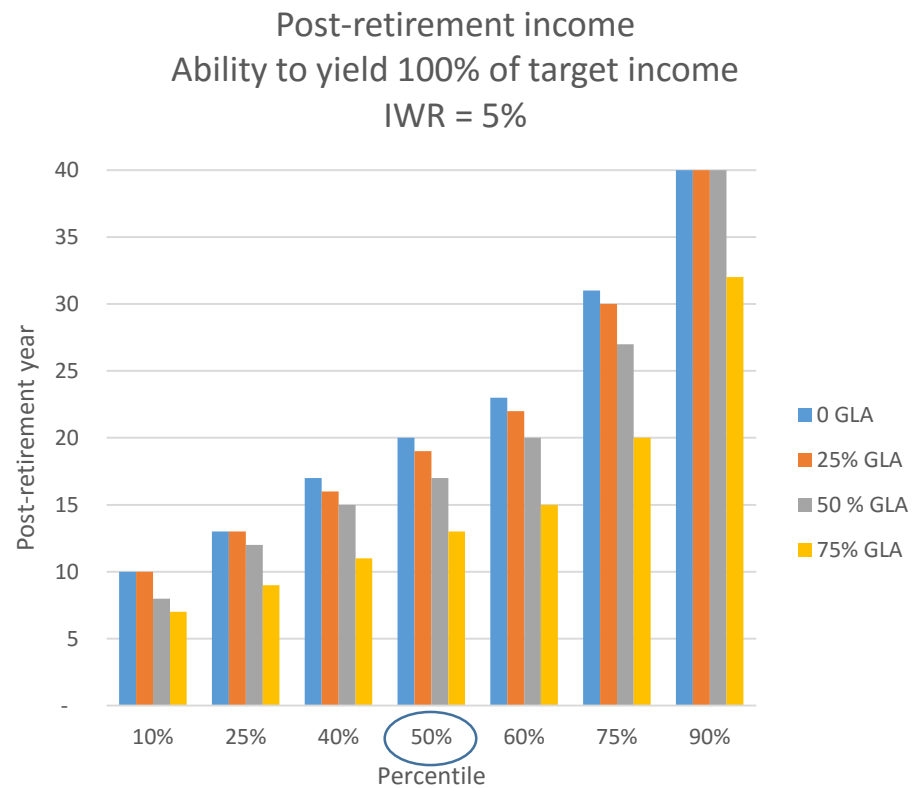
- Annuity/retirement income: Surety of income for the rest of retirement life, and meet increasing income needs (longevity risks)
- Capital availability on death: Will my kids/beneficiaries be able to inherit remainder of pension value (legacy capital)?

Testing different combinations of GLA and ILLA in a retirement plan

- Meeting the income need target (100% , 75%)
 - After x post-retirement years, how much of the income target is provided by the plan?
- Legacy capital available after 10, 15, 20, 25, 30, 35 and 40 years of retirement
 - How much retirement capital will be available after x number of years?
 - Expressed as percentage of original retirement capital
- Test each combination of LA and GLA against **5% initial withdrawal rate**
 - Situation 1 = 100% living annuities, 0% GLA
 - Situation 2 = 75% living annuities, 25% GLA
 - Situation 3 = 50% living annuities, 50% GLA
 - Situation 4 = 25% living annuities, 75% GLA
- Joint-life GLA 4.5% annuity rate, and escalates by 5% p.a.

