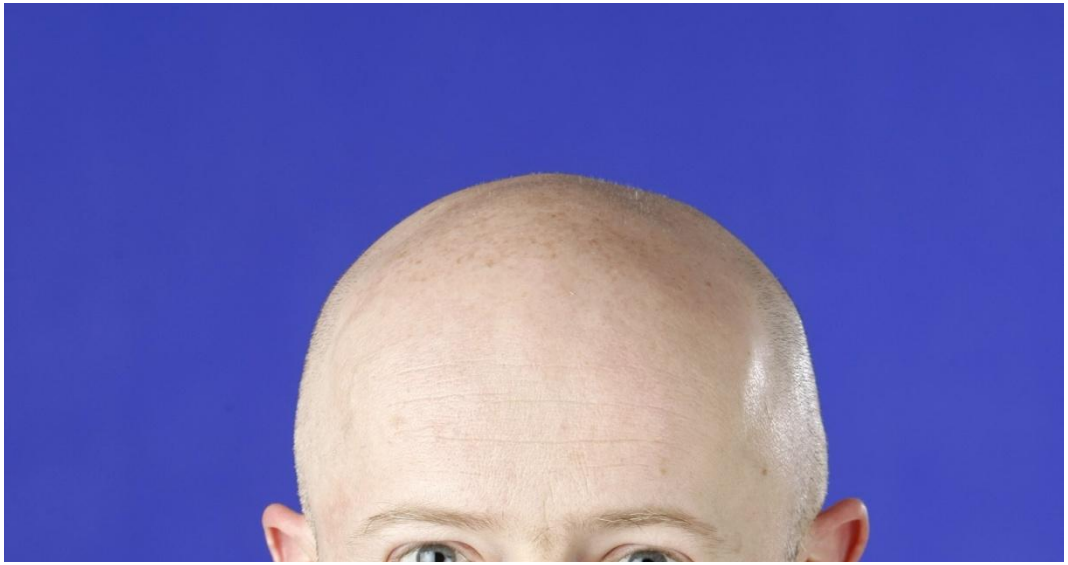
Diversified Growth Funds

& implications for actuarial assumptions



Part 1: Actuarial return and discount rate assumptions

Subtitle: But Mother, look! The Emperor isn't wearing any clothes!

Is it reasonable to ignore risk – and then advise on the implications of how much risk is taken?

Pay 20%!

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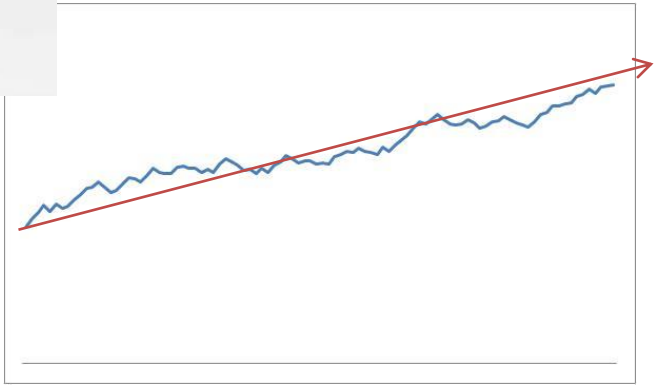
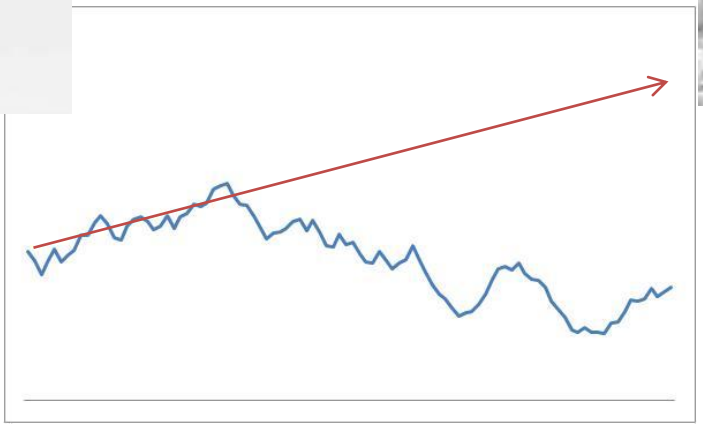


Pay 20%!



Equity return?

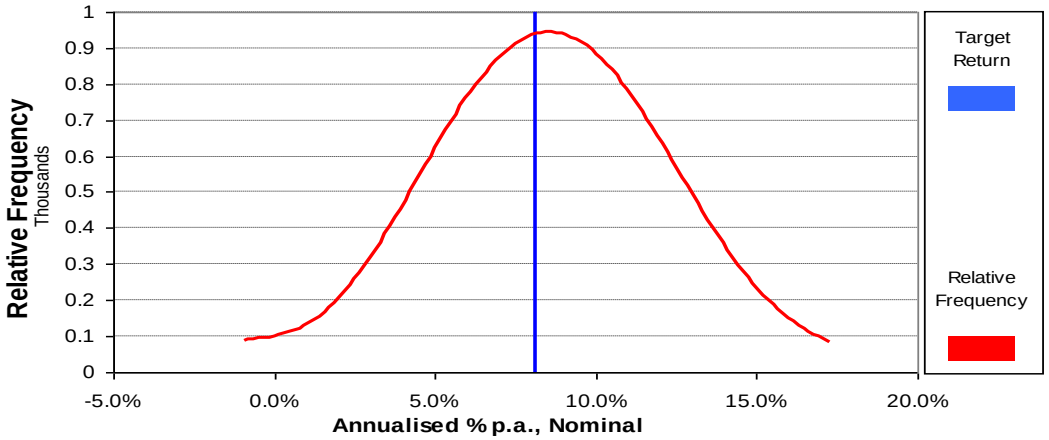
An actuary might say:

- The ERP is 3%
- This answers the budgeting question

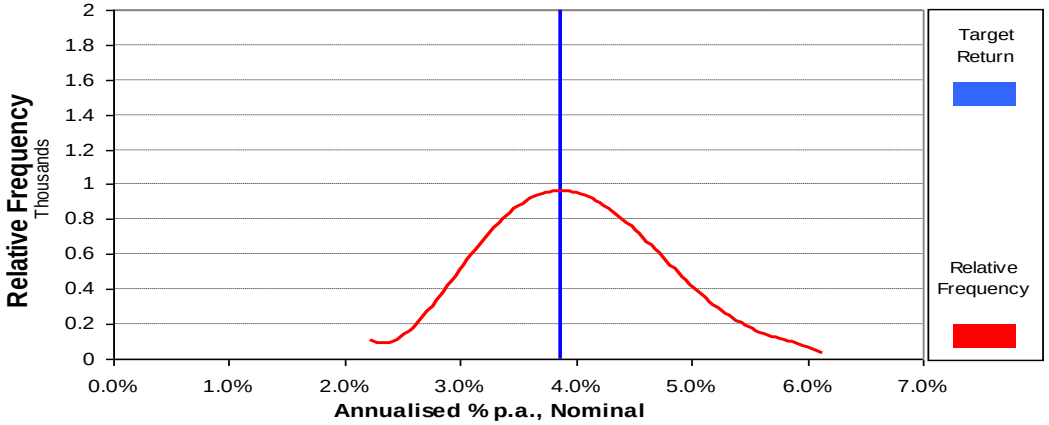
An investment adviser ***might*** say:

- Expected arithmetic return is 6% real
- The distribution is X
- The standard deviation is 20% (25% now reverting to 15%)
- Geometric real return is 4.8%
- The correlation with bonds is Y
- Etc…..
- This helps answer the risk question

Return distribution



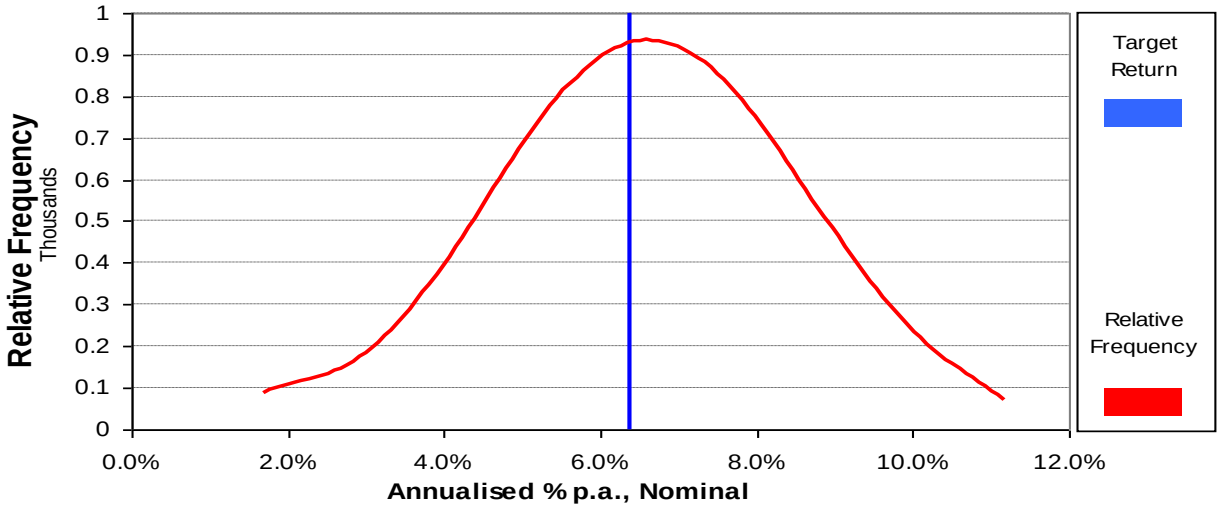
Equity 8.1% p.a. over 20 years



Euro bonds 3.9% p.a. over 20 years

Return distribution 50% equity 50% bonds

Traditional actuarial methodology suggests simple average
½(8.1 + 3.9) = 6.0%



Assuming rebalancing, there is a diversification benefit – 6.4% p.a. over 20 years

