JAGGER & ASSOCIATES

Investment Update
January 2016

Investment Headlines & Comment

- There was **high daily volatility** in equity markets this month and government bond yields fell.
- **L&G** is going to start building *residential* property to rent out, using the cash to pay annuities.
- **Sterling** suffered – might a £ hedge now be justified, or does the EU referendum risk dwarf that?

Feature Section

This month we consider the unfortunately-named subject of "mortality drag". It crops up in some surprising ways for both individuals and defined benefit pension scheme trustees, and the way its size varies with age is of particular interest, even if a touch morbid at first.

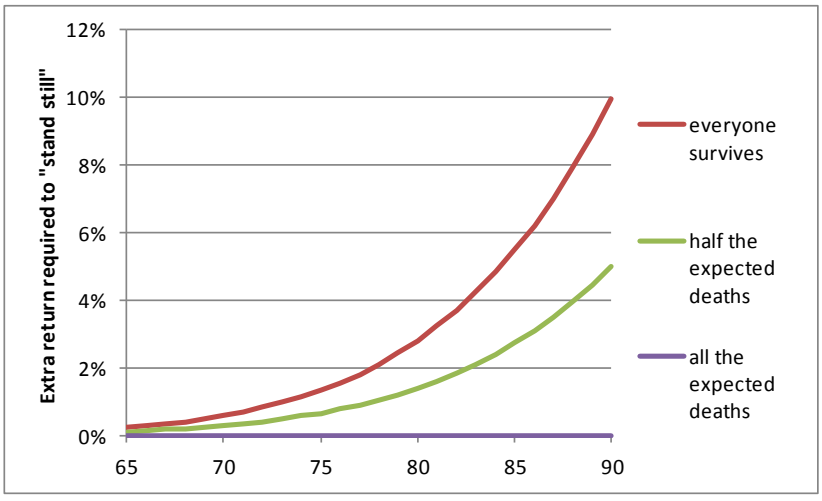
Consider an individual with some savings (be they in a pension pot or otherwise). Whilst the 2014 Budget freedoms may have reduced the likelihood of buying annuities early on, eventually some investors will get to the point where they think that they want to convert their pot to the certainty of an annuity. The question then is, what is the impact of delaying it by a year? This can be tackled along the following example of a present value equation for someone aged 75 for an annuity paying £1 at the start of each year (assuming no change in long-term interest rates over the next year):

Price "if aged 75 now" = £1 + Probability (alive at age 76) × Price "if aged 76 now" ÷ (1 + investment return)

For example, if gilt yields were a constant 2.5%, a level annuity at age 75 might cost £13 for each £1 p.a., at age 76 it might cost £12.50, and the probability of surviving one year would be about 98.7%. Now, an individual is either alive or dead, so if they are in a position to buy the annuity at age 76, they need to have grown £12 (the £13 less the first £1 annual payment) to £12.50, which is a required investment return of about 3.9%. This is about 1.4% more than the 2.5% gilt yield, and this element of extra return is the so-called mortality drag. (Those who like algebra can show that it is roughly the same as the probability of not surviving one year, but there's no need to know that for the rest of this item!) Another way to think of it is as the extra return required to "stand still" in terms of being able to afford the annuity.

Next, think of a group of individuals in a defined benefit pension scheme, with similar pensions and similar ages. You cease to have the binary situation of "all alive after 1 year" versus "all dead after 1 year", so you have to start to consider the effect of whether there has been the expected number of deaths in the year, or whether everyone has survived, or if the death rate is somewhere between these two (e.g. half the expected number of deaths occur). Figure 1 plots the results – note that they vary *slightly* according to the pension increases involved or the gilt yield assumed, but not much.

Figure 1: Example mortality drag



Uses PMA92 (2025) mortality with scale factor of 40% at age 60, rising to 100% at age 120

As you might imagine, the older you get, the more significant the effect becomes. The "everyone survives" line is the same as for one individual. It shows that aged in the late 70s, you need to be earning 2% more than gilts just to stand still (which is already more than you could get from using corporate bonds instead of gilts), and by the mid 80s, it rises to about 5%. This clearly requires material additional investment risk.