Target income objective

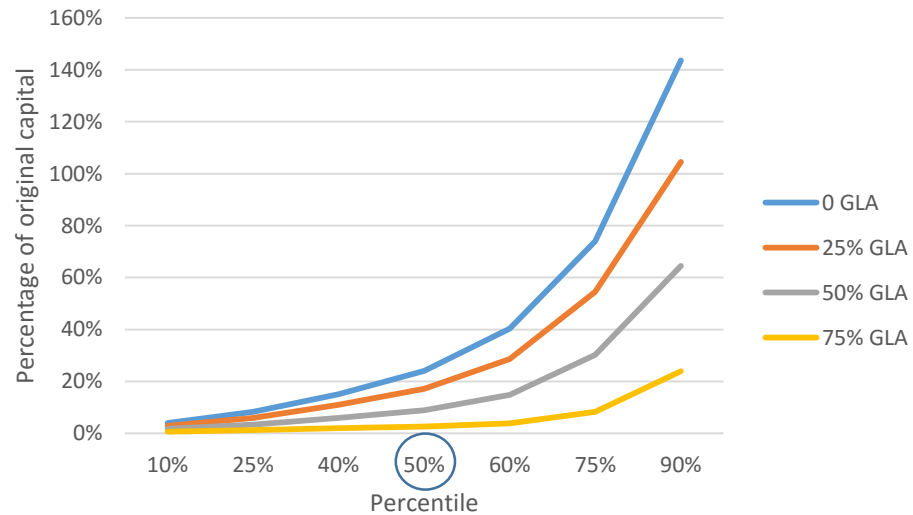
Initial withdrawal rate = 5%, thereafter escalates with inflation



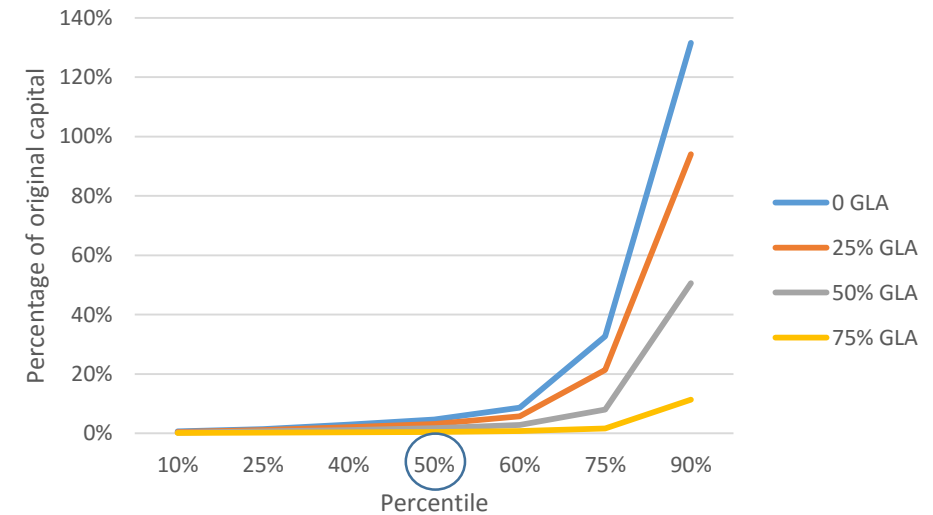
Legacy capital objective

Initial withdrawal rate = 5%, thereafter escalates with inflation

20th year post-retirement
Legacy capital
IWR = 5%



30th year post-retirement
Legacy capital
IWR = 5%



Which retirement product?

In most instances, an ILLA would serve retirees better in terms of retirement income and legacy capital objectives, especially during “average” to “optimistic” outcome episodes.

Note, however, that the inclusion of an GLA in the retirement plan would have been a better option when experiencing “pessimistic” outcomes , e.g. safeguard at least 75% of targeted income for longer than an ILLA product only.

Also, for those retirees that would have had an extended post-retirement period, the differences in legacy capital between the various options would most likely diminish.

The value of GLA

- Won't lead to better performance or outcome under “normal” or “optimistic” market conditions, but it act as an insurance policy against dire outcomes, “unforeseen” events.
- Thus, it should not be discarded as a viable option...
- What if we're going to experience below-normal market returns or we are going to live much longer than we expect today?

“Safe” drawdown rates at retirement...

How much income as a percentage of available retirement capital can be withdrawn at the onset of your retirement plan?

Thereafter, income should increase in line with inflation rate.

Thus, given a certain initial withdrawal rate, consider the success or survival rate of the retirement plan at various post-retirement intervals...

