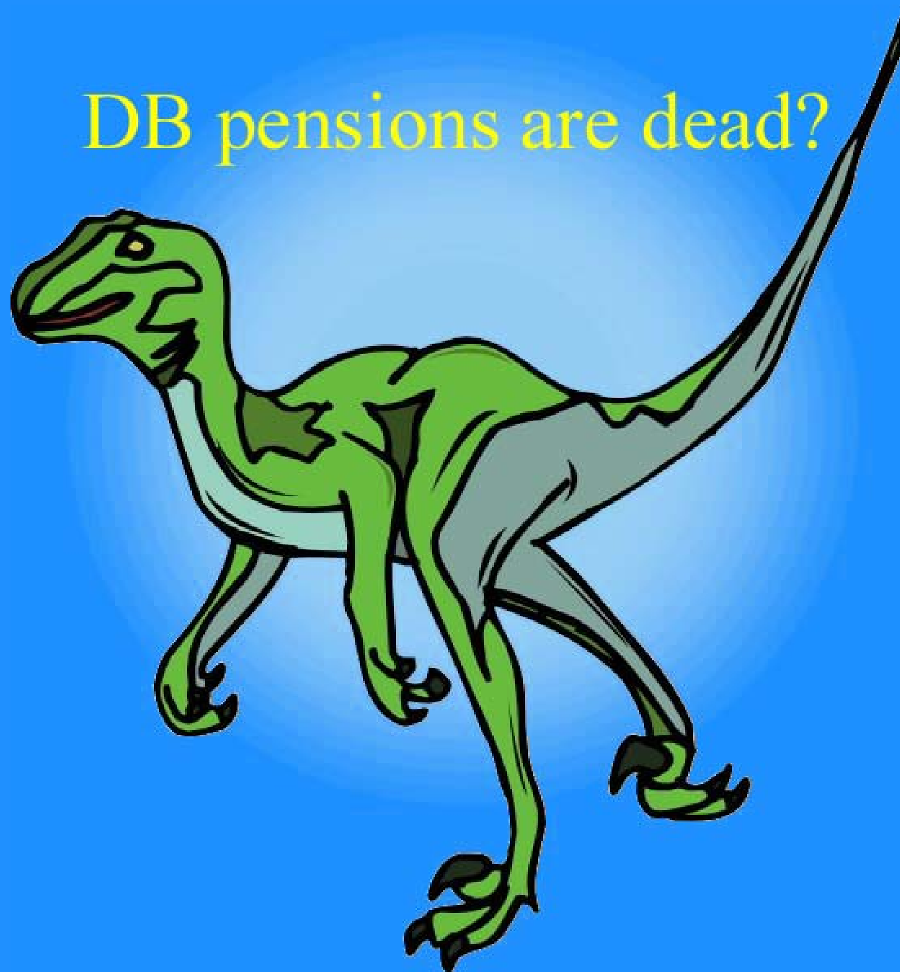
Pensions Crisis

Long-Term Equity Returns
Shall We Guess?

Jon Spain

DB pensions are dead?



setting scene

extremely personal

UK alone

defined benefits ("DB", "final pay/salary")

funded schemes (dedicated assets)

- not book reserve

trustees (who seek **and** consider advice)

focussing upon UK equities as asset class

UK occupational pensions crisis

critical points

very long-term crucial (normal position)

market conditions : plan ahead?

equity risk premiums

higher returns DO reduce costs

forward funding inferences

equity return estimates

critical points

"two actuarial laws"

- don't know future (but must make assumptions)
- no such thing as free lunch over time

all the rest is merely commentary

very long-term can imply different restraints

- can't simultaneously aim "long" **and** "short"

"broadly right" better than "precisely wrong"

very long-term crucial

assets held against long-term liabilities

- future cash flows need to be estimated
- reflecting actual circumstances

trustees' sole luxury is time

- normal situation (continuing membership)
- don't need to be tied to short-term
- should take appropriate advantage of situation
- other major investors far more restricted

market conditions : plan ahead?