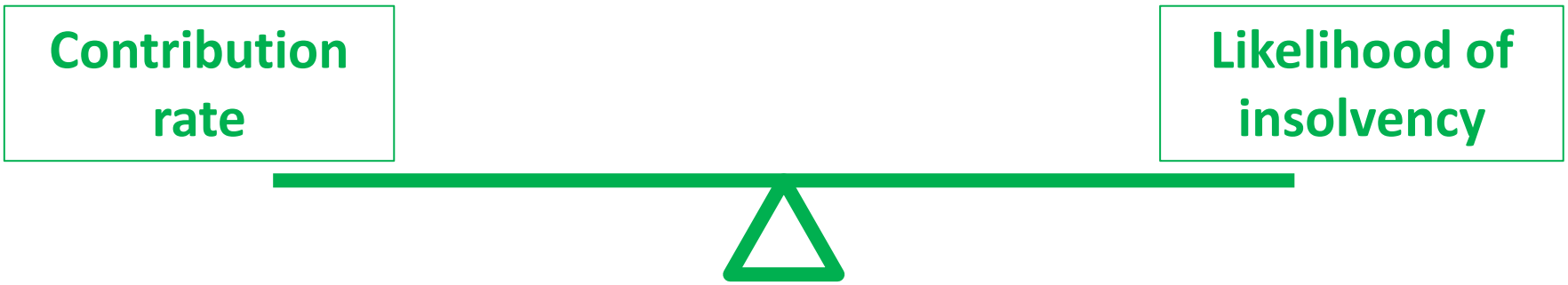
Naïve assumptions are OK for long term budgeting – but not for risk assessment


Canon
EOS
5D


36
100
REALA
FUJIFILM

Canon
EOS
5D

Actuarial “Margin for prudence”



Level of risk

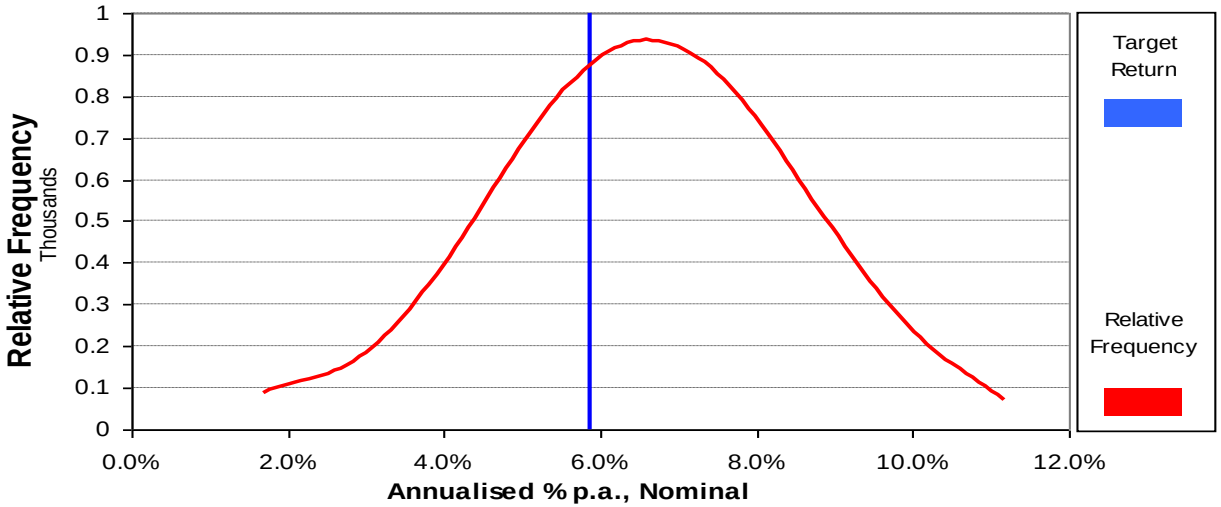
Contribution rate

Likelihood of insolvency

Actuarial “Margin for prudence”

Pension fund case study:

- 45% pensioners
- 50% bonds 50% equity
- ***60% ‘Confidence’***
- ***Discount rate 5.8%***



- If 50% “***Confidence***” were used equity allocation would be 40%!!

This is the <u>opposite</u> of prudent!

Case study 2

- Poorly funded plan
- Weak covenant
- High probability of sponsor failure
- Need high return to improve funding level

Possible strategy:

- Put 80% in bonds for 5 years (say) even if this means assuming 10% p.a. return on equities
- By then, the sponsor will either have recovered (and can pay more) or folded
- If wound up soon – benefits protected
- If sponsor survival – risk can be increased

Part 2 - Diversity

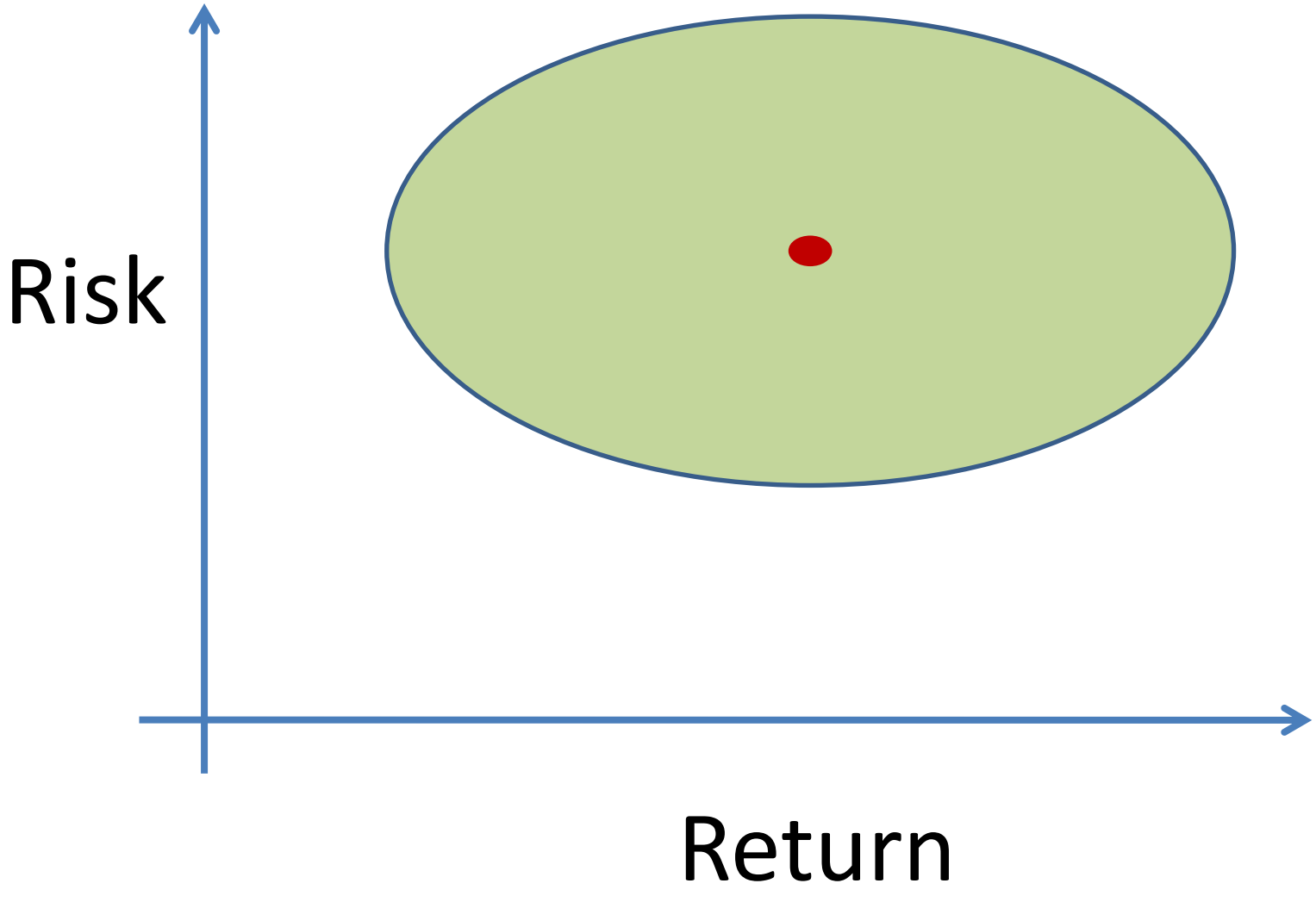
"There are known knowns. These are things we know that we know.

