Long-term statistics

UK 2019

Willis Towers Watson

Welcome to the 2019 edition of *Long-term statistics*, Willis Towers Watson's annual publication that presents historical data for key economic and investment indices.
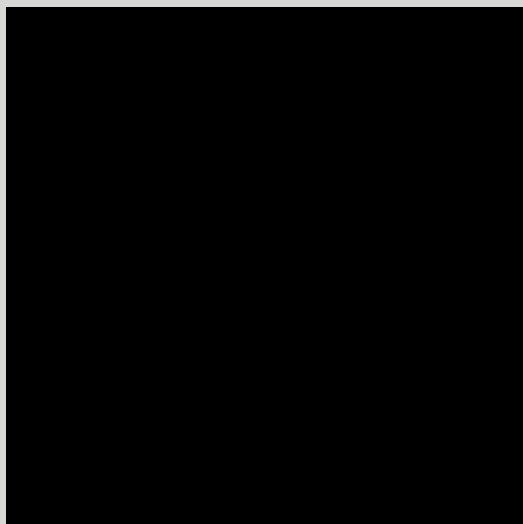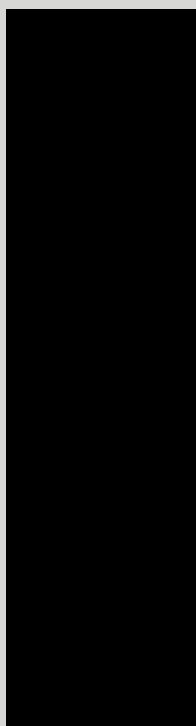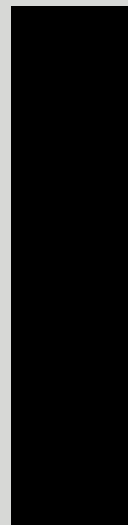
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Historic economic and investment indices

On the following pages, we set out details of bank rates, shares, rates of inflation, retail prices, index of real earnings, deposits, returns, dividends and pensions.

Since 2011, the Consumer Prices Index (CPI) has been used rather than the Retail Prices Index (RPI) to set minimum increases for occupational pensions. How a scheme is affected depends on how its rules are written: some pension increases will now be based on CPI while others will continue to be based on RPI.

In many cases, increases will be based on CPI before a member's benefits come into payment and on RPI thereafter. In this issue we have adjusted the nominal data with respect to both RPI and CPI.

Rate of inflation

Figure 1.1 shows the annual rate of inflation as at December each year from 1900 to 2018, based on a series of cost of living indices and RPI over the whole period and CPI from December 1988.

Figure 2.1 gives the percentage increase in the General Index of Retail Prices and the General Index of Consumer Prices over periods of one, five, 10 and 20 years, ending in December each year from 1989 to 2018.

Figure 1.1 **Rate of inflation**
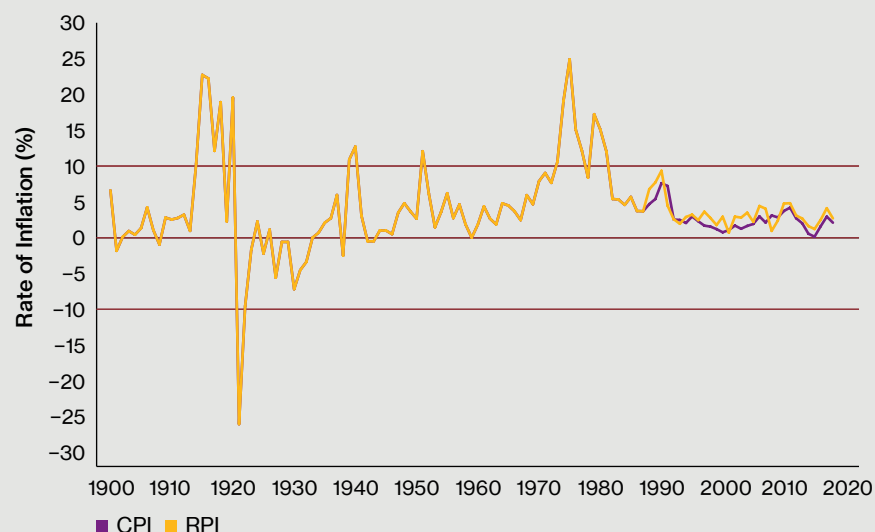
Figure 2.1 **Retail Prices and Consumer Prices**

Year	Increase % per year in General Index of Retail Prices				Increase % per year in General Index of Consumer Prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1989	7.71	5.51	6.95	9.97	–	–	–	–
1990	9.34	6.22	6.40	10.04	7.61	–	–	–
1991	4.46	6.38	5.66	9.81	7.21	–	–	–
1992	2.58	6.15	5.37	9.54	2.54	–	–	–
1993	1.94	5.17	5.03	9.10	2.48	–	–	–
1994	2.89	4.21	4.86	8.30	2.05	4.35	–	–
1995	3.22	3.02	4.61	7.27	2.96	3.43	–	–
1996	2.46	2.62	4.48	6.65	2.30	2.46	–	–
1997	3.63	2.82	4.47	6.23	1.69	2.29	–	–
1998	2.75	2.99	4.07	5.95	1.55	2.11	–	–
1999	1.76	2.76	3.48	5.20	1.20	1.94	3.14	–
2000	2.93	2.70	2.86	4.61	0.75	1.49	2.46	–
2001	0.70	2.35	2.48	4.06	1.07	1.25	1.86	–
2002	2.94	2.21	2.52	3.93	1.69	1.25	1.77	–
2003	2.80	2.22	2.60	3.81	1.25	1.19	1.65	–
2004	3.49	2.57	2.66	3.75	1.64	1.28	1.61	–
2005	2.21	2.42	2.56	3.58	1.92	1.51	1.50	–
2006	4.43	3.17	2.76	3.62	2.97	1.89	1.57	–
2007	4.05	3.39	2.80	3.63	2.12	1.98	1.61	–
2008	0.95	3.02	2.62	3.34	3.11	2.35	1.77	–
2009	2.40	2.80	2.68	3.08	2.83	2.59	1.93	2.53
2010	4.77	3.31	2.86	2.86	3.73	2.95	2.23	2.34
2011	4.82	3.38	3.28	2.88	4.20	3.19	2.54	2.20
2012	3.09	3.19	3.29	2.90	2.71	3.31	2.64	2.21
2013	2.67	3.54	3.28	2.94	2.00	3.09	2.72	2.18
2014	1.62	3.39	3.09	2.88	0.55	2.63	2.61	2.11
2015	1.20	2.67	2.99	2.78	0.14	1.91	2.43	1.96
2016	2.49	2.21	2.80	2.78	1.60	1.39	2.29	1.93
2017	4.12	2.42	2.80	2.80	2.94	1.44	2.37	1.99
2018	**2.70**	**2.42**	**2.98**	**2.80**	**2.10**	**1.46**	**2.27**	**2.02**

Alternative measures of inflation

Figure 1.2 shows the annual rate of inflation as at every month end each year from 2006 to 2018, based on the RPI, CPI and CPIH indices.

Figure 2.2 gives the percentage increase in the RPI, CPI and CPIH indices over periods of one and five years, ending in December each year from 2006 to 2018.

Figure 1.2 **Alternative measures of inflation**
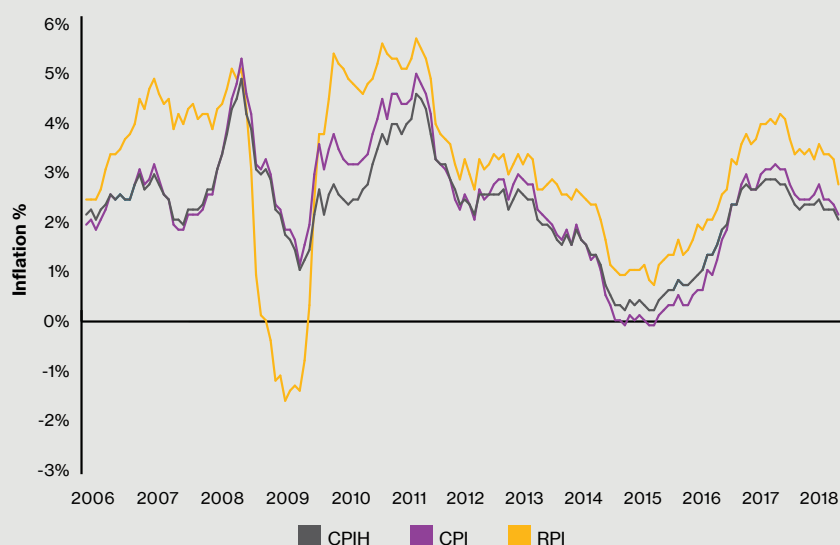
Figure 2.2 **RPI, CPI and CPI-H**