three common misconceptions

- actuary predicts the future
- actuary says "market is wrong"
- smoothing is irrelevant

rational inferences can be drawn

- not tied to contemporary market conditions

market denominated returns

- "sustainable" **plus** "froth" ("noise")
- froth can lead to inappropriate consequences

actuary predicts the future – NOT

NOONE (on Earth) knows the future

won’t, can’t, get it “right”

much more like indicating likelihoods

room for more humility

actuary says market wrong – NOT

market may sometimes appear illogical

implies opportunities exist for profits

- no free lunches over time as a whole

markets run by traders

- traders decide where **THEY** want to be (pricing)
- where **THEY** want to be **NOW**

others (PF trustees) may not share traders' views

- still legitimate to dissent

actuaries really looking towards long-term future

no statement being made about "now"

smoothing is irrelevant – NOT

most finance directors want to be able to budget

shareholders should be comfortable with concept

even analysts seem to smooth earnings forecasts

by using multiples dependent upon

- industry and location
- other factors?

analysts do not like profits warnings

- but, hey, volatility is good, right?

actuaries tend to focus upon long-term

- because short-term very poor indicator of future

market conditions : rational inferences

market values are not stable (fact or fiction?)

we **KNOW** future will be different

we **DON'T** know:

- when
- which way
- how far
- how long

poor indicator of **future long-term** reality

- picked up later under "DVR"

equity risk premiums

equities are risky

- true of most investment classes (many risks)

equities tend to provide higher returns (bonds)

- denied by most financial economists
- merely compensation for extra risk
- why could it be OK for junk bonds but not for equities?

higher returns actually observed

- not over all periods (especially short)
- chart comparing UK returns on equities v gilts

Risk Premiums (Equities & Bonds)

RiskPremium_UK

Premium (% pa)

18.00%
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%

Legend: Average, StanDev

Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Average	3.01%	2.33%	2.29%	2.72%	2.77%	3.00%	3.12%	3.23%	3.31%	3.34%	3.43%	3.59%	3.72%	3.75%	3.75%
StanDev	16.26	8.25%	6.16%	4.86%	3.93%	3.52%	3.37%	2.85%	2.72%	2.68%	2.43%	2.24%	1.82%	1.61%	1.64%

Period

eight investment risks by type

default (capital)
dividend (income)
duration
inflation
market
currency
other markets
satisfaction

- “over-optimism”? “under-optimism”?

higher returns DO reduce costs {1 of 6}

generally denied by financial economists

- because risk "fully reflects" reward

basic equation no longer true?