At retirement.... “Safe” drawdown rates

Success rate...based on historical market returns

Low-equity portfolio

25% equities, 75% bonds and cash

Withdrawal rate	9%	8%	7%	6%	5%	4%	3%	2.50%
After 5 years	91%	100%	100%	100%	100%	100%	100%	100%
After 10 years	23%	39%	60%	87%	100%	100%	100%	100%
After 15 year	4%	16%	24%	46%	71%	100%	100%	100%
After 20 years	2%	2%	10%	20%	48%	78%	100%	100%
After 25 years	1%	2%	2%	10%	29%	65%	96%	100%
After 30 years	0%	1%	2%	4%	17%	55%	89%	100%

Success rate...initial drawdown rate at retirement

Medium-equity portfolio

50% equities, 50% bonds and cash

Withdrawal rate	9%	8%	7%	6%	5%	4%	3%	2.50%
After 5 years	91%	100%	100%	100%	100%	100%	100%	100%
After 10 years	34%	55%	76%	90%	100%	100%	100%	100%
After 15 year	21%	29%	39%	65%	87%	100%	100%	100%
After 20 years	7%	18%	30%	49%	68%	96%	100%	100%
After 25 years	2%	6%	18%	35%	59%	85%	100%	100%
After 30 years	2%	2%	11%	30%	54%	78%	99%	100%

Success rate...initial drawdown rate at retirement

High-equity portfolio

75% equities, 25% bonds and cash

Withdrawal rate	9%	8%	7%	6%	5%	4%	3%	2.50%
After 5 years	89%	99%	100%	100%	100%	100%	100%	100%
After 10 years	46%	63%	79%	94%	100%	100%	100%	100%
After 15 year	29%	38%	55%	74%	91%	100%	100%	100%
After 20 years	26%	30%	45%	62%	79%	98%	100%	100%
After 25 years	18%	27%	37%	54%	72%	98%	100%	100%
After 30 years	11%	23%	35%	54%	70%	95%	100%	100%

Post-retirement phase: Reviewing income

Applicable to ILLA products

Annual review of annuity income – select following year's income based on fixed percentage of capital value or a selected amount?

Reviewing your (living) annuity income...fixed percentage or amount?

Time Frame	Open value	Income selected	Rand amount	Portfolio growth	Growth in rand	Closing value	Increase in income over a 12-month period	Inflation over a 12-month period
Over the next year	3,000,000	5%	150,000	20%	570,000.00	3,420,000		
The year thereafter	3,420,000	5%	171,000	-5%	-162,450.00	3,086,550	14%	6%
Following year	3,086,550	5%	154,328	7%	205,255.58	3,137,478	-5%	7%

Time Frame	Open value	Income selected	Rand amount	Portfolio growth	Growth in rand	Closing value	Increase in income over a 12-month period	Inflation over a 12-month period
Over the next year	3,000,000	5%	150,000	20%	570,000.00	3,420,000		
The year thereafter	3,420,000		159,000	-5%	-163,050.00	3,097,950	6%	6%
Following year	3,097,950		170,130	7%	204,947.40	3,132,767	7%	7%

Drawdown strategies (living annuities):

- **Fixed percentage:** Based on portfolio performance, volatile income streams, and not necessarily in line with inflation or rising income needs
- **Inflation-adjusted amount:** In line with inflation, but higher risk of capital erosion
- **Dynamic drawdown strategy:** Combine features of both
- Increase in annuity based on previous withdrawal amount, but restricted to upper boundaries (ceiling) to prevent drawing down too much in times of poor portfolio returns

Dynamic drawdown strategy: Example of ceiling rates applicable

Retirement years remaining	Aggressive portfolio	Moderate portfolio	Conservative portfolio
30	6.0%	5.5%	5.0%
25	6.5%	6.0%	5.5%
20	7.0%	6.5%	6.0%
15	7.5%	7.0%	6.5%
10	8.5%	8.0%	7.5%
5	10.0%	9.5%	9.0%