Year	Increase % per year in RPI			Increase % per year in CPI			Increase % per year in CPIH		
	Over past year	Over past 5 years	Over past 10 years	Over past year	Over past 5 years	Over past 10 years	Over past year	Over past 5 years	Over past 10 years
2006	4.43	3.17	2.76	2.97	1.89	1.57	2.99	–	–
2007	4.05	3.39	2.80	2.12	1.98	1.61	2.18	–	–
2008	0.95	3.02	2.62	3.11	2.35	1.77	3.08	–	–
2009	2.40	2.80	2.68	2.83	2.59	1.93	2.07	–	–
2010	4.77	3.31	2.86	3.73	2.95	2.23	3.15	2.69	–
2011	4.82	3.38	3.28	4.20	3.19	2.54	3.71	2.84	–
2012	3.09	3.19	3.29	2.71	3.31	2.64	2.53	2.91	–
2013	2.67	3.54	3.28	2.00	3.09	2.72	1.85	2.66	–
2014	1.62	3.39	3.09	0.55	2.63	2.61	0.71	2.38	–
2015	1.20	2.67	2.99	0.14	1.91	2.43	0.50	1.85	2.27
2016	2.49	2.21	2.80	1.60	1.39	2.29	1.79	1.47	2.15
2017	4.12	2.42	2.80	2.94	1.44	2.37	2.74	1.51	2.21
2018	**2.70**	**2.42**	**2.98**	**2.10**	**1.46**	**2.27**	**2.00**	**1.54**	**2.10**

Wages/earnings

Figure 3 shows an index of real earnings constructed by joining together various indices of wages and earnings over the period and dividing by the price indices shown in *Figure 2.1*. The gold line depicts the indices of real earnings as at December each year from 1900 to 2018 relative to RPI, while the violet line depicts the indices of real earnings as at December each year from 1988 to 2018 relative to CPI.

Figure 3. **Average wages/earnings**

■ Index of real wages/earnings vs CPI   ■ Index of real wages/earnings vs RPI

Figure 4.1 gives the percentage increase in the earnings index over periods of one, five, 10 and 20 years, ending in December each year, from 1988 to 2009. The first column shows the percentage increase in the nominal index. The second and the third columns show the percentage increase in the real index, relative to retail prices and consumer prices respectively. All figures have been shown on the seasonally adjusted basis.

Figure 4.1 **Average Earnings Index**

Year	Nominal increase % per year in earnings index				Real increase % per year in earnings index (relative to retail prices)				Real increase % per year in earnings index (relative to consumer prices)			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1988	10.41	8.31	10.50	12.32	3.41	3.27	2.45	2.29	–	–	–	–
1989	7.30	8.56	9.34	12.23	-0.38	2.89	2.23	2.06	–	–	–	–
1990	10.45	8.89	8.45	12.00	1.01	2.51	1.92	1.78	2.63	–	–	–
1991	6.46	8.66	8.11	11.89	1.91	2.15	2.32	1.89	-0.70	–	–	–
1992	4.80	7.86	7.82	11.32	2.16	1.61	2.32	1.62	2.20	–	–	–
1993	2.83	6.33	7.32	10.87	0.87	1.11	2.18	1.63	0.34	–	–	–
1994	3.66	5.60	7.07	9.63	0.75	1.34	2.11	1.23	1.58	1.20	–	–
1995	2.90	4.12	6.48	8.87	-0.31	1.07	1.79	1.49	-0.05	0.67	–	–
1996	4.17	3.67	6.14	8.47	1.68	1.03	1.59	1.70	1.83	1.18	–	–
1997	4.95	3.70	5.76	8.24	1.27	0.85	1.23	1.89	3.21	1.37	–	–
1998	4.15	3.97	5.14	7.79	1.37	0.95	1.03	1.74	2.57	1.82	–	–
1999	6.25	4.48	5.04	7.17	4.41	1.67	1.51	1.87	4.99	2.50	1.85	–
2000	4.77	4.85	4.49	6.45	1.79	2.10	1.58	1.75	3.98	3.31	1.98	–
2001	2.42	4.50	4.08	6.08	1.71	2.10	1.56	1.94	1.34	3.21	2.19	–
2002	3.50	4.21	3.95	5.87	0.54	1.95	1.40	1.86	1.78	2.92	2.15	–
2003	4.38	4.26	4.11	5.70	1.54	1.99	1.47	1.82	3.10	3.03	2.42	–
2004	3.94	3.80	4.14	5.59	0.43	1.20	1.44	1.77	2.26	2.49	2.49	–
2005	4.12	3.67	4.26	5.36	1.87	1.22	1.66	1.72	2.17	2.13	2.72	–
2006	3.96	3.98	4.24	5.18	-0.45	0.78	1.44	1.51	0.96	2.05	2.63	–
2007	3.81	4.04	4.13	4.94	-0.23	0.63	1.29	1.26	1.66	2.03	2.47	–
2008	3.45	3.86	4.06	4.60	2.47	0.81	1.40	1.21	0.33	1.47	2.25	–
2009	1.23	3.31	3.55	4.29	-1.14	0.50	0.85	1.18	-1.56	0.70	1.59	1.72
2010	Average Earnings Index (AEI) has been superseded by Average Weekly Earnings (AWE) as the lead measure of short-term earnings growth. The Office of National Statistics discontinued publishing AEI after August 2010.											

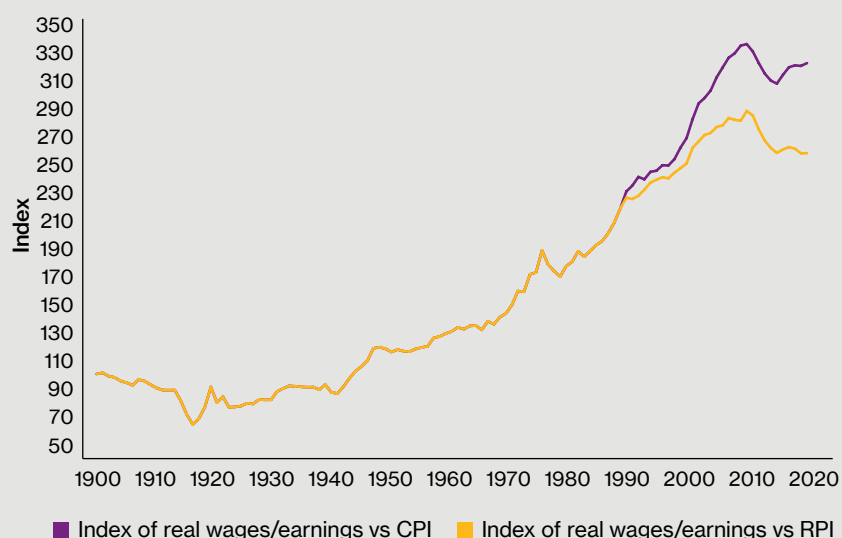Figure 4.2 gives the percentage increase in the average weekly earnings over periods of one, five and 10 years, ending in December each year, from 2001 to 2018. The first column shows the percentage increase in the nominal average weekly earnings. The second and the third columns show the percentage increase in the real average weekly earnings, relative to retail prices and consumer prices respectively. All figures have been shown on the seasonally adjusted basis; comparisons with earlier editions of *Long-term statistics* may show small differences.

This data series was revised in June 2017 to reflect the implementation by the Office for National Statistics of improvements to earnings estimates for small businesses. The figures shown up to 2015 do not reflect this change.