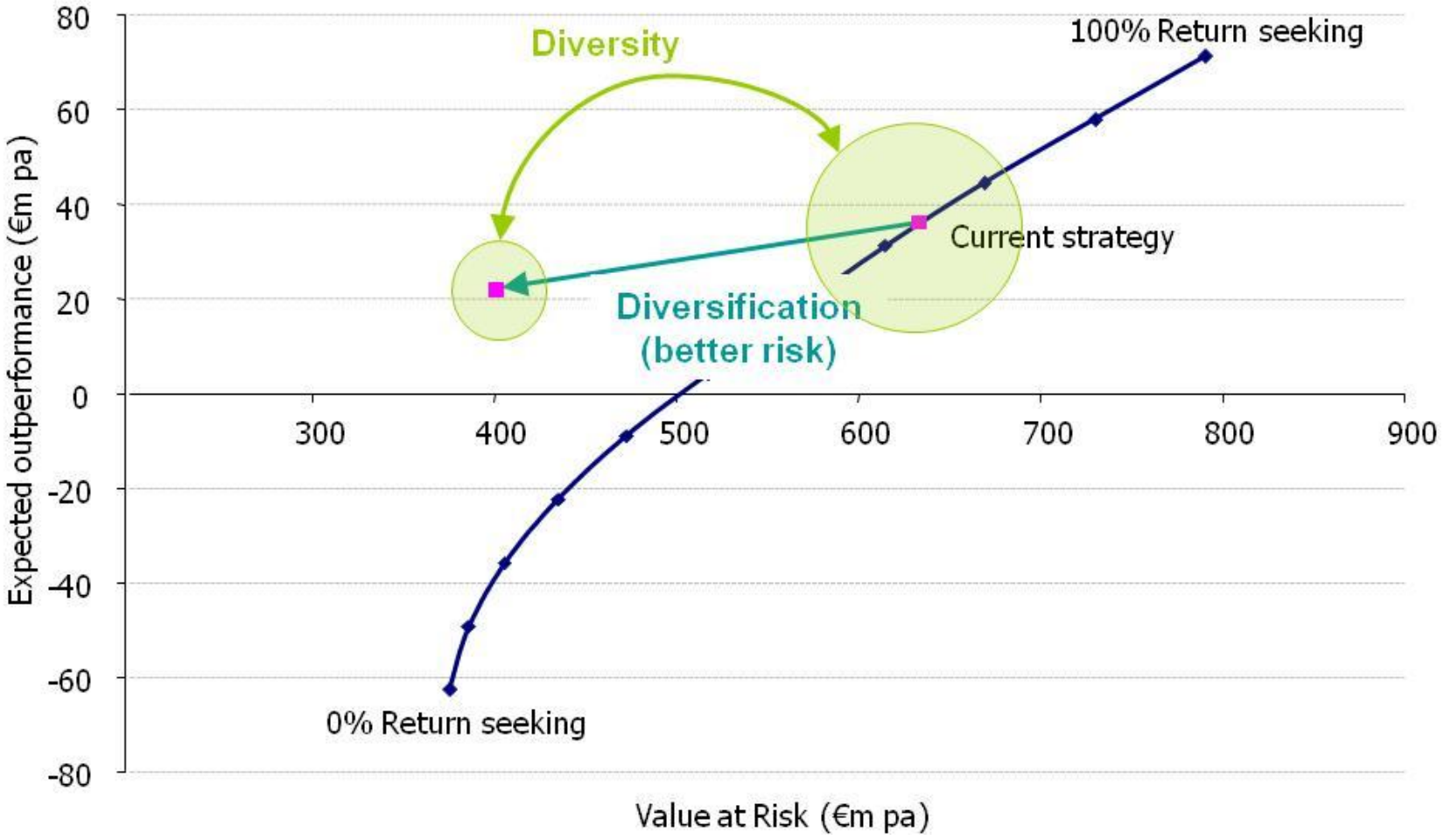
There are known unknowns. That is to say, there are things that we now know we don't know.

But there are also unknown unknowns. There are things we do not know we don't know."

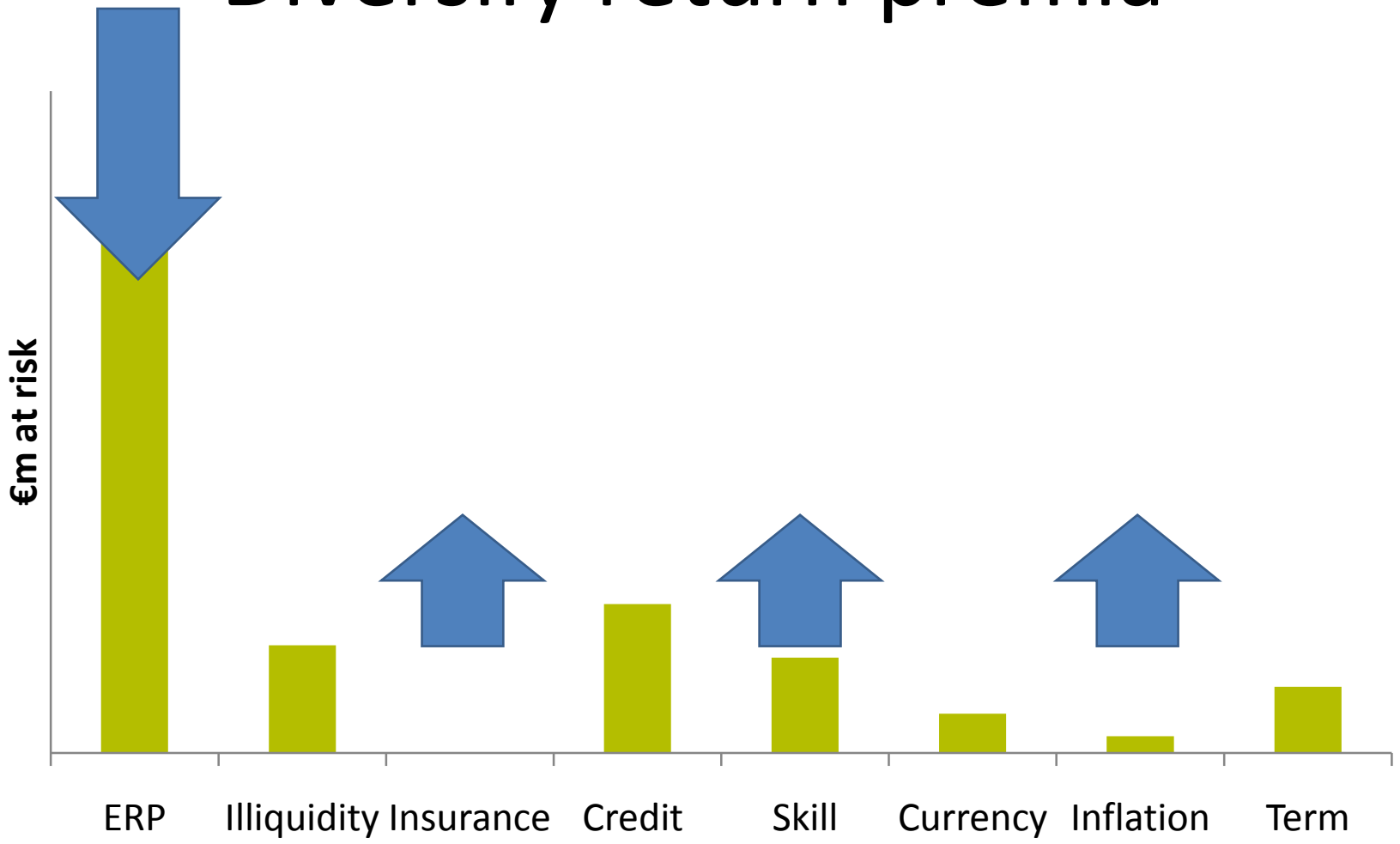
Donald Rumsfeld,
then US Defence Secretary