For a scheme where the death rate is at half its expected level, the pickup from corporate bonds relative to gilts could justify the risk into the early 80s, but eventually the risk gets too high, and Trustees risk a worsening funding level if they do not use a buy-in (or buy-out) to take out the risk of extra longevity.

Now, that initial analysis was for a scheme with a fairly homogeneous set of individuals. The more diverse the range of pensions involved, the greater the potential effect from higher (or lower) than expected death rates. If those schemes' Trustees think they can afford to wait for their key liabilities to pass over, then a worsening interim funding level could perhaps be tolerated, but if they know they are going to have to use annuities eventually, they should monitor the average age of the relevant pensioner liabilities to ensure they do not retain an unacceptable level of mortality drag.

Asset Returns and Financial Measures [*in Sterling unless marked otherwise*]

The cells in bold with light shading show the best and worst performing asset classes from each column. The commodities and $-based and unhedged-£-conversion hedge fund returns are excluded from that.
[**NB** Future returns cannot be inferred from this table alone, but coupled with other items within *Update*, readers can make inferences as to whether they should be higher or lower than the past returns shown below.]

Table 1: Investment Data to 31 January 2016

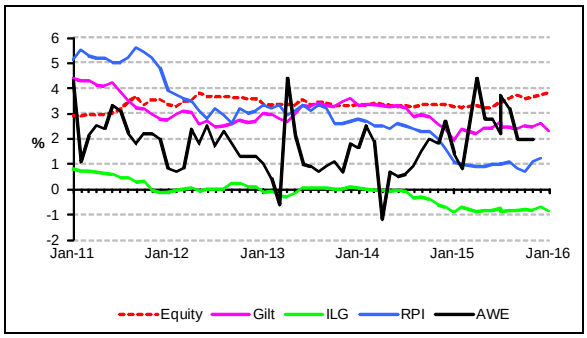
Asset Class	1 month (%)	3 months (%)	12 months (%)	3 years (% p.a.)	5 years (% p.a.)	10 years (% p.a.)	20 years (% p.a.)
UK Equities	-3.1	-3.8	-4.6	4.0	5.4	4.9	6.4
Overseas Equities	-2.4	0.1	-0.3	8.9	7.8	6.9	6.5
US Equities	-1.6	1.7	4.3	**15.2**	**13.5**	8.9	7.1
Europe ex UK Equities	-3.0	-2.2	-1.8	4.6	4.0	5.0	8.1
Japan Equities	**-4.7**	-0.6	5.3	10.6	5.8	**2.1**	**0.7**
Pacific ex Japan Equities	-4.2	-1.6	-12.4	-0.7	1.4	7.5	5.1
Emerging Markets	-2.8	**-4.3**	**-15.9**	**-5.5**	**-2.9**	4.5	5.4
UK Long-dated Gilts	**6.2**	5.8	-2.5	9.4	11.2	6.9	8.3
UK Long-dated Corp. Bonds	1.9	2.8	-7.4	6.9	8.9	5.5	-
UK Over 5 Yrs Index-Linked Gilts	5.4	3.0	-0.7	6.8	10.1	7.5	7.9
High Yield (Global)	2.2	2.7	0.7	3.8	6.5	**9.0**	-
Overseas Bonds	5.6	**9.9**	4.7	2.3	2.9	6.2	4.8
Property *	1.1	3.1	**13.8**	14.6	10.7	5.4	**9.0**
Cash	0.0	0.1	0.6	0.5	0.7	**2.1**	3.8
Commodities £-converted	-1.5	-14.1	-27.1	-23.3	-14.5	-9.4	-1.0
Hedge Funds original $ basis *	-1.0	0.8	-1.0	3.6	2.3	4.1	7.7
Illustrative £-converted version *	1.1	3.6	4.7	7.0	3.6	5.7	8.0
Euro relative to Sterling	3.5	6.6	1.5	-3.8	-2.3	1.1	-
US $ relative to Sterling	3.9	8.8	5.9	3.8	2.5	2.3	0.3
Japanese Yen relative to Sterling	3.2	8.5	2.7	-5.5	-5.2	1.9	-0.3
Sterling trade weighted	-2.4	-4.9	-0.4	3.0	1.8	-1.2	0.4
Price Inflation (RPI) *	0.3	0.4	1.2	1.8	2.7	3.0	2.8
Price Inflation (CPI) *	0.2	0.2	0.2	0.9	1.9	2.4	2.0
Price Inflation (RPIX) *	0.3	0.4	1.3	1.9	2.7	3.2	2.8
Earnings Inflation **	-0.3	-0.8	2.0	1.5	1.6	2.2	3.2
All Share Capital Growth	-3.1	-4.3	-7.9	0.5	1.8	1.3	3.0
Net Dividend Growth	0.3	2.4	7.2	4.9	7.6	4.2	-
Earnings Growth	0.6	-5.5	-12.3	-8.4	-4.0	0.1	2.9