Figure 4.2 **Average Weekly Earnings**

Year	Nominal increase % per year in average weekly earnings			Real increase % per year in average weekly earnings (relative to retail prices)			Real increase % per year in average weekly earnings (relative to consumer prices)		
	Over past year	Over past 5 years	Over past 10 years	Over past year	Over past 5 years	Over past 10 years	Over past year	Over past 5 years	Over past 10 years
2001	3.38	–	–	2.67	–	–	2.29	–	–
2002	2.38	–	–	-0.54	–	–	0.68	–	–
2003	4.07	–	–	1.23	–	–	2.79	–	–
2004	4.47	–	–	0.95	–	–	2.78	–	–
2005	**4.55**	**3.77**	–	**2.28**	**1.31**	–	**2.58**	**2.22**	–
2006	**5.63**	4.21	–	**1.15**	1.01	–	**2.58**	2.28	–
2007	2.91	4.32	–	-1.10	0.90	–	0.77	2.30	–
2008	2.35	3.97	–	1.39	0.93	–	-0.73	1.59	–
2009	0.92	3.26	–	-1.44	0.45	–	-1.86	0.65	–
2010	2.28	**2.80**	3.28	-2.38	**-0.49**	0.41	-1.40	**-0.14**	1.03
2011	1.78	2.05	3.12	-2.89	-1.30	-0.15	-2.32	-1.11	0.57
2012	**0.88**	**1.64**	**2.97**	**-2.15**	**-1.51**	**-0.31**	**-1.79**	**-1.62**	**0.32**
2013	**1.52**	1.47	2.72	**-1.13**	-2.00	-0.55	**-0.47**	-1.57	0.00
2014	**2.14**	**1.72**	**2.48**	**0.51**	**-1.62**	**-0.59**	**1.58**	**-0.89**	**-0.12**
2015	1.88	**1.64**	**2.22**	0.67	**-1.01**	**-0.75**	1.74	**-0.27**	**-0.20**
2016	**1.85**	**1.65**	**1.85**	**-0.63**	**-0.55**	**-0.92**	**0.25**	**0.25**	**-0.43**
2017	**3.23**	2.12	**1.88**	-0.86	-0.29	**-0.90**	**0.27**	**0.67**	**-0.48**
2018	**2.93**	**2.40**	**1.94**	**0.23**	**-0.02**	**-1.01**	**0.82**	**0.93**	**-0.33**

Interest rates

Figure 5 shows various interest rates at the end of each quarter from 1900 to 2018. The violet line shows short-term interest rates represented successively by the bank rate, the minimum lending rate and bank base rates. Long-term interest rates are shown by the gold line, represented by the yield on 2.5% Consols up to 1977, then by the yield on FTSE Actuaries Government Securities Irredeemable stocks up to 2014 and thereafter by the yield on FTSE Actuaries Government Securities 45 years stock. Also shown, by the blue line, are yields on index-linked stocks, using the real yields (assuming 5% inflation) from the FTSE Actuaries Government Securities Index-linked indices for all stocks up to March 1986 and for stocks of over five years' duration thereafter.

Figure 5. **Interest rates**

Legend:
- Short-term interest rates
- Long-term interest rates
- Yield on index-linked stocks
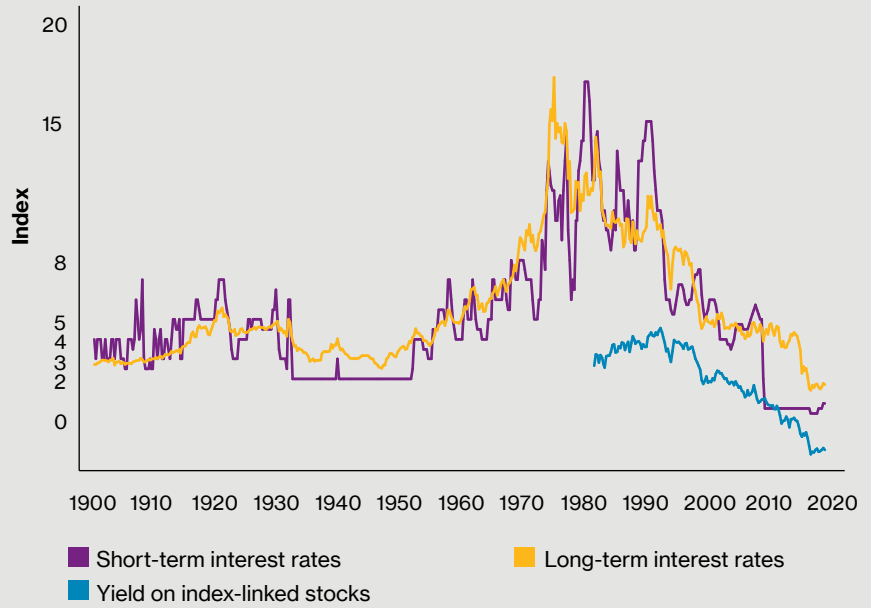
Dividend yields

Figure 6 shows the gross and net dividend yields on ordinary shares and compares them with long-term interest rates. The latter (shown by the gold line) is the same as the graph of long-term interest rates shown above. The gross dividend yield on ordinary shares up to September 1997 is shown by the violet line. This is based from 1919 to 1923 on values of the index published by stockbrokers de Zoete. Thereafter, values at the end of each quarter are used; from 1924 to March 1962, these are taken from various older actuaries indices. From June 1962 onwards, the dividend yield on the FTSE Actuaries All-Share Index is used. The net dividend yield is shown by the blue line, constructed by reducing the gross dividend yield by the rate of advanced corporation tax between April 1973 and August 1997 and using the actual published yield thereafter.
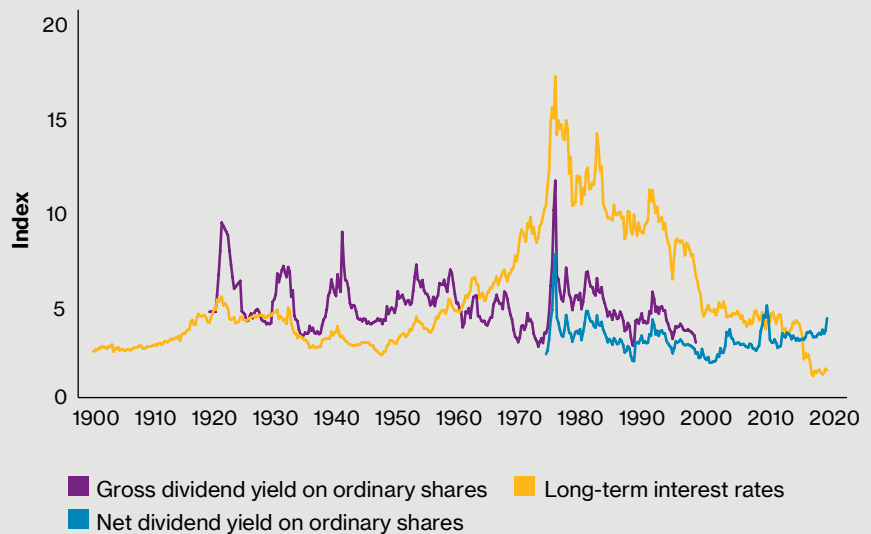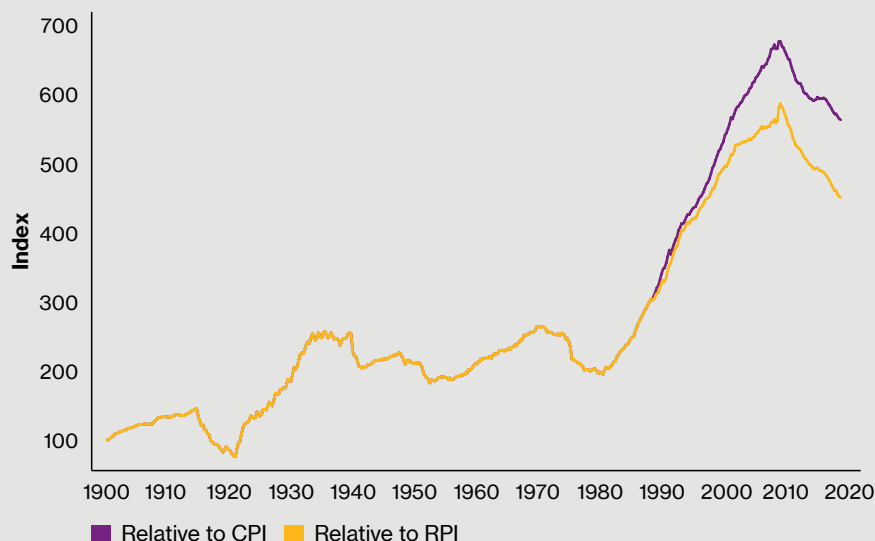
Figure 6. **Dividend yields**

Legend:
- Gross dividend yield on ordinary shares
- Long-term interest rates
- Net dividend yield on ordinary shares

Figure 7. **Accumulated real return on short-term fixed interest deposits**

■ Relative to CPI   ■ Relative to RPI

Fixed interest returns: short term

Figure 7 shows an index of the accumulated real return on short-term fixed interest deposits at the end of each quarter from 1900 to 2018, with returns obtained by dividing short-term fixed interest returns by the RPI and from 1988 to 2018 with returns obtained by dividing short-term fixed interest returns by the CPI shown in *Figure 2.1*. Up to December 1972, the interest rates used are those described under interest rates in *Figure 5*. From 1973 to December 1991, the return is based on Local Authority seven-day deposit rates; thereafter, the accumulation is based on the London Interbank BID (LIBID) seven-day notice rate. The accumulated money return allows for gross interest income.