look at it graphically

higher returns DO reduce costs {2 of 6}

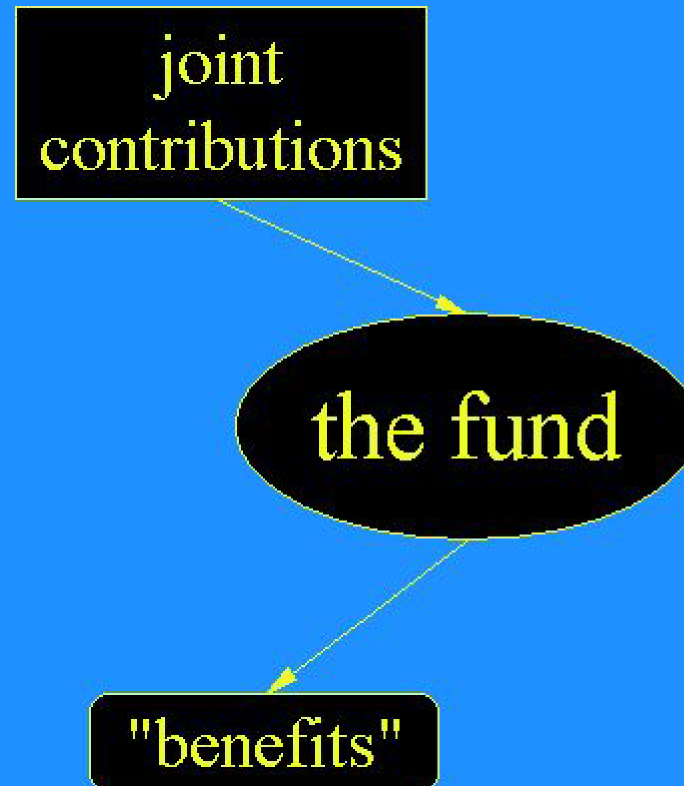
the fund

higher returns DO reduce costs {3 of 6}

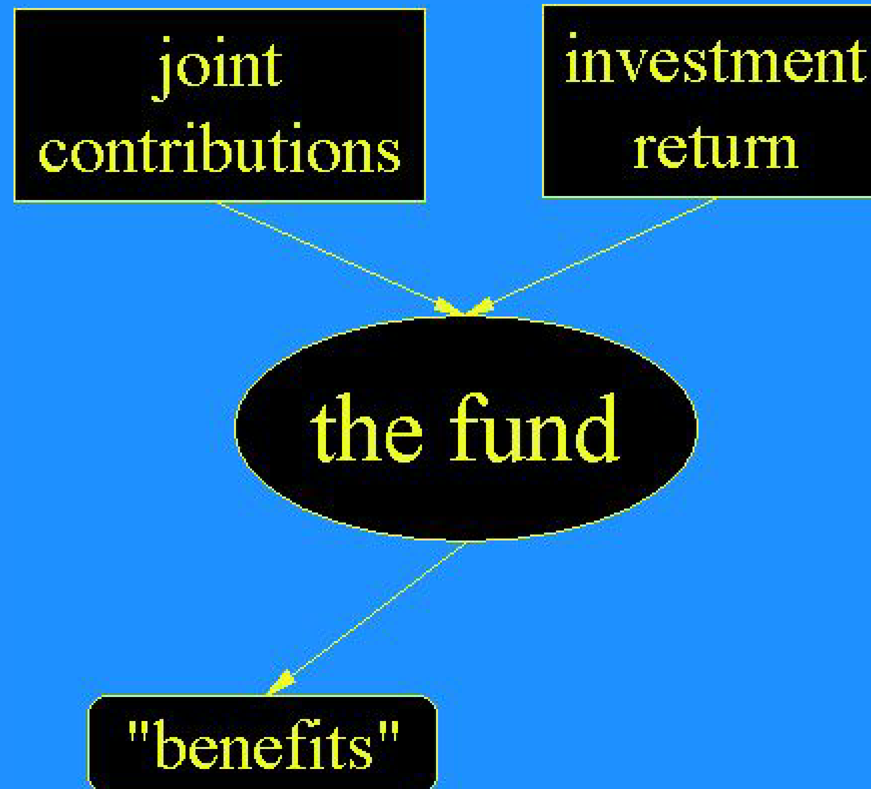
joint contributions

the fund

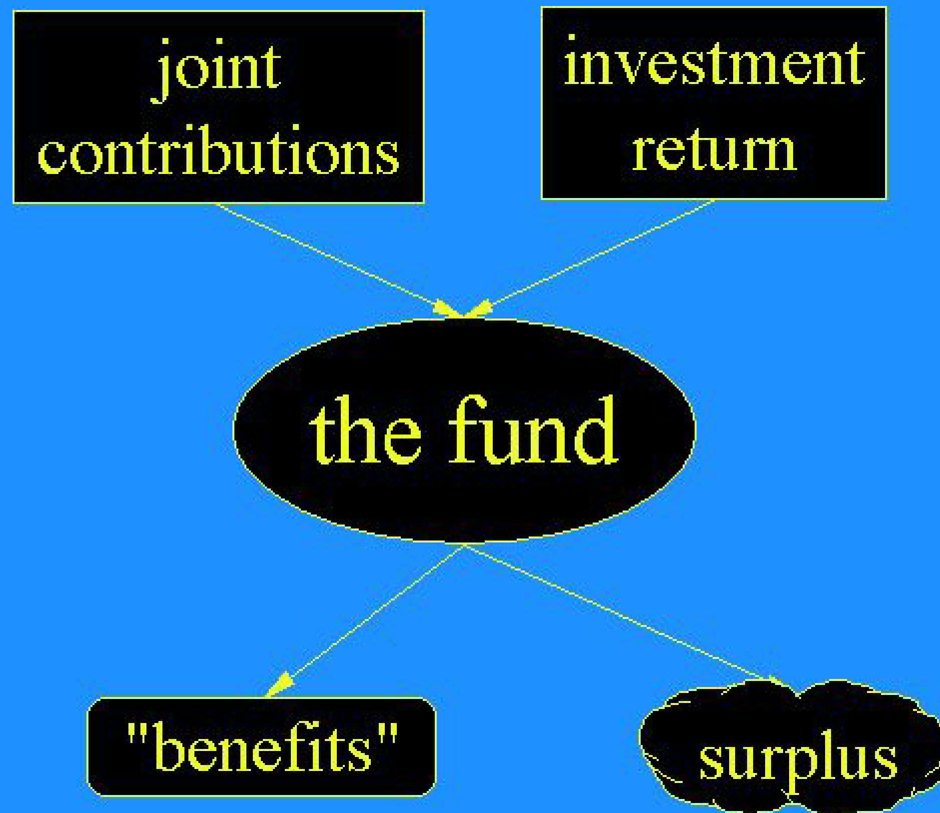
higher returns DO reduce costs {4 of 6}



higher returns DO reduce costs {5 of 6}



higher returns DO reduce costs {6 of 6}



funding inferences

trustees/sponsor(s) should agree timeframe

- scheme-specific/sponsor-specific
- fits into Myners philosophy

assets won't be held forever (nothing is)

needn't focus upon short-term alone

- can't simultaneously aim "long" **and** "short"

include equity returns for **agreed** timeframe

- costs reduction rational/reasonable
- short-term focus alone too volatile (FRS17)

equity return estimates

holy grail not being offered, sorry about that

could take long gilts yield plus (say) 3% pa

- simple
- too simplistic? I can live with it

three other approaches (many others!)

- dividend yield + dividend growth
- dividends alone
- discounted value return

dividend yield + dividend growth {1 of 2}

may well seem natural

initial yield, lagged growth

- 1 year
- 2 years
- 3 years

three more charts

UK Equity Returns (Lagged Growth)

Div_Plus_Gro_1

Period (Years)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Average	3.40%	1.87%	1.46%	1.28%	0.69%	0.52%	0.54%	0.65%	0.58%	0.18%	-0.11%	-0.23%	-0.18%	0.05%	0.28%