50% probability of success

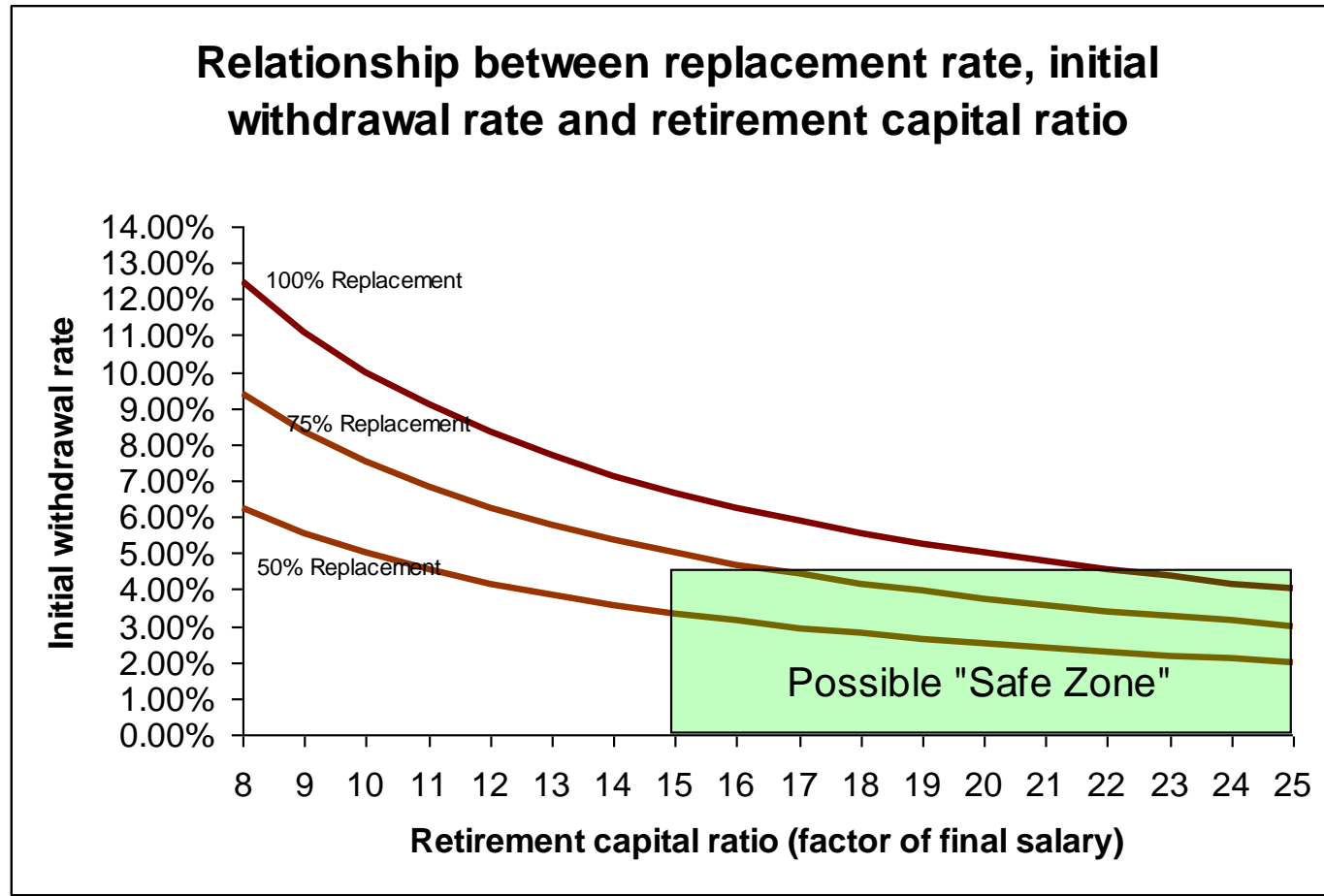
Retirement years remaining	Aggressive portfolio	Moderate portfolio	Conservative portfolio
30	8.0%	7.5%	6.5%
25	8.5%	8.0%	7.0%
20	9.0%	8.5%	7.5%
15	9.5%	9.0%	8.5%
10	11.0%	10.5%	10.0%
5	14.0%	13.5%	13.0%

20% probability of success

Review

- Saving for retirement
 - Contribution term probably the most important variable
 - Investment focus, investor behaviour
 - “Party spoilers” – early withdrawals, high costs
- Nearing retirement
 - De-risking too soon
 - Safe retirement age
- At retirement
 - Product choice – income needs, longevity, legacy capital
 - Initial drawdown rate
 - Dynamic drawdown strategies

“When do I’ve enough?”



Successful retirement planning:
Challenges abound...



But it is achievable...

Place yourself in control of your own destiny...

THANK YOU



Investment Research

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