Figure 8 gives the percentage returns on short-term fixed interest investment over periods of one, five, 10 and 20 years, ending in December each year from 1991 to 2018. The first column shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

Figure 8. **Fixed interest returns: short-term**

Year	Nominal increase % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1991	12.29	12.35	11.91	11.87	7.49	5.61	5.92	1.88	4.74	–	–	–
1992	9.07	12.18	11.53	12.02	6.33	5.68	5.84	2.27	6.37	–	–	–
1993	6.39	11.45	11.12	11.76	4.36	5.98	5.80	2.44	3.82	–	–	–
1994	4.87	9.57	10.59	11.32	1.93	5.14	5.47	2.79	2.76	5.00	–	–
1995	6.14	7.72	9.91	11.08	2.83	4.57	5.07	3.55	3.09	4.15	–	–
1996	5.90	6.46	9.37	10.77	3.36	3.75	4.68	3.87	3.52	3.90	–	–
1997	6.43	5.94	9.02	10.68	2.70	3.03	4.35	4.18	4.66	3.57	–	–
1998	7.06	6.08	8.73	10.58	4.19	3.00	4.48	4.37	5.43	3.89	–	–
1999	5.11	6.12	7.83	10.10	3.29	3.27	4.20	4.65	3.86	4.11	4.55	–
2000	5.62	6.02	6.87	9.46	2.61	3.23	3.90	4.64	4.83	4.46	4.30	–
2001	4.86	5.81	6.14	8.99	4.13	3.38	3.57	4.74	3.75	4.50	4.20	–
2002	3.69	5.26	5.60	8.52	0.73	2.98	3.01	4.42	1.97	3.96	3.76	–
2003	3.46	4.54	5.31	8.18	0.64	2.27	2.63	4.21	2.18	3.31	3.60	–
2004	4.32	4.38	5.25	7.89	0.80	1.77	2.52	3.98	2.63	3.07	3.59	–
2005	4.58	4.18	5.10	7.47	2.32	1.71	2.47	3.76	2.61	2.63	3.54	–
2006	4.61	4.13	4.97	7.14	0.17	0.93	2.15	3.41	1.59	2.20	3.34	–
2007	5.55	4.50	4.88	6.93	1.44	1.07	2.02	3.18	3.36	2.47	3.21	–
2008	4.77	4.76	4.65	6.67	3.79	1.70	1.98	3.22	1.62	2.36	2.84	–
2009	0.53	3.99	4.19	5.99	-1.82	1.16	1.47	2.83	-2.24	1.37	2.21	3.38
2010	0.41	3.15	3.66	5.25	-4.17	-0.15	0.78	2.32	-3.21	0.19	1.40	2.84
2011	0.47	2.32	3.22	4.67	-4.15	-1.03	-0.06	1.74	-3.58	-0.85	0.66	2.42
2012	0.42	1.31	2.89	4.24	-2.59	-1.83	-0.39	1.29	-2.23	-1.94	0.24	1.99
2013	0.36	0.44	2.58	3.93	-2.25	-3.00	-0.68	0.96	-1.61	-2.57	-0.14	1.71
2014	0.35	0.40	2.18	3.70	-1.25	-2.89	-0.88	0.80	-0.20	-2.17	-0.42	1.57
2015	0.32	0.39	1.76	3.41	-0.88	-2.23	-1.20	0.62	0.18	-1.49	-0.65	1.42
2016	0.36	0.36	1.34	3.14	-2.09	-1.81	-1.42	0.35	-1.22	-1.02	-0.93	1.18
2017	0.32	0.34	0.82	2.83	-3.65	-2.03	-1.93	0.03	-2.55	-1.08	-1.51	0.82
2018	**0.58**	**0.38**	**0.41**	**2.51**	**-2.06**	**-1.99**	**-2.50**	**-0.28**	**-1.49**	**-1.06**	**-1.82**	**0.48**

Fixed interest returns: long term

Figure 9 shows an index of the accumulated real return on long-term fixed interest stocks at the end of each quarter from 1900 to 2018, with returns obtained by dividing long-term fixed interest returns by the RPI, and from 1988 to 2018 with returns obtained by dividing long-term fixed interest returns by the CPI shown in *Figure 2.1*. Up to December 1980, the accumulated returns are based on the interest rates described under interest rates in *Figure 5*; thereafter, they are based on the FTSE Actuaries British Government Securities Over 15 Years Index. The accumulated money return allows for gross interest income and for changes in the capital values of stocks.

Figure 9. **Accumulated real return on long-term fixed interest deposits**

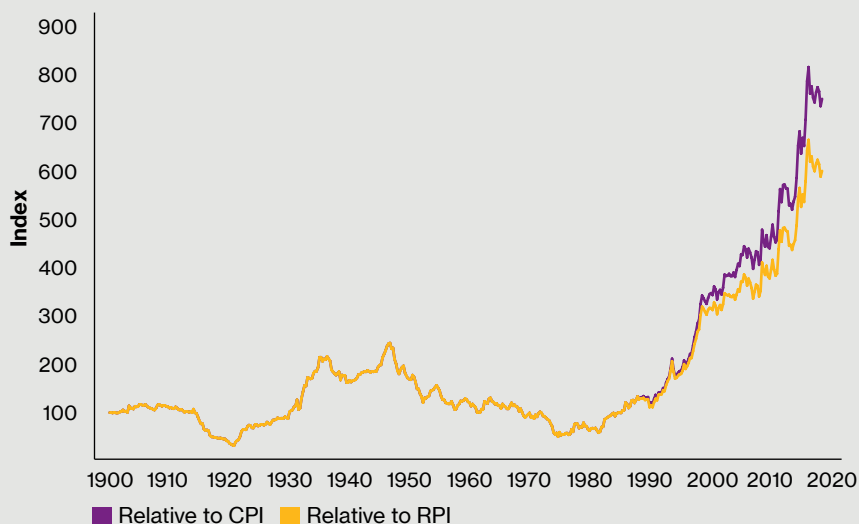■ Relative to CPI   ■ Relative to RPI

*Figure 10* gives the percentage returns on long-term fixed interest investment over periods of one, five, 10 and 20 years, ending in December each year from 1991 to 2018. The first column shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

Figure 10. **Fixed interest returns: long term**

Year	Nominal return % per year				Real return % per year relative to retail prices				Real return per cent per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1991	18.57	10.69	14.71	11.48	13.50	4.06	8.57	1.52	10.59	–	–	–
1992	16.81	10.83	11.62	12.68	13.87	4.41	5.93	2.87	13.92	–	–	–
1993	34.18	15.44	13.21	14.98	31.63	9.76	7.80	5.40	30.94	–	–	–
1994	-12.06	11.27	11.00	15.32	-14.53	6.77	5.86	6.49	-13.83	6.63	–	–
1995	17.39	13.92	11.60	14.49	13.73	10.58	6.68	6.73	14.02	10.14	–	–
1996	8.97	12.01	11.35	14.09	6.36	9.16	6.57	6.98	6.52	9.32	–	–
1997	22.96	13.17	11.99	12.74	18.66	10.06	7.20	6.13	20.92	10.63	–	–
1998	29.75	12.41	13.91	14.32	26.28	9.15	9.46	7.90	27.77	10.09	–	–
1999	-0.36	15.25	13.24	13.80	-2.09	12.16	9.43	8.17	-1.54	13.06	9.80	–
2000	7.99	13.34	13.63	13.29	4.92	10.36	10.47	8.29	7.18	11.67	10.90	–
2001	-0.91	11.21	11.61	13.15	-1.60	8.66	8.91	8.74	-1.96	9.84	9.58	–
2002	9.92	8.74	10.93	11.27	6.78	6.39	8.21	7.06	8.09	7.40	9.00	–
2003	1.19	3.47	7.85	10.50	-1.57	1.22	5.11	6.44	-0.06	2.25	6.10	–
2004	8.42	5.23	10.13	10.56	4.76	2.60	7.27	6.56	6.67	3.90	8.39	–
2005	11.00	5.81	9.51	10.55	8.60	3.31	6.78	6.73	8.92	4.24	7.89	–
2006	0.03	6.01	8.58	9.96	-4.21	2.75	5.66	6.12	-2.85	4.04	6.90	–
2007	2.67	4.57	6.64	9.28	-1.32	1.14	3.73	5.45	0.54	2.55	4.95	–
2008	13.65	7.03	5.24	9.49	12.58	3.90	2.55	5.95	10.22	4.58	3.41	–
2009	-4.84	4.28	4.75	8.92	-7.06	1.44	2.02	5.66	-7.46	1.65	2.77	6.23
2010	8.78	3.86	4.83	9.14	3.83	0.53	1.91	6.10	4.87	0.88	2.54	6.64
2011	26.26	8.81	7.40	9.48	20.46	5.24	3.99	6.42	21.17	5.44	4.74	7.13
2012	2.91	8.86	6.69	8.79	-0.18	5.49	3.29	5.72	0.19	5.37	3.95	6.45
2013	-5.93	4.82	5.92	6.88	-8.38	1.23	2.56	3.82	-7.77	1.68	3.12	4.60
2014	26.13	10.89	7.53	8.82	24.12	7.26	4.31	5.78	25.44	8.05	4.80	6.58
2015	0.09	9.06	6.43	7.96	-1.10	6.22	3.34	5.04	-0.05	7.02	3.90	5.88
2016	18.49	7.69	8.24	8.41	15.61	5.35	5.30	5.48	16.63	6.20	5.82	6.36
2017	3.32	7.77	8.31	7.47	-0.77	5.23	5.36	4.54	0.36	6.24	5.80	5.37
2018	**0.28**	**9.16**	**6.97**	**6.10**	**-2.36**	**6.58**	**3.87**	**3.21**	**-1.78**	**7.59**	**4.59**	**4.00**