Note: All market returns are total returns for pension funds with income reinvested monthly. Indices used are as follows:

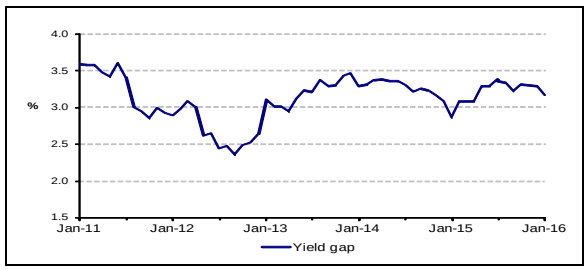
- *UK Equities (incl. dividends and earnings) – FT-A All Share.*
- *Overseas Equities (incl. regions) – blend of FT All-World / World subindices*
- *Emerging Markets from MSCI US $ based total return index (overall Index to 31 Oct 2001, Free Index from 1 Nov 2001 to take account of foreign investment restrictions), conversion to UK £ by J&A.*
- *UK Bonds – FT-A indices (Gilts Over 15 Years, ILG Over 5 Years)*
- *UK Corporate Bonds – iBoxx Non-Gilt **Over 15 Year** index (all credit ratings combined)*
- *High Yield – Merrill Lynch Global, £ Unhedged*
- *Overseas Bonds – JP Morgan Traded Unhedged World ex UK*
- *Property – IPD Monthly Index*
- *Commodities – GSCI Total Return, converted to UK £ by J&A*
- *Hedge Funds Composite – HFRI US $ based total return index plus converted to UK £ by J&A. **NB A smooth "cash+x%" return will only be shown in the base 'hedged' currency, here the US $.***
- *Cash – an indicative index based on the three-month London Interbank Sterling mid-rate, calculated internally by J&A*
- *Price and earnings inflation – RPI, CPI, RPIX, and Average Weekly Earnings (whole economy, not seasonally adjusted, latest provisional data)*
- *Currency data – London close, from the Financial Times*
- ** denotes data lagged by 1 month, ** by 2 months – these reflect the later publication dates of these data items.*

Yields and Yield Gaps

Figure 2: Yields, Inflation and Yield Gaps



The yield gap is a measure of expected average future inflation, derived as long bond yield minus ILG yield.