Risk and return assumptions



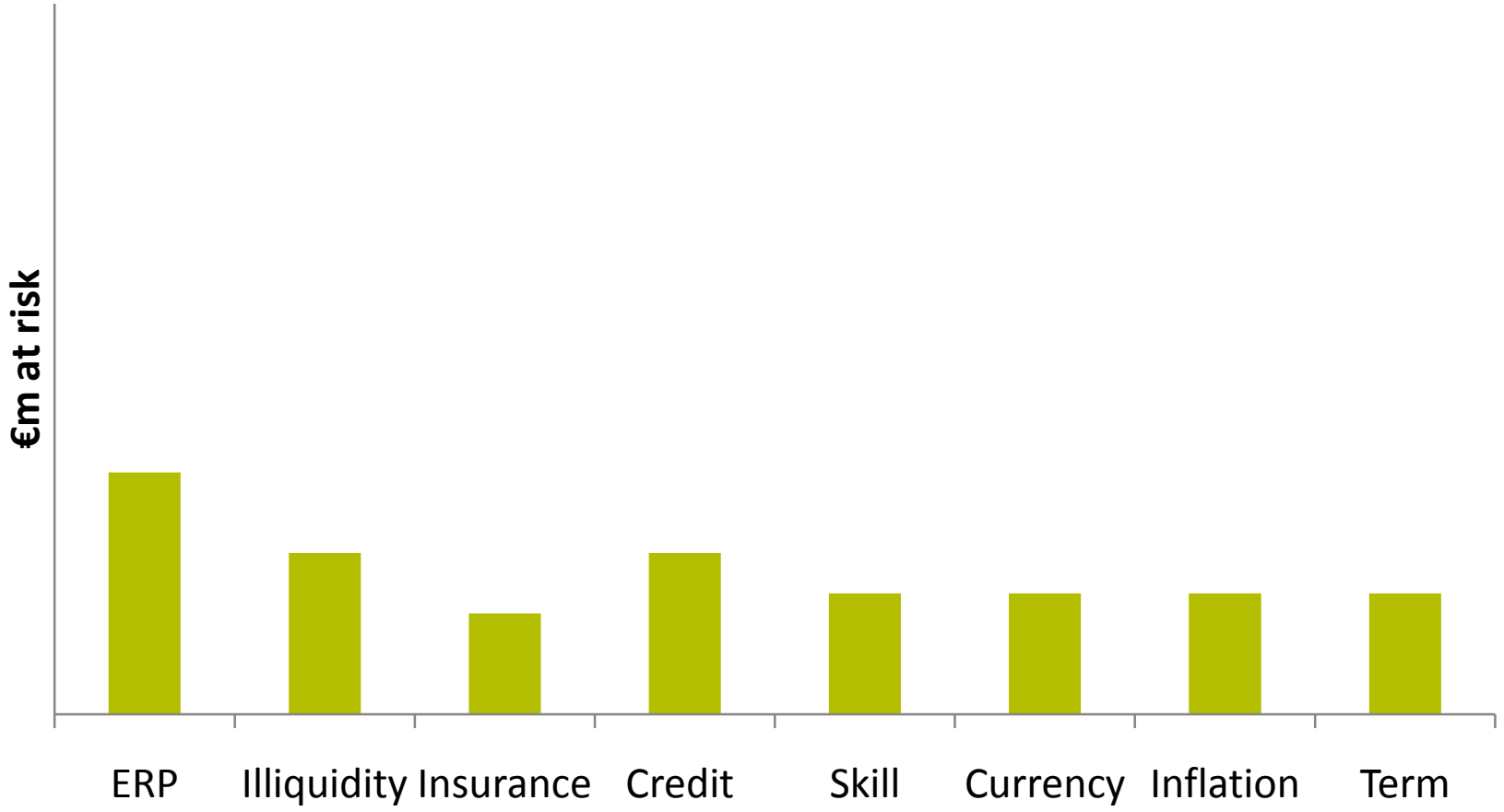

Diversity
100% Return seeking
Current strategy
Diversification
(better risk)
0% Return seeking
Expected outperformance (€m pa)
Value at Risk (€m pa)
80
60
40
20
0
-20
-40
-60
-80
300
400
500
600
700
800
900