Figure 11. **Accumulated real return on index-linked stocks**

Legend: ■ Relative to CPI ■ Relative to RPI
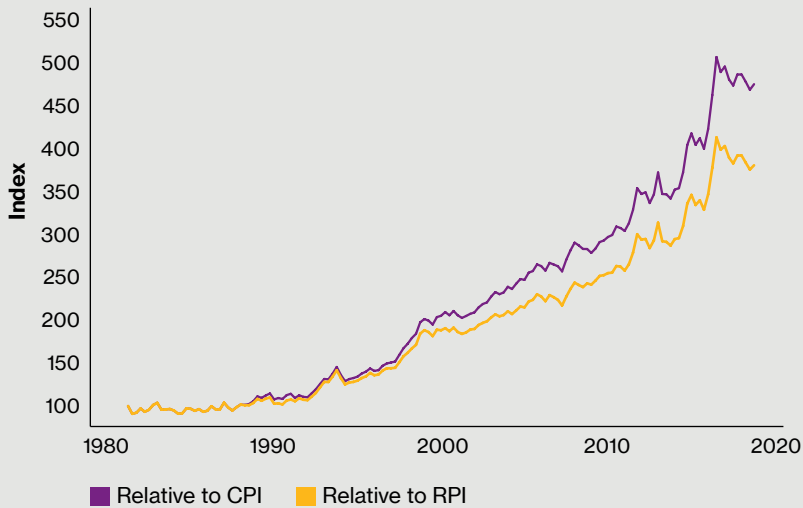
Index-linked returns

Figure 11 shows an index of accumulated real return on index-linked stocks at the end of each quarter from June 1981 to December 2018, with returns obtained by dividing index-linked returns by the RPI, and from January 1988 to December 2018 with returns obtained by dividing index-linked returns by the CPI shown in *Figure 2.1*. The index used is the FTSE Actuaries Government Securities Index-linked Index (all stocks, assuming 5% inflation). The accumulated money return allows for gross interest income and for changes in the capital values of stocks.

Figure 12 gives the percentage returns on index-linked investments over periods of one, five, 10 and 20 years, ending in December each year from 1991 to 2018.

The first column shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

Figure 12. **Index-linked returns**

Year	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1991	5.33	8.76	7.27	–	0.83	2.24	1.53	–	-1.76	–	–	–
1992	16.43	10.71	7.34	–	13.50	4.30	1.87	–	13.55	–	–	–
1993	18.69	11.99	9.14	–	16.43	6.49	3.92	–	15.83	–	–	–
1994	-7.01	7.44	7.78	–	-9.62	3.10	2.79	–	-8.88	2.96	–	–
1995	11.68	8.62	8.84	–	8.19	5.44	4.05	–	8.47	5.01	–	–
1996	6.42	8.84	8.80	–	3.87	6.06	4.13	–	4.03	6.22	–	–
1997	13.77	8.34	9.52	–	9.78	5.36	4.83	–	11.88	5.91	–	–
1998	19.90	8.56	10.26	–	16.69	5.41	5.95	–	18.07	6.31	–	–
1999	4.31	11.08	9.24	–	2.51	8.09	5.57	–	3.08	8.97	5.92	–
2000	4.27	9.56	9.09	–	1.30	6.68	6.06	–	3.49	7.95	6.47	–
2001	-0.51	8.10	8.47	7.87	-1.20	5.62	5.84	3.66	-1.56	6.77	6.49	–
2002	8.21	7.02	7.68	7.51	5.12	4.71	5.03	3.44	6.42	5.70	5.80	–
2003	6.56	4.53	6.52	7.82	3.65	2.25	3.82	3.87	5.24	3.30	4.80	–
2004	8.47	5.35	8.18	7.98	4.82	2.71	5.37	4.07	6.72	4.02	6.46	–
2005	8.97	6.28	7.91	8.37	6.61	3.77	5.21	4.63	6.92	4.70	6.31	–
2006	2.89	7.00	7.55	8.17	-1.47	3.71	4.66	4.40	-0.08	5.01	5.88	–
2007	8.45	7.04	7.03	8.27	4.23	3.53	4.12	4.47	6.20	4.97	5.33	–
2008	3.72	6.47	5.49	7.85	2.75	3.35	2.80	4.36	0.60	4.03	3.66	–
2009	6.45	6.07	5.71	7.46	3.96	3.18	2.95	4.25	3.52	3.39	3.71	4.81
2010	8.88	6.05	6.17	7.62	3.92	2.65	3.21	4.62	4.96	3.01	3.85	5.15
2011	19.94	9.35	8.17	8.32	14.43	5.77	4.73	5.29	15.11	5.97	5.49	5.99
2012	0.63	7.73	7.38	7.53	-2.39	4.39	3.96	4.50	-2.03	4.27	4.62	5.21
2013	0.54	7.06	6.76	6.64	-2.08	3.39	3.37	3.59	-1.43	3.85	3.94	4.37
2014	18.96	9.46	7.75	7.96	17.07	5.88	4.52	4.94	18.31	6.66	5.01	5.74
2015	-0.97	7.41	6.73	7.32	-2.14	4.61	3.63	4.42	-1.11	5.40	4.20	5.25
2016	24.33	8.18	8.77	8.15	21.31	5.84	5.81	5.23	22.38	6.70	6.33	6.11
2017	2.34	8.55	8.14	7.58	-1.71	5.99	5.19	4.65	-0.58	7.01	5.63	5.48
2018	**-0.28**	**8.37**	**7.71**	**6.60**	**-2.89**	**5.81**	**4.60**	**3.69**	**-2.32**	**6.81**	**5.32**	**4.49**

Spreads of corporate bond yields over gilts

Figure 13 shows how the additional yield available on corporate bonds over gilts has varied since 1988, for various bond credit ratings. The spreads have been calculated by differencing the UBS Warburg Over 10 Year Corporate Bond Index (for the relevant bond rating) and the UBS Warburg Over 10 Year Gilt Index before 1998, and by differencing the iBoxx Over 10 Year Corporate Bond Index (for the relevant bond rating) and the iBoxx Over 10 Year Gilt Index after 1998.

Figure 13. **Spreads of corporate bond yields over gilts**
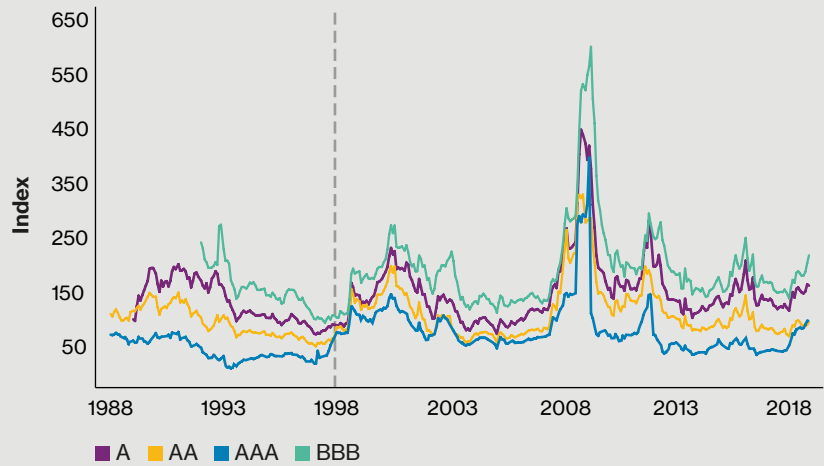
Accumulated returns on corporate bonds and gilts

Figure 14 shows an index of the total returns on AA-rated corporate bonds since 1988 compared to an index of returns on gilts of similar duration. Interest income is assumed to be reinvested in the respective indices. The indices used are the same as those in *Figure 13*.