StanDev	28.02%	17.32%	12.48%	9.39%	8.92%	9.11%	7.65%	7.00%	7.08%	7.28%	6.90%	7.12%	7.36%	7.86%	7.88%

Period (Years)

UK Equity Returns (Lagged Growth)

Div_Plus_Gro_2

Period (Years)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Average	3.43%	1.87%	1.53%	1.16%	0.74%	0.64%	0.69%	0.76%	0.54%	0.19%	-0.03%	-0.08%	0.05%	0.27%	0.45%
StanDev	28.08%	16.19%	11.39%	8.74%	8.42%	7.71%	6.34%	5.89%	6.09%	5.93%	5.86%	6.07%	6.53%	6.77%	6.76%

UK Equity Returns (Lagged Growth)

Div_Plus_Gro_3

Period (Years)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Average	3.49%	1.96%	1.52%	1.22%	0.91%	0.85%	0.88%	0.83%	0.60%	0.31%	0.16%	0.19%	0.35%	0.53%	0.72%
StanDev	27.21%	15.15%	10.85%	8.44%	7.49%	6.63%	5.43%	5.34%	5.34%	5.34%	5.37%	5.76%	6.08%	6.20%	6.06%

dividend yield + dividend growth {2 of 2}

may well have seemed natural

initial yield, lagged growth (1,2,3 years)

- further back too far back

those charts imply

- approach not terribly helpful
- deviations very high, no stability
- lagged dividend growth itself highly volatile

dividends alone

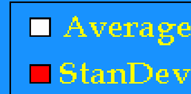
unduly simplistic?

better than when dividend growth included!

look at chart

"Equity Dependency"

UK DivYield alone



Multiple

6.0000
5.0000
4.0000
3.0000
2.0000
1.0000
0.0000

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Start Year (31 Dec)

actuarial approaches

tied to clients' legal requirements (purposes, p..,p..)