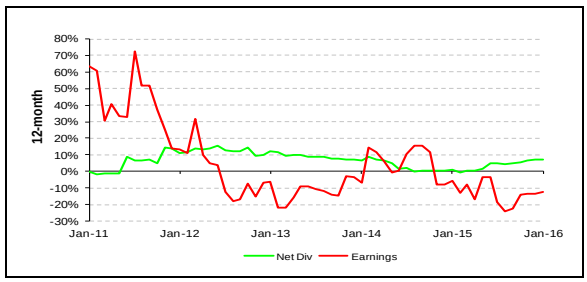


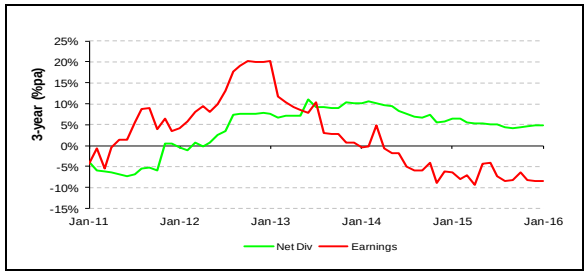
The gap gives a current expectation around 3.2% for longer-term inflation + risk premium for gilts, relative to index-linked gilts.

Growth in Earnings and Dividends

These charts show movements in rolling 12-month and 3-year dividend and earnings growth for UK Equities over the last 5 years. [*NB the charts have different scales*]

Figure 3: Dividend & Earnings Growth

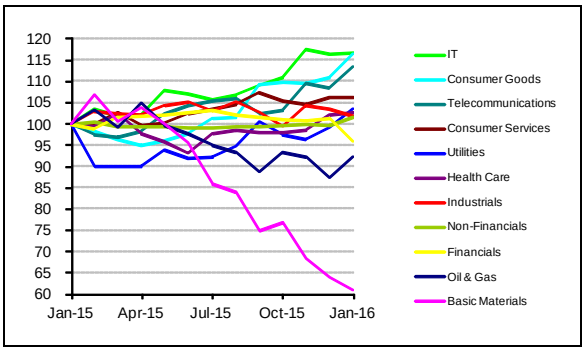




Sources for charts on this page:
Financial Times, Office for National Statistics, J&A

UK Equity Sector Returns

Figure 4a: Sectors relative to All Share



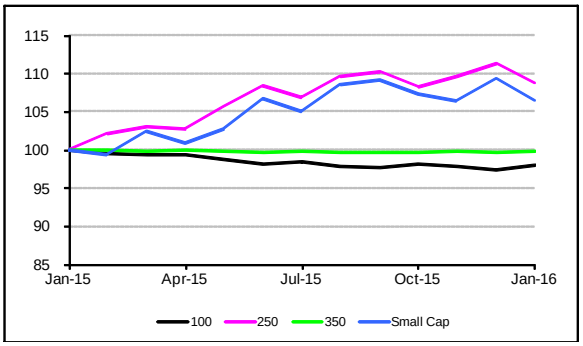
Note: Sector labels for relative lines are in end-value order

There was a slight fall this month in the rolling 12-month sector dispersion (from 57% to 56%).

(% absolute return)	1 mth	3 mth	12 mth
Oil & Gas	2.5	-5.0	-12.1
Basic Materials	-8.0	-23.8	-42.1
Industrials	-4.8	-1.4	-3.0
Consumer Goods	1.7	2.0	11.0
Health Care	-2.7	0.7	-2.1
Consumer Services	-3.0	-3.0	1.3
Telecommunications	1.4	5.7	8.2
Utilities	1.3	2.0	-1.3
Non-Financials	-1.2	-2.0	-3.2
Financials	-8.4	-8.7	-8.7
IT	-2.9	1.2	11.2
All Share	-3.1	-3.8	-4.6

UK Equity Size Returns

Figure 4b: Size groups relative to All Share



Mid Cap and Small Cap both fell in relative terms this month.

FRS17 volatility indicator

Now discontinued, but available on request.