Figure 14. **Accumulated returns (income re-invested)**
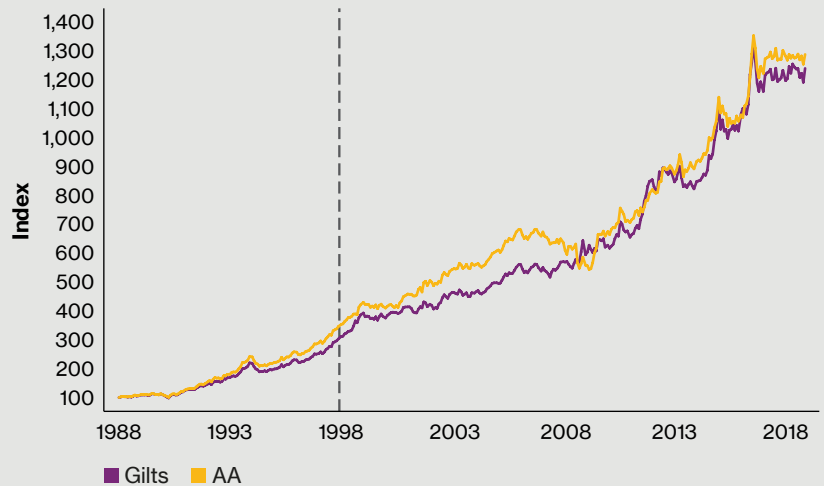
Corporate bonds

Figure 15 gives the percentage increase in the AA Corporate Bonds Index over periods of one, five and 10 years, ending in December each year, from 1998 to 2018. The first column shows the percentage increase in the nominal index. The second and third columns show the increase in the real index, relative to retail prices and consumer prices respectively. The figure uses the iBoxx Over 10 Year Index.

Figure 15. **Corporate bonds**

Year	Nominal return % per year			Real return % per year relative to retail prices			Real return % per year relative to consumer prices		
	Over past year	Over past 5 years	Over past 10 years	Over past year	Over past 5 years	Over past 10 years	Over past year	Over past 5 years	Over past 10 years
1998	21.75	–	–	18.49	–	–	19.90	–	–
1999	-1.41	–	–	-3.12	–	–	-2.58	–	–
2000	8.82	–	–	5.73	–	–	8.01	–	–
2001	7.80	–	–	7.06	–	–	6.66	–	–
2002	10.10	9.16	–	6.95	6.80	–	8.27	7.82	–
2003	5.01	5.98	–	2.14	3.68	–	3.71	4.74	–
2004	6.68	7.67	–	3.09	4.97	–	4.96	6.31	–
2005	11.95	8.28	–	9.53	5.72	–	9.85	6.67	–
2006	-0.63	6.53	–	-4.85	3.26	–	-3.50	4.55	–
2007	-2.90	3.89	6.49	-6.67	0.48	3.59	-4.91	1.87	4.80
2008	-9.75	0.79	3.35	-10.60	-2.16	0.71	-12.47	-1.53	1.56
2009	12.36	1.84	4.71	9.73	-0.93	1.98	9.27	-0.73	2.73
2010	8.39	1.18	4.67	3.45	-2.06	1.76	4.49	-1.72	2.39
2011	12.93	3.80	5.16	7.74	0.41	1.82	8.39	0.59	2.55
2012	10.97	6.61	5.24	7.65	3.31	1.89	8.04	3.19	2.53
2013	-0.38	8.74	4.69	-2.98	5.02	1.36	-2.34	5.48	1.92
2014	18.47	9.90	5.79	16.58	6.30	2.62	17.82	7.08	3.10
2015	0.03	8.15	4.61	-1.16	5.33	1.57	-0.11	6.12	2.13
2016	17.99	9.10	6.42	15.12	6.74	3.52	16.14	7.60	4.04
2017	4.45	7.79	7.20	0.32	5.24	4.27	1.47	6.26	4.71
2018	**-1.09**	**7.63**	**8.19**	**-3.68**	**5.09**	**5.05**	**-3.12**	**6.09**	**5.78**

Real dividends from ordinary shares and company earnings

The green line in *Figure 16* shows an index of real net dividends on ordinary shares from 1950 to 2018, constructed by linking together the share indices described under dividend yields in *Figure 6* and dividing by the RPI. The blue line shows the corresponding index of real net dividends divided by CPI for the period from 1988 to 2018.

The dividend index in nominal values has been obtained by multiplying the value of the share indices described in *Figure 6* by the net dividend yield. The indices of real share dividends are then obtained by dividing the share resulting dividend index by the RPI and CPI.

The gold line shows an index of company earnings divided by the RPI and the violet line show an index of company earnings divided by the CPI. The index of company earnings is based on the FTSE Actuaries 500 Share Index from April 1962 and the FTSE Actuaries All-Share Index from January 1993.

Figure 16. **Index of real company earnings and real net share dividends**

■ Company earnings – CPI   ■ Company earnings – RPI
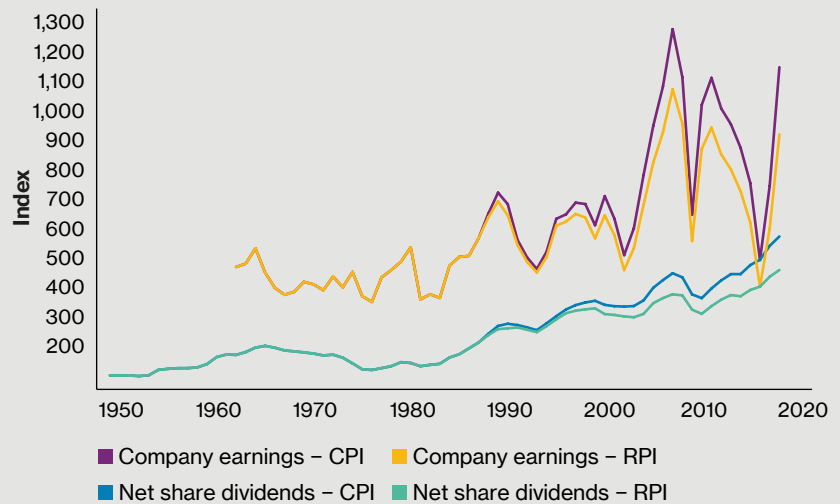■ Net share dividends – CPI   ■ Net share dividends – RPI

Figure 17 gives the percentage increase in the net dividend index on ordinary shares over periods of one, five, 10 and 20 years, ending in December each year from 1988 to 2018. The first column shows the percentage increase in the nominal index, and the second and third columns show the percentage increase in the real index, relative to retail prices and consumer prices respectively.

Figure 17. **Share dividend increases**

Year	Nominal increase % per year				Real increase % per year relative to retail prices				Real increase % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1988	19.27	16.56	14.38	11.27	11.70	11.13	6.04	1.33	–	–	–	–
1989	17.04	15.87	13.24	12.00	8.67	9.82	5.88	1.85	–	–	–	–
1990	10.54	15.39	13.01	12.27	1.10	8.63	6.21	2.02	2.72	–	–	–
1991	5.59	13.29	13.23	12.29	1.08	6.50	7.17	2.26	-1.51	–	–	–
1992	-0.50	10.15	12.20	11.76	-3.00	3.77	6.48	2.03	-2.96	–	–	–
1993	-1.26	6.06	11.19	11.48	-3.14	0.85	5.86	2.18	-3.64	–	–	–
1994	11.37	5.02	10.31	11.81	8.24	0.77	5.20	3.24	9.13	0.64	–	–
1995	12.03	5.30	10.23	12.06	8.53	2.21	5.37	4.46	8.81	1.80	–	–
1996	9.91	6.14	9.66	11.92	7.28	3.44	4.96	4.93	7.44	3.59	–	–
1997	6.45	7.59	8.86	11.34	2.72	4.63	4.20	4.81	4.68	5.17	–	–
1998	4.23	8.76	7.40	10.83	1.44	5.60	3.20	4.61	2.65	6.51	–	–
1999	2.82	7.03	6.02	9.57	1.04	4.16	2.45	4.15	1.60	5.00	2.80	–
2000	-3.19	3.95	4.62	8.73	-5.94	1.22	1.71	3.94	-3.91	2.42	2.11	–
2001	-0.24	1.96	4.03	8.53	-0.93	-0.38	1.51	4.30	-1.30	0.70	2.13	–
2002	1.28	0.95	4.21	8.13	-1.61	-1.24	1.65	4.04	-0.40	-0.30	2.40	–
2003	1.79	0.47	4.53	7.81	-0.99	-1.72	1.88	3.85	0.53	-0.71	2.84	–
2004	7.45	1.36	4.16	7.19	3.83	-1.18	1.45	3.31	5.72	0.08	2.51	–
2005	14.22	4.77	4.36	7.25	11.75	2.29	1.75	3.55	12.08	3.21	2.81	–
2006	9.70	6.78	4.34	6.97	5.04	3.49	1.54	3.23	6.53	4.80	2.73	–
2007	7.73	8.10	4.46	6.64	3.54	4.56	1.62	2.90	5.50	6.01	2.81	–
2008	-0.06	7.71	4.03	5.70	-1.00	4.55	1.37	2.28	-3.07	5.24	2.22	–
2009	-10.94	3.74	2.54	4.27	-13.02	0.92	-0.14	1.15	-13.39	1.12	0.60	1.69
2010	0.19	1.06	2.90	3.76	-4.37	-2.18	0.03	0.87	-3.41	-1.84	0.65	1.38
2011	13.65	1.77	4.25	4.14	8.42	-1.56	0.94	1.22	9.07	-1.38	1.66	1.90
2012	9.78	2.16	5.09	4.65	6.49	-1.00	1.74	1.70	6.88	-1.12	2.38	2.39
2013	7.21	3.60	5.64	5.08	4.42	0.06	2.28	2.08	5.11	0.50	2.84	2.84
2014	0.56	6.15	4.94	4.55	-1.05	2.67	1.79	1.62	0.01	3.43	2.27	2.39
2015	7.04	7.56	4.26	4.31	5.77	4.76	1.23	1.49	6.89	5.55	1.79	2.30
2016	5.46	5.97	3.85	4.09	2.90	3.67	1.02	1.28	3.81	4.51	1.52	2.12
2017	12.77	6.54	4.32	4.39	8.31	4.02	1.48	1.55	9.54	5.02	1.91	2.36
2018	**8.14**	**6.72**	**5.15**	**4.59**	**5.30**	**4.20**	**2.11**	**1.74**	**5.92**	**5.19**	**2.81**	**2.52**