Diversify return premia



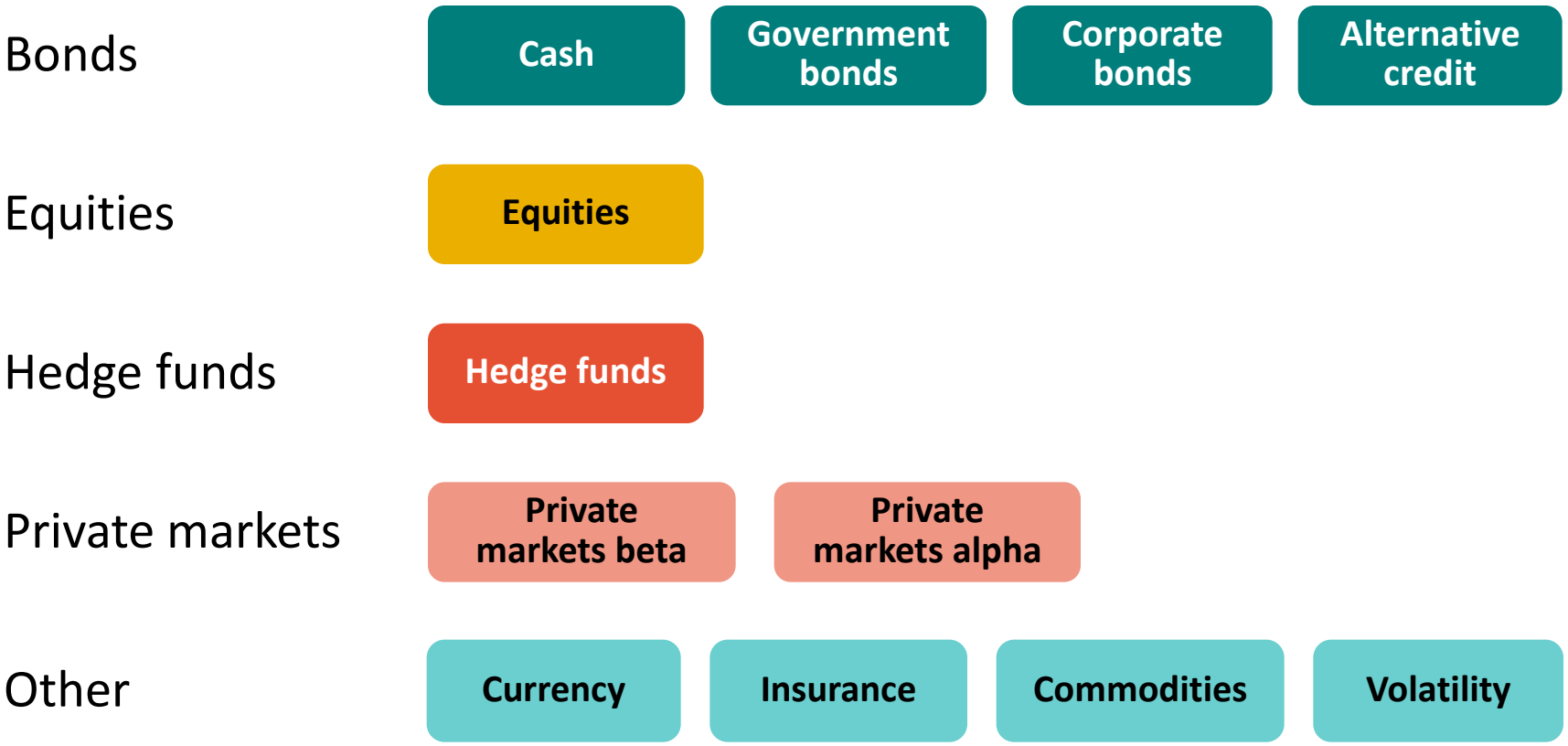
Source: Towers Watson

Diversify return premia

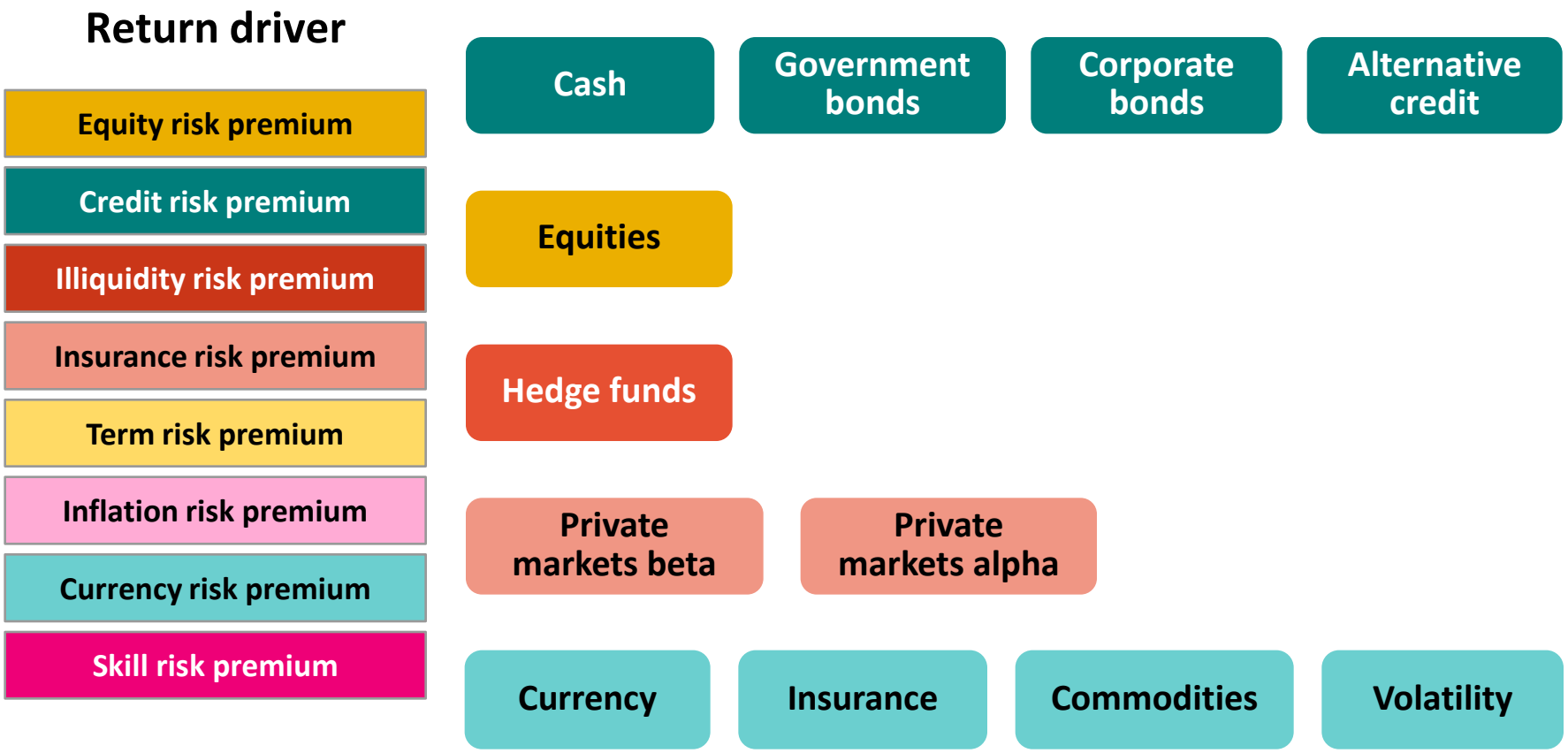


Source: Towers Watson

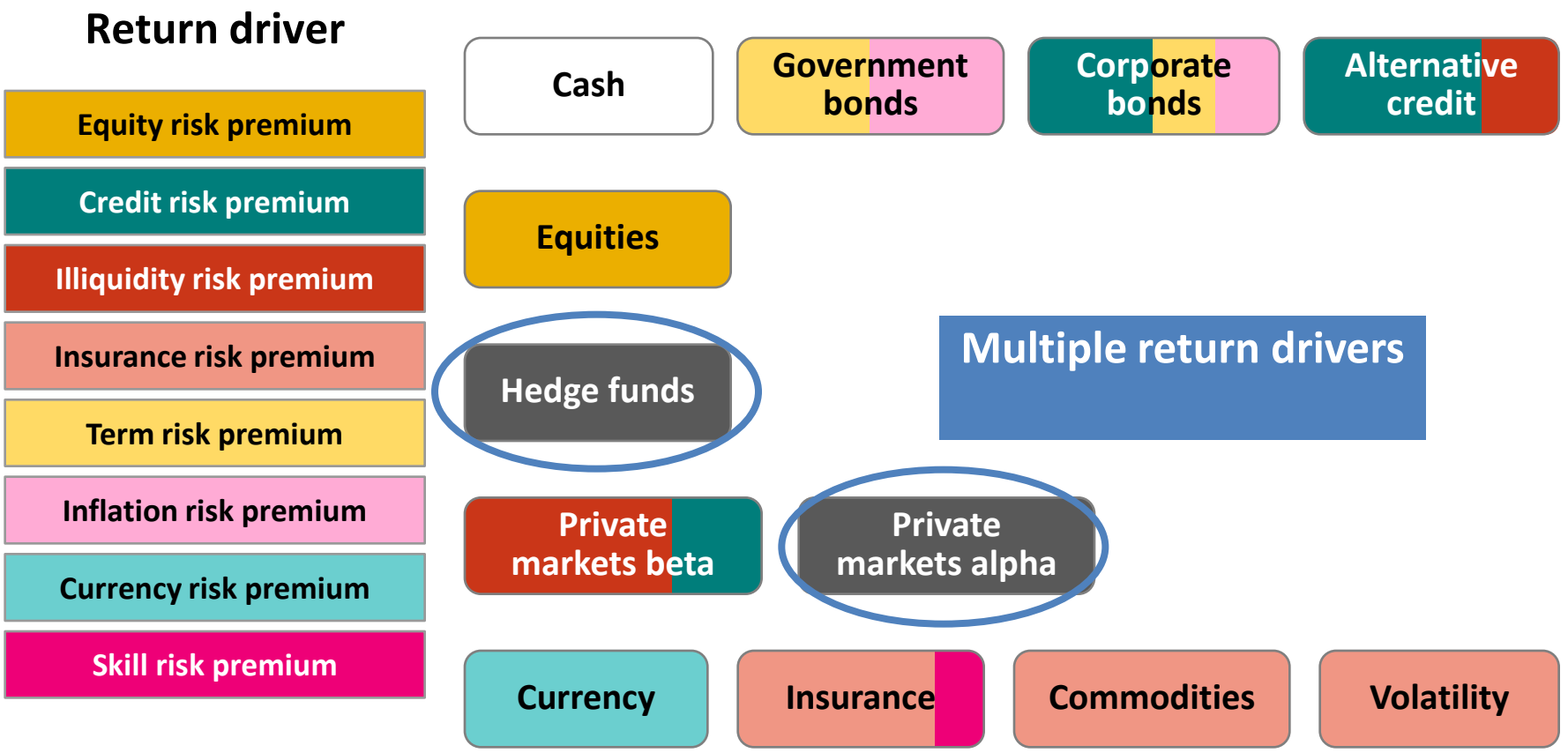
Asset classes



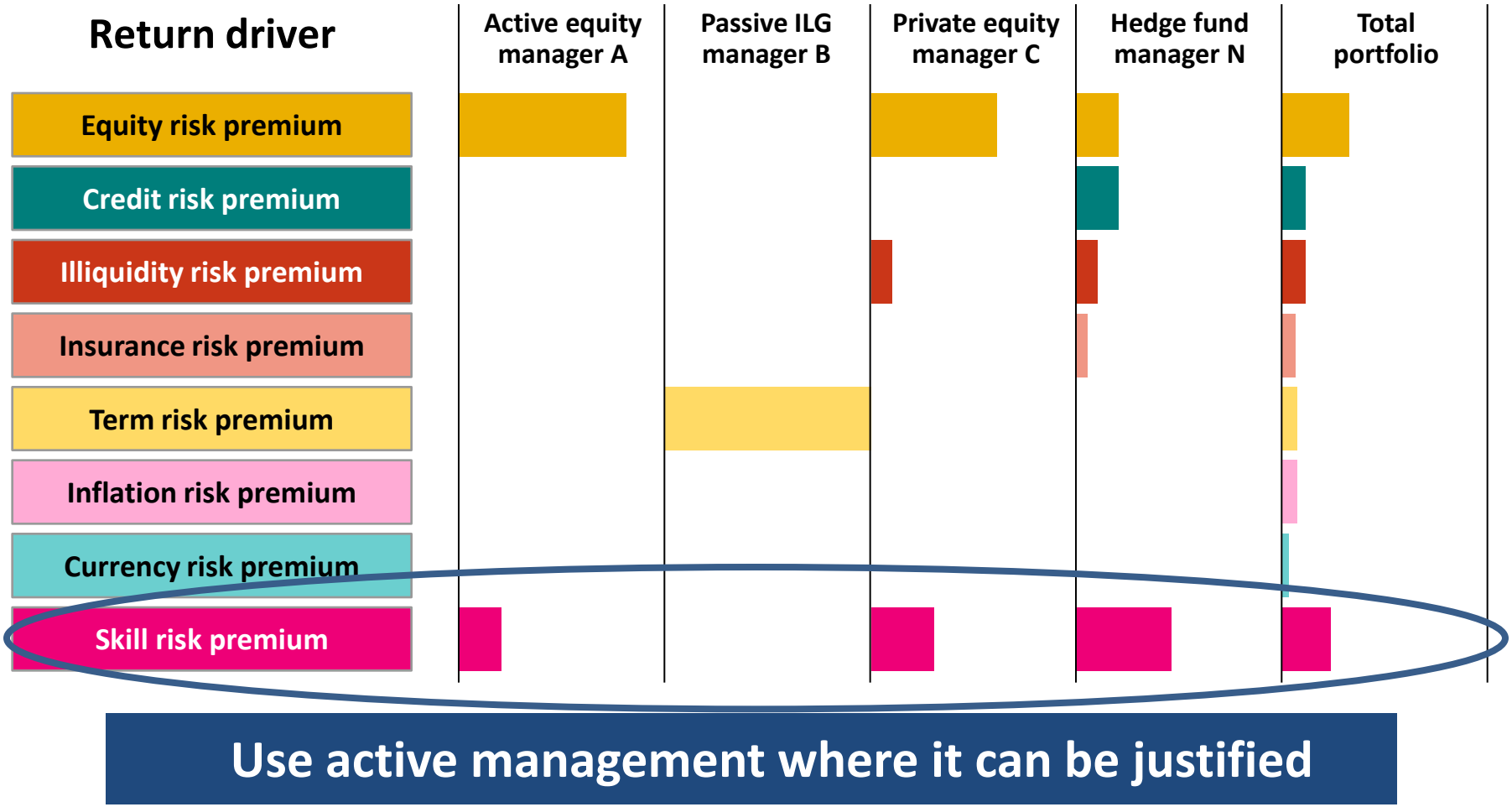
Asset classes



Return drivers

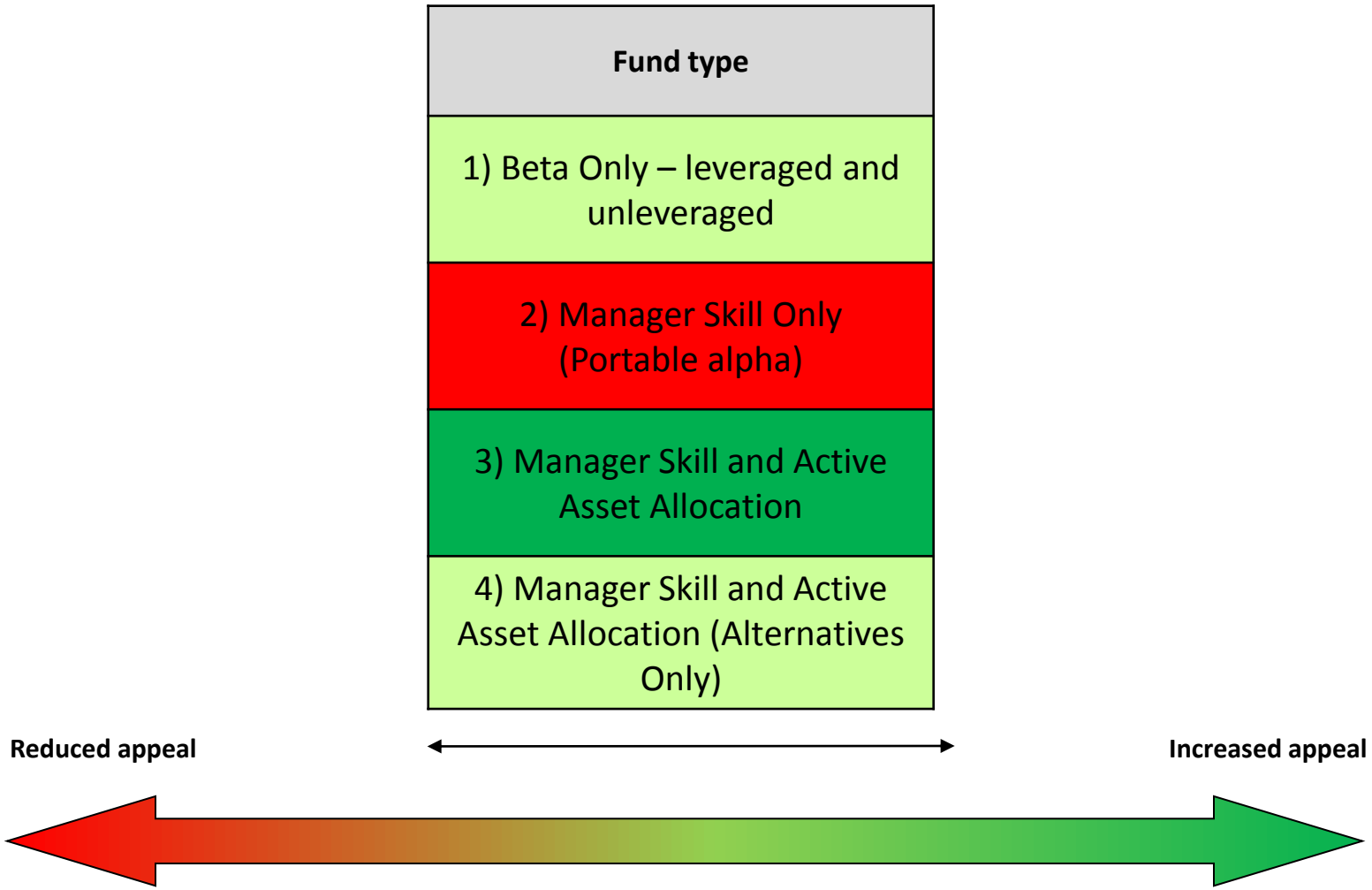