Bond market information

Figure 5: £ Non-Gilt Credit Margins

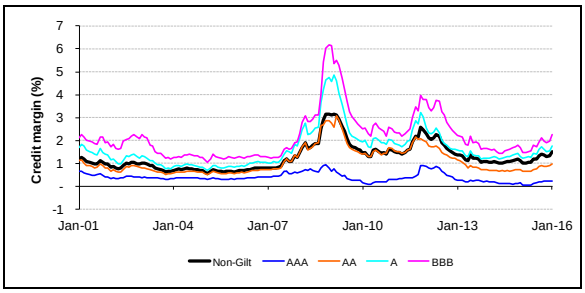


Table 2a: Over 15 Yr Corporate Yields & Margins

Month End	iBoxx Corp AA Y'ld (%)	FT 20 yr Gilt (%)	Margin (%)
Aug '15	3.61	2.49	1.12
Sep '15	3.59	2.39	1.20
Oct '15	3.66	2.53	1.13
Nov '15	3.49	2.47	1.02
Dec '15	3.65	2.59	1.06
Jan '16	**3.52**	**2.27**	**1.25**

Tables 2b, 2c: £ Market Size (£bn) and Maturity

Category	Mkt Val @ Jan 16 & 13, 10			Weight (%)
Gilts (39)	1,261	1,092	697	70.7
Non Gilts (1,014)	522	523	474	29.3
AAA (117)	97	127	149	5.4
AA (185)	93	73	756	5.2
A (330)	155	176	167	8.7
BBB (382)	176	148	83	9.9

Category	Mkt Val @ Jan 16 & 13		W't (%)	Dur'n (yrs)
Gilts (39)	1,261	1,092	70.7	10.8
< 5 Yrs (11)	353	308	19.8	2.8
5–15 Yrs (12)	393	393	22.0	7.5
> 15 Yrs (16)	515	392	28.9	18.7
Non Gilts (1,014)	522	523	29.3	8.0
< 5 Yrs (335)	150	145	8.4	2.6
5–15 Yrs (439)	227	212	12.7	7.5
> 15 Yrs (240)	144	166	8.1	14.3

£ Gilt Market "main" Issuance

- £4.00bn 1½% 2021 (1.07x, 1.12%, Dec 15)
- £3.00bn 2% 2025 (1.62x, 1.88%, Nov 15)
- £1.50bn 4% 2060 (1.25x, 2.33%, Jul 14)
- £0.90bn $^{1}/_{8}$% IL 2046 (1.73x, ry -0.72%, Dec 15)

Note: Issuance amounts are nominals.

Tables 2d, 2e: € Market Size and Maturity (Jan 16)

Category	Mkt Val (€bn)	Weight (%)
Sovereigns (317)	5,767	61.4
Non Sovereigns	3,626	38.6
AAA (635)	1,051	11.2
AA (602)	966	10.3
A (764)	777	8.3
BBB (934)	833	8.9

Category	Mkt Val (€bn)	Weight (%)
1 – 3 Yrs (783)	2,086	22.2
3 – 5 Yrs (795)	2,003	21.3
5 – 7 Yrs (738)	1,625	17.3
7 – 10 Yrs (620)	1,747	18.6
10+ Yrs (316)	1,932	20.6

Table 2f: Breakdown of £ Index-Linked Market

Category (Number of issues)	Mkt Val (£bn @ Jan 16 & 13)		W't (%)	Dur'n (yrs)
Gilts (25)	499	355	93.3	21.8
< 5 Yrs (3)	50	45	9.3	-
5 – 15 Yrs (7)	126	99	23.7	-
> 15 Yrs (15)	323	210	60.4	29.4
Non Gilts (37)	36	31	6.7	17.1

Table 2g: High Yield bond yields (BB-B indices)

Month End	US (%)	Euro (%)	Sterling (%)
Jul '15	6.20	4.08	6.06
Aug '15	6.61	4.43	6.38
Sep '15	7.21	5.14	6.58
Oct '15	6.68	4.52	6.40
Nov '15	7.03	4.37	6.30
Dec '15	7.51	5.13	6.51
Jan '16	**7.81**	**5.21**	**6.80**

Sources: Barclays Capital, DMO, iBoxx, J&A, MLX

JAGGER & ASSOCIATES

Contact: Ground Floor, 14 Exchange Quay,
Salford Quays, Manchester M5 3EQ
Tel.: 0161 873 9350, Fax: 0161 877 4851
web: www.jaggerandassociates.co.uk ,
e-mail: enquiries@jaggerandassociates.co.uk

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