Price/earnings ratio

Figure 18 shows the price of equity shares as a ratio of company earnings from June 1962 to December 2018 based on the FTSE Actuaries 500 Share Index until March 1994 and the FTSE Actuaries All-Share Index thereafter.

Figure 18. **Price/earnings ratio**


■ Price/earnings ratio
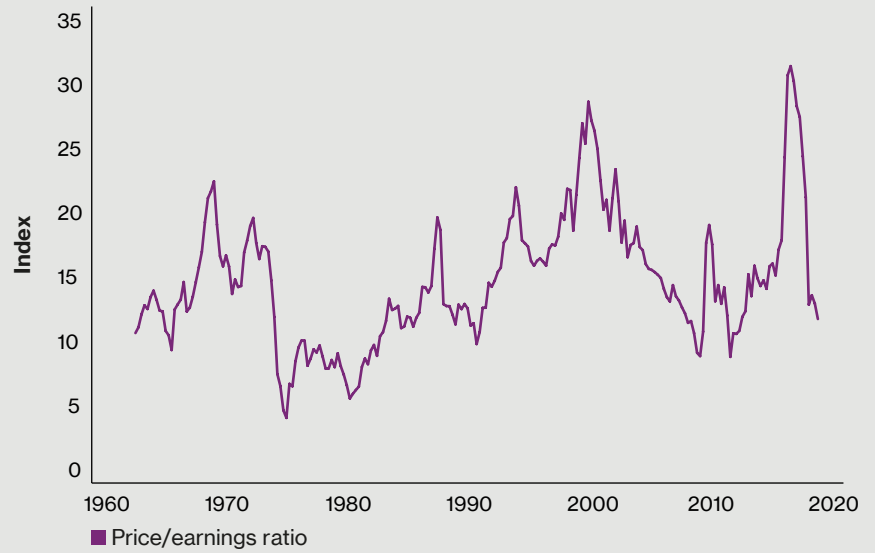
Dividend cover

Figure 19 shows the number of times that the net dividends were covered by company earnings from June 1962 to December 2018 based on the FTSE Actuaries 500 Share Index until March 1994 and the FTSE Actuaries All-Share Index thereafter.

Figure 19. **Dividend cover**

■ Dividend cover

Figure 20. **Accumulated real return on UK ordinary shares (based on net dividends)**

Legend: ■ Relative to CPI ■ Relative to RPI
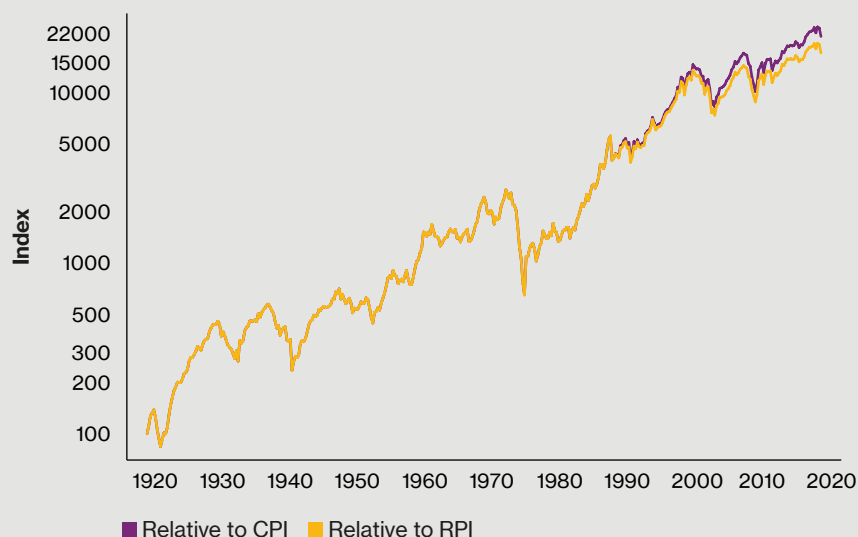
UK ordinary share returns

Figure 20 shows an index of the accumulated real return on UK ordinary shares at the end of each quarter from 1919 to 2018, with returns obtained by dividing the UK ordinary share returns by the RPI, and from 1988 to 2018 with returns obtained by dividing the UK ordinary share returns by the CPI shown in *Figure 2.1*. The share indices used are those described under dividend yields in *Figure 6*. The accumulated money return allows for net dividend income and for changes in the capital value of shares.

Figure 21 is based on dividends received by pension funds (including reclaimed Advanced Corporation Tax up to June 1997) and gives the percentage returns on ordinary share investment over periods of one, five, 10 and 20 years, ending in December each year from 1992 to 2018. The first column shows the percentage rates of nominal return, and the second and third columns show the rates of real return, relative to retail prices and consumer prices respectively.

Figure 21. **UK ordinary share returns (to pension funds)**

Year	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1992	20.49	14.81	19.00	15.71	17.46	8.16	12.94	5.63	17.51	–	–	–
1993	28.39	18.09	18.90	19.15	25.95	12.28	13.21	9.22	25.29	–	–	–
1994	-5.85	9.70	14.91	23.17	-8.49	5.27	9.59	13.73	-7.74	5.12	–	–
1995	23.85	16.86	15.21	18.87	19.99	13.44	10.13	10.81	20.29	12.98	–	–
1996	16.70	16.05	14.18	19.63	13.91	13.10	9.29	12.17	14.08	13.26	–	–
1997	23.56	16.64	15.72	18.49	19.23	13.43	10.77	11.54	21.51	14.02	–	–
1998	13.77	13.85	15.95	18.75	10.73	10.55	11.41	12.09	12.04	11.50	–	–
1999	24.20	20.34	14.89	19.41	22.05	17.10	11.03	13.51	22.73	18.05	11.40	–
2000	-5.90	13.90	15.37	17.25	-8.58	10.91	12.16	12.08	-6.60	12.23	12.60	–
2001	-13.29	7.33	11.61	15.66	-13.89	4.87	8.91	11.15	-14.21	6.01	9.58	–
2002	-22.68	-2.27	6.77	12.72	-24.89	-4.39	4.14	8.45	-23.97	-3.48	4.91	–
2003	20.86	-1.08	6.12	12.33	17.57	-3.23	3.43	8.21	19.37	-2.25	4.40	–
2004	12.84	-2.96	8.06	11.43	9.04	-5.39	5.26	7.40	11.02	-4.19	6.35	–
2005	22.04	2.22	7.90	11.49	19.40	-0.20	5.21	7.64	19.75	0.69	6.30	–
2006	16.75	8.48	7.91	11.00	11.80	5.15	5.01	7.13	13.38	6.47	6.24	–
2007	5.32	15.40	6.20	10.86	1.22	11.61	3.30	6.97	3.13	13.16	4.51	–
2008	-29.93	3.48	1.17	8.31	-30.59	0.45	-1.41	4.81	-32.04	1.10	-0.59	–
2009	30.12	6.47	1.64	8.07	27.07	3.57	-1.01	4.84	26.54	3.79	-0.28	5.40
2010	14.51	5.12	3.66	9.36	9.30	1.76	0.77	6.32	10.40	2.11	1.40	6.85
2011	-3.46	1.20	4.78	8.14	-7.90	-2.11	1.45	5.11	-7.35	-1.93	2.18	5.81
2012	12.30	2.51	8.76	7.76	8.94	-0.66	5.30	4.72	9.34	-0.78	5.96	5.43
2013	20.81	14.31	8.76	7.43	17.66	10.40	5.30	4.36	18.44	10.88	5.88	5.14
2014	1.18	8.70	7.58	7.82	-0.43	5.14	4.35	4.80	0.63	5.92	4.84	5.60
2015	0.98	6.00	5.56	6.72	-0.22	3.24	2.50	3.84	0.84	4.01	3.06	4.67
2016	16.75	10.11	5.56	6.73	13.91	7.72	2.69	3.84	14.92	8.59	3.20	4.71
2017	13.10	10.26	6.32	6.26	8.62	7.66	3.42	3.36	9.86	8.70	3.85	4.18
2018	**-9.47**	**4.08**	**9.07**	**5.05**	**-11.85**	**1.62**	**5.92**	**2.19**	**-11.33**	**2.58**	**6.65**	**2.97**