Return drivers: manager analysis



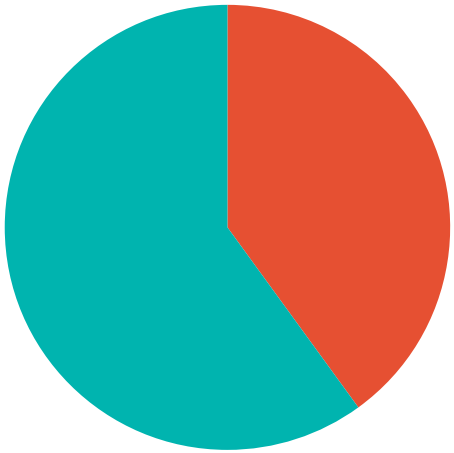
Use active management where it can be justified

What types of strategies are available?



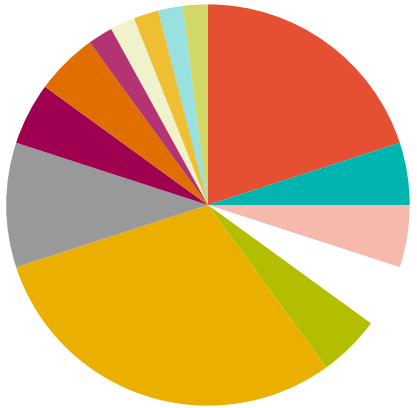
Beta-Only strategies

Traditional Balanced Fund



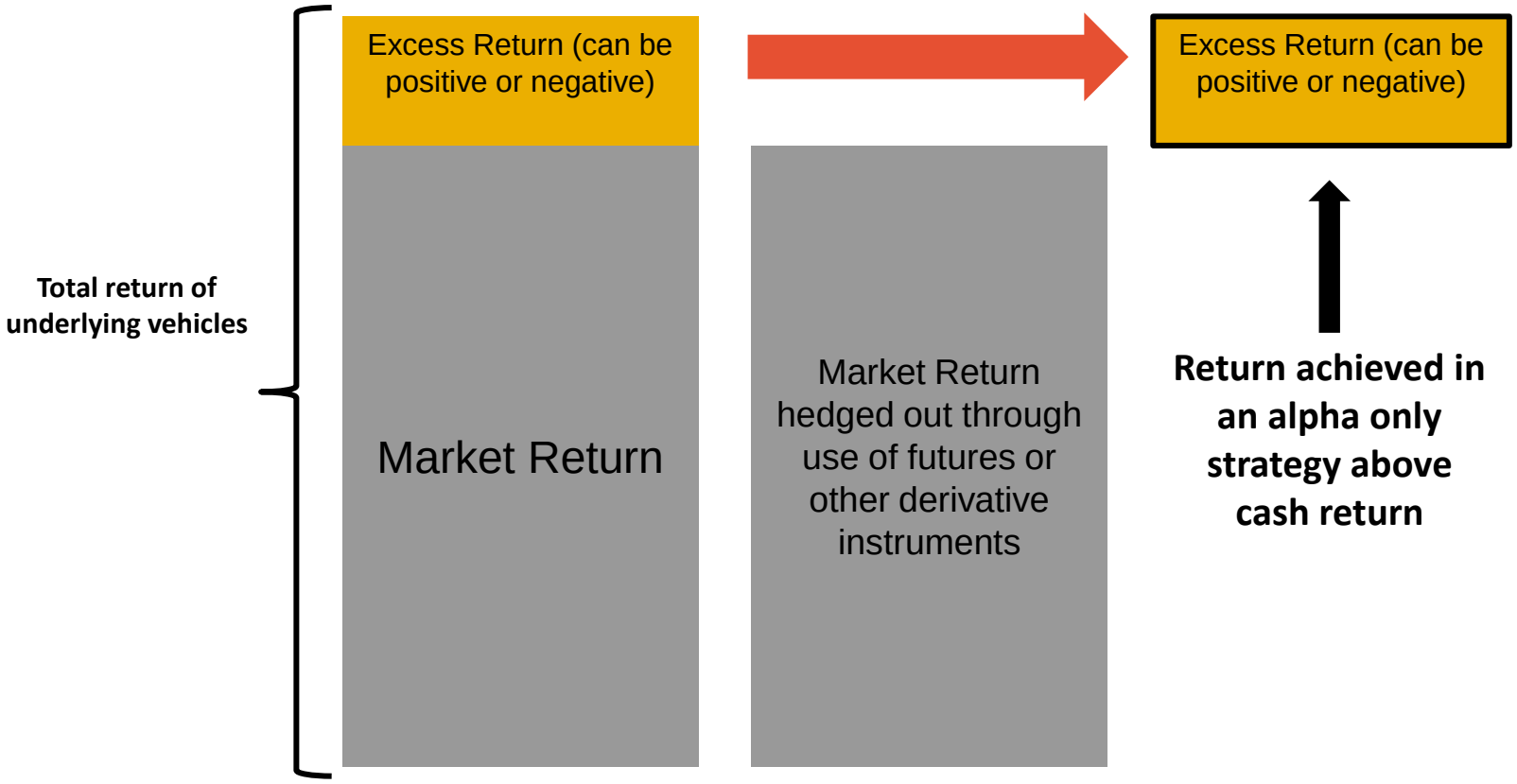
Domestic/Global Bonds
Domestic/Global Equities