- where? when? why? for whom? affecting whom?
- membership profile highly relevant

consistency between assets and liabilities

- future cashflows in both directions
- risks and discounting (approaches not same as FEs)

take account of actual assets (including equities)

- because affects actual funding requirements

ding-dong, wicked dividend discount model is dead

- long live amended dividend discount model
- give alternative description (estimating future MV?)

discounted value returns

been developing it for 20 years (**www. dvr.org.uk**)

sparked off by advising clients about “WM”

- how much is sustainable? sadly not tackled
- severe inconsistency with actuarial valuations
- so use actuarial assessment of performance?

originally worried about internal consistency

- irrelevant to trustees
- switched to “tracking” ultimate market return

what do we tell the client?

imagine new investment manager appointed

year 1: superb return + 25%

- tell client good news

year 2 : "not so good" - 15%

- tell client bad news

overall result equivalent to "5% pa" for 2 years

- client asks "why not warn me in advance?"

that's exactly what DVR is intended to do

DVR : generalised definition

we're trying to determine "***DVR***"

- taken as 100 j % pa

define "f" as single-valued valuation formula

- prospective income and capital

define $DV_{u,j}$ at time "u" for return "j" by

$$DV_{u,j} = f\{ MV_u ,\ j \}$$

without any external cash flows, we require

$$DV_{0,\ j} * ((1+j)^{t}) = DV_{t,\ j}$$

Advance Estimate Of MVR_10 : DVR v MVR {Efficiency}

Jon's DVR

Efficiency: 5.000, 4.500, 4.000, 3.500, 3.000, 2.500, 2.000, 1.500, 1.000, 0.500, 0.000

Start Year: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

0.517

MVR_Agree
DVR_Agree
Unity

9212_10__UK_Equ__Gro

what do colours represent?

three colours

- white
- red (fraction/multiple of "white")
- yellow (fraction/multiple of "white")

white : "ultimate market return"

- red : cumulative market return
- yellow : cumulative discounted return

which gives a better estimate of end result?

which gives a better estimate?

of end result?

looking at it as an overall indicator

"whichever is closer" to white seems rational

so look at areas between white

- and red
- and yellow

look at "areas ratio" over time (same period)

- for previous chart, we had 0.517 (yearend: 1992-2002)
- next 2 charts => market return is poor long-term indicator

area ratio charted over time : 10

Advance Estimate Of MVR_10 : DVR v MVR
{TimeEfficiency}

Efficiency

2.00
1.50
1.00
0.50
0.00

64 67 70 73 76 79 82 85 88 91

Start Year

Efficiency
Unity

UK_Equ__Grow_50_10_B

area ratio charted over time : 15

Advance Estimate Of MVR_15 : DVR v MVR {TimeEfficiency}

Efficiency

1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00

64 66 68 70 72 74 76 78 80 82 84 86

Start Year

Efficiency
Unity

UK_Equ__Grow_50_15_B

Start Year

DVR Efficiency Over Time

End Year

DVR Efficiency Over Time

FRS17 unlikely to lead to reliable results

is “surplus ownership” truly an asset?

is “employer’s commitment” truly a liability?

how can volatility properly be taken into account?

- already having adverse effects upon employees
- which may not have been justified over longer term

can analysts really interpret information?

- OK, better than SSAP24
- but SSAP24 could have been improved **and enforced**

more information available at *www.frs17.com*

summary

DB PF trustees can and should form own views

- off-market **can** be appropriate and rational

short-term concentration can be misleading

going forward? needn't stay short-term

looking back? needn't stay short-term

trustees/sponsor must agree timeframe : **crucial**

FRS17 severely grim for members' financial health

much more about "DVR" on *www.dvr.org.uk*

DB pensions are dead?

ain't necessarily so