Typical Multi Asset Fund

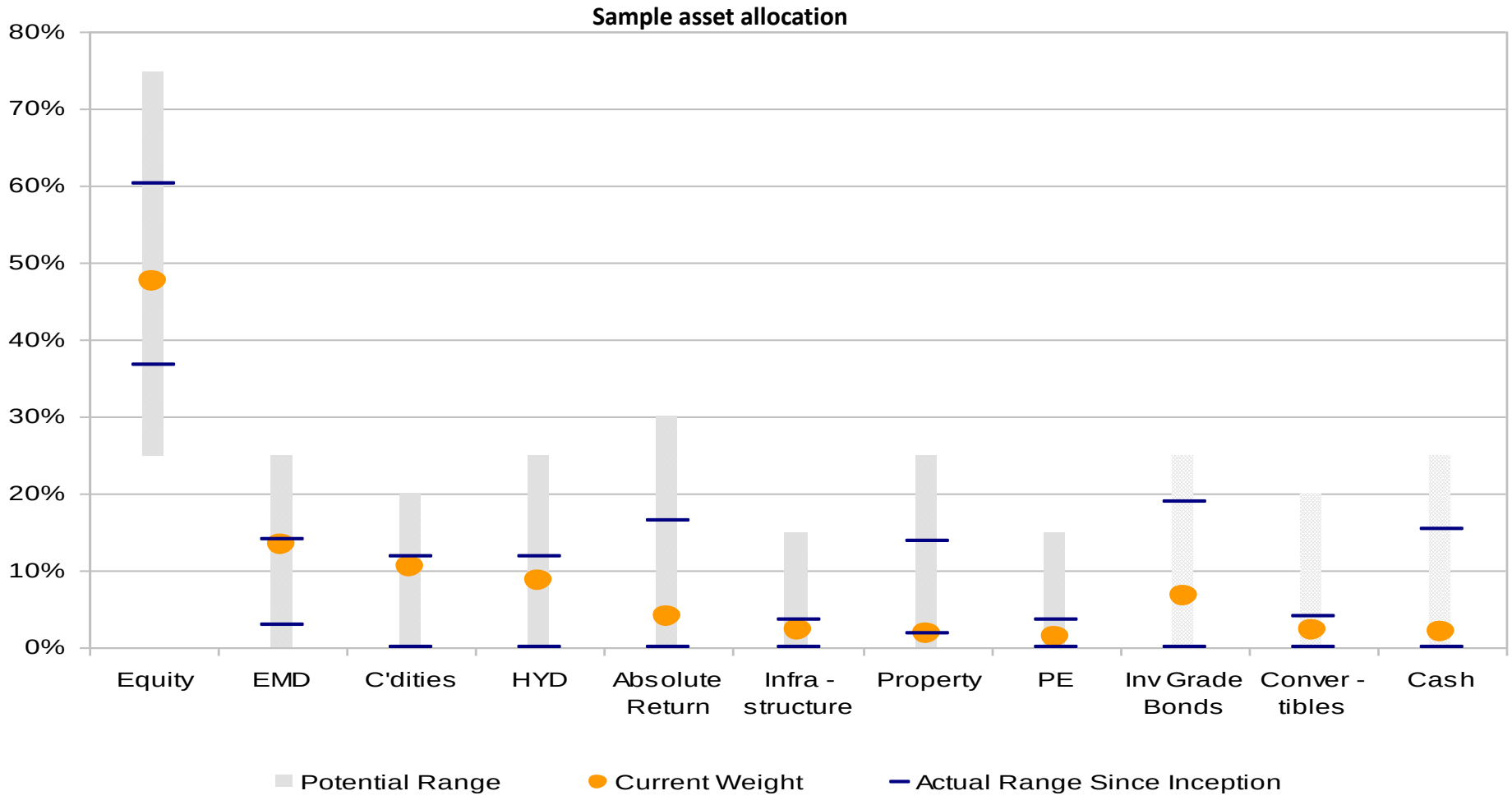


Domestic/Global Bonds
Inflation Linked Bonds
Emerging Market Bonds
Investment Grade Corporate Bonds
High Yield Bonds
Domestic/Global Equities
Emerging Market Equities
Domestic/Global Equity Sectors
Buy-Write
Commodities (inc Gold)
Real Estate
Private Equity
Infrastructure
Hedge Fund Beta

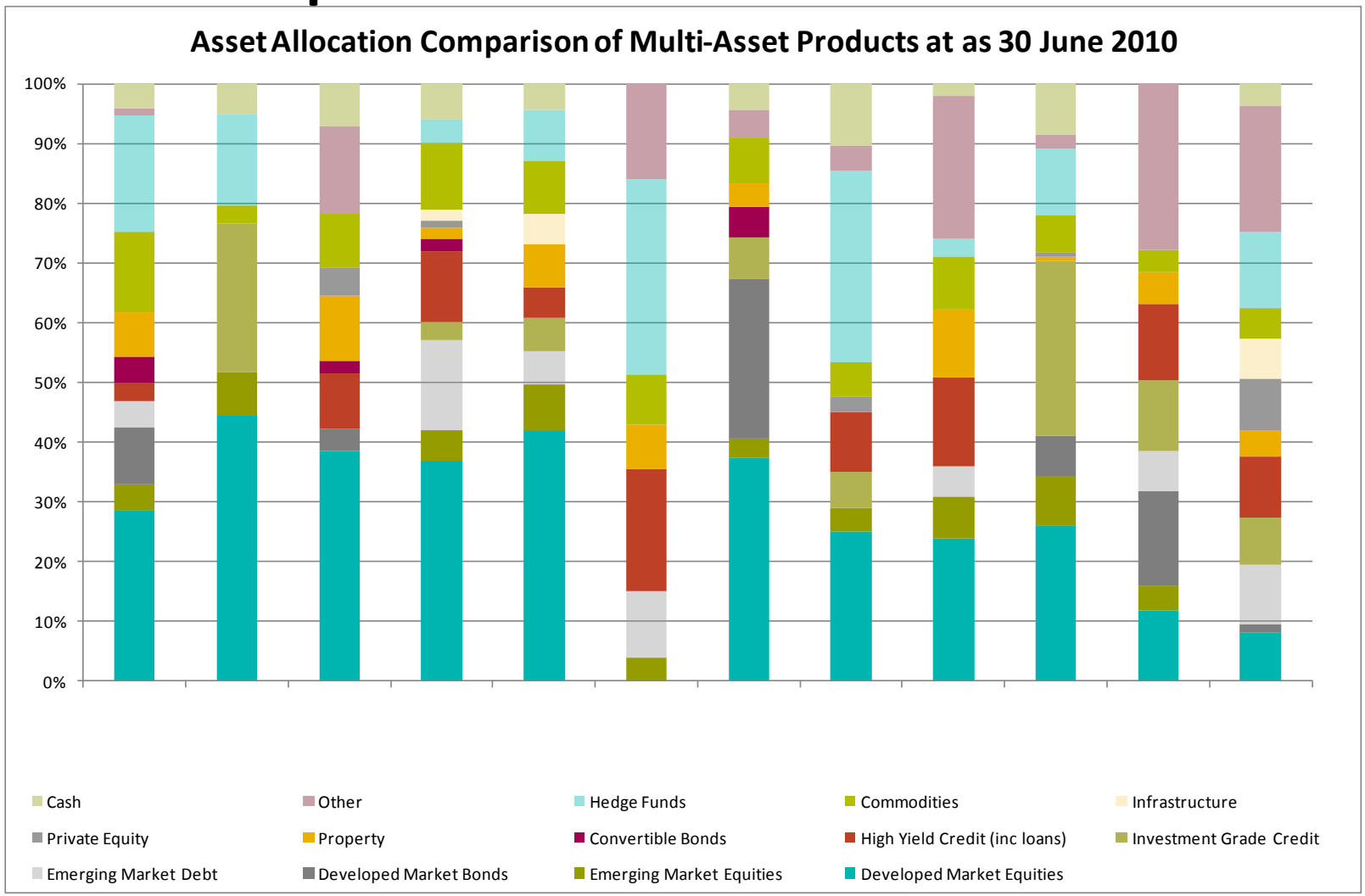
Alpha-Only strategies



Alpha + Beta strategies



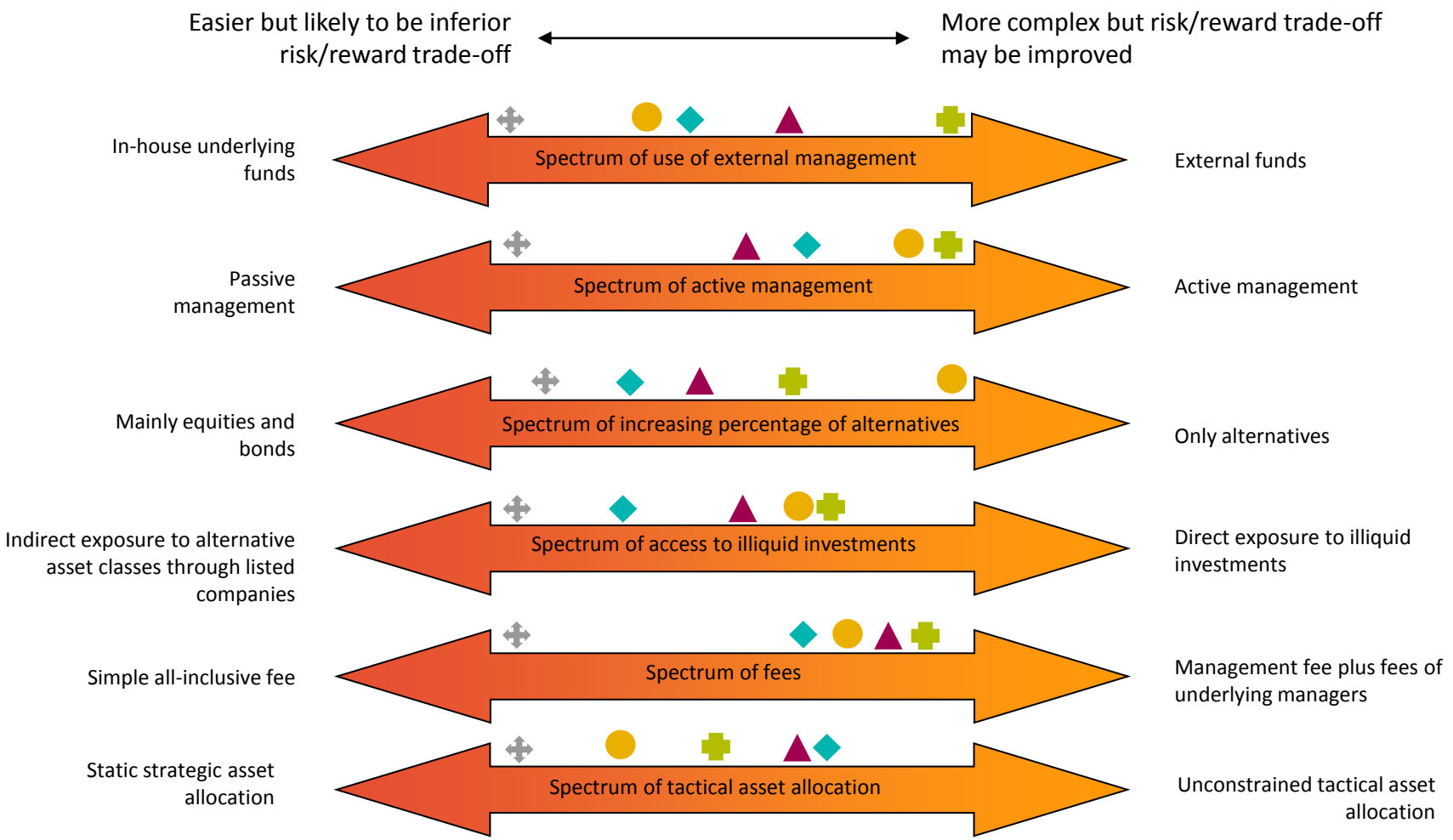
Alpha + Beta Variation



Comparison of typical DGF strategies

Type of strategy	Key criteria				
	Diversity	Liquidity	Fair fees	Alignment of interests	Best in class active managers
Beta-only	✓	✓	✓	?	n/a
Alpha+beta	✓	✓	?	?	?
Alternatives only	✓	?	?	?	?

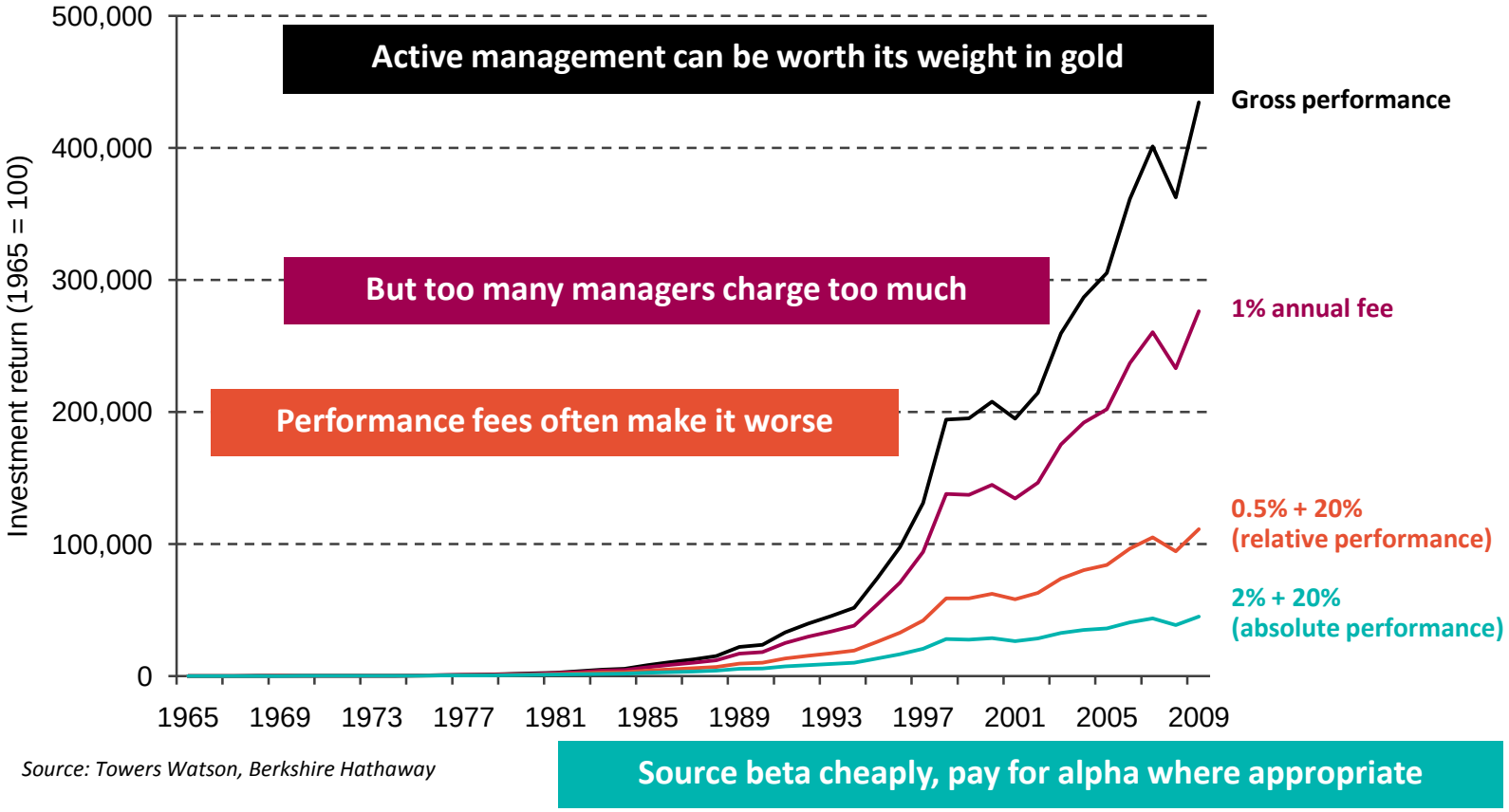
DGF examples



Sample risk reduction

- 65% equity 35% bond
- Full diversity same return – VaR down 30%
- Ditto with 50% liability hedge – VaR down 50%

Fees matter!



Source: Towers Watson, Berkshire Hathaway

Source beta cheaply, pay for alpha where appropriate

Conclusions

- Don’t inhibit risk reduction through inflexible and out-dated methodologies
- Actuarial expertise is in valuation
- Treat risk and investment strategy separately