Overseas ordinary share returns

Figure 22 shows an index of the accumulated real return on overseas shares at the end of each month from 1994 to 2018. It is based on the FTSE All-World Ex UK Total Return Index. The accumulated money return allows for net dividend income and for changes in the capital value of shares. The real return is obtained by dividing the overseas ordinary share returns by the indices of UK retail prices and consumer prices shown in *Figure 2.1*.

Figure 23 gives the percentage returns on overseas share investment over periods of one, five, 10 and 20 years, ending in December each year from 1995 to 2018. The first column shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

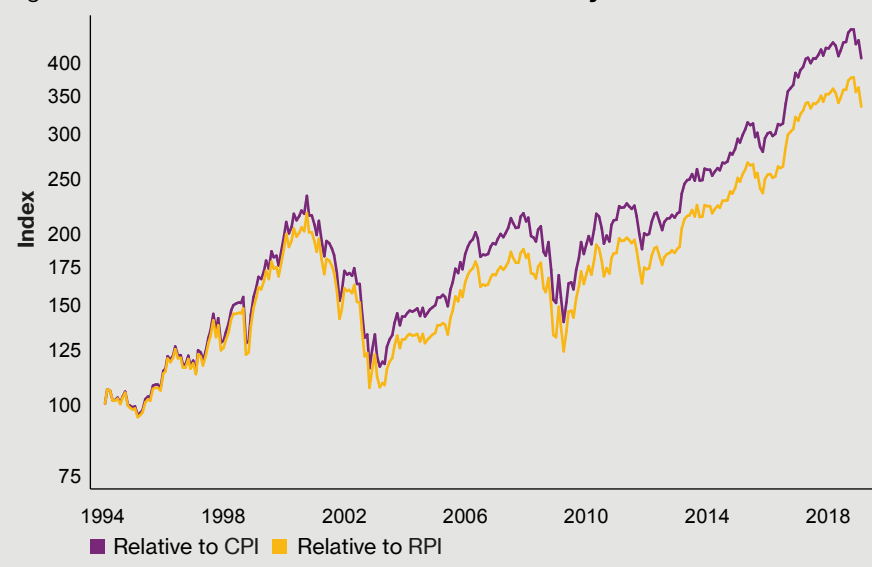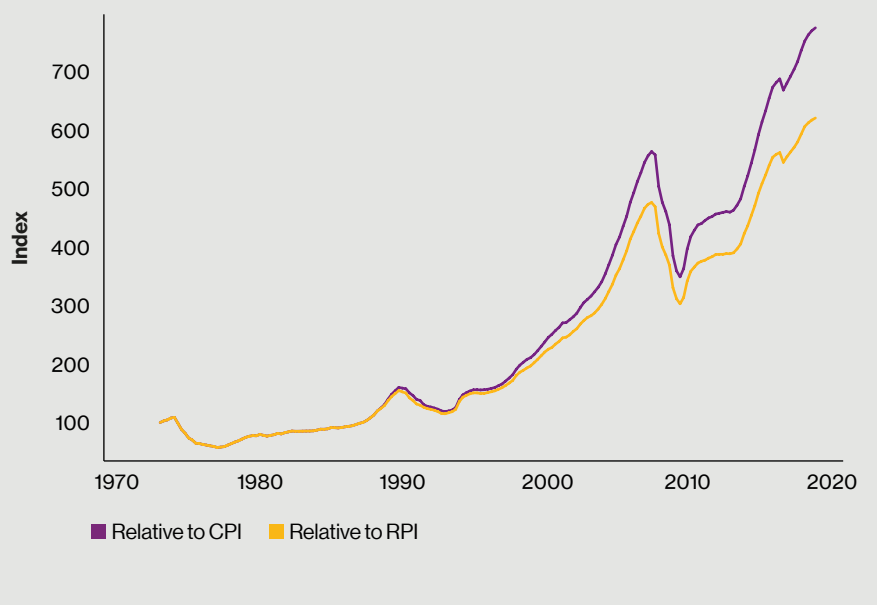Figure 22. **Accumulated real return on overseas ordinary shares**

Figure 23. **Overseas ordinary share returns**

Year	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1995	19.88	–	–	–	16.15	–	–	–	16.44	–	–	–
1996	1.34	–	–	–	-1.09	–	–	–	-0.93	–	–	–
1997	19.14	–	–	–	14.97	–	–	–	17.16	–	–	–
1998	21.91	12.21	–	–	18.64	8.96	–	–	20.05	9.90	–	–
1999	31.70	18.37	–	–	29.42	15.19	–	–	30.15	16.12	–	–
2000	-4.38	13.14	–	–	-7.10	10.16	–	–	-5.09	11.47	–	–
2001	-13.94	9.50	–	–	-14.54	6.98	–	–	-14.85	8.15	–	–
2002	-27.13	-0.76	–	–	-29.21	-2.90	–	–	-28.34	-1.98	–	–
2003	21.13	-0.88	5.46	–	17.83	-3.04	2.78	–	19.64	-2.05	3.75	–
2004	7.92	-4.75	6.18	–	4.29	-7.14	3.43	–	6.18	-5.96	4.50	–
2005	25.33	0.54	6.65	–	22.61	-1.84	3.99	–	22.97	-0.95	5.07	–
2006	6.38	4.90	7.17	–	1.86	1.67	4.29	–	3.31	2.95	5.52	–
2007	11.24	14.16	6.44	–	6.91	10.41	3.54	–	8.94	11.95	4.75	–
2008	-18.47	5.47	2.24	–	-19.24	2.38	-0.37	–	-20.93	3.05	0.47	–
2009	20.63	7.84	1.35	–	17.81	4.91	-1.30	–	17.31	5.12	-0.57	–
2010	17.16	6.40	3.43	–	11.83	2.99	0.55	–	12.95	3.35	1.18	–
2011	-6.94	3.59	4.24	–	-11.22	0.20	0.93	–	-10.69	0.38	1.66	–
2012	12.13	3.76	8.83	–	8.76	0.54	5.36	–	9.17	0.43	6.03	–
2013	21.22	12.32	8.84	7.14	18.07	8.48	5.38	4.08	18.85	8.95	5.96	4.85
2014	12.22	10.71	9.27	7.71	10.43	7.08	5.99	4.70	11.61	7.87	6.49	5.49
2015	4.43	8.19	7.29	6.97	3.18	5.37	4.18	4.08	4.28	6.16	4.75	4.91
2016	30.35	15.73	9.49	8.33	27.17	13.23	6.51	5.40	28.30	14.14	7.04	6.28
2017	13.97	16.11	9.76	8.09	9.46	13.37	6.76	5.14	10.71	14.46	7.22	5.98
2018	**-3.07**	**11.03**	**11.67**	**6.85**	**-5.62**	**8.41**	**8.44**	**3.94**	**-5.06**	**9.43**	**9.19**	**4.74**

Figure 24. **Accumulated real return on property**

Index

Legend: ■ Relative to CPI ■ Relative to RPI

Property returns

Figure 24 shows an index of the accumulated real return on UK property at the end of each quarter from 1973 to 2018, with returns obtained by dividing property returns by the RPI and from 1988 to 2018 with returns obtained by dividing property returns by the CPI shown in *Figure 2.1*. The index used from 2016 onwards is the IPD UK Property Returns Index – Standing Investment. The Jones Lang LaSalle Index was used between 1978 and 2015. Prior to 1978, actual returns achieved by pension funds have been used. The real return is obtained by dividing property returns by the retail and consumer price indices shown in *Figure 2.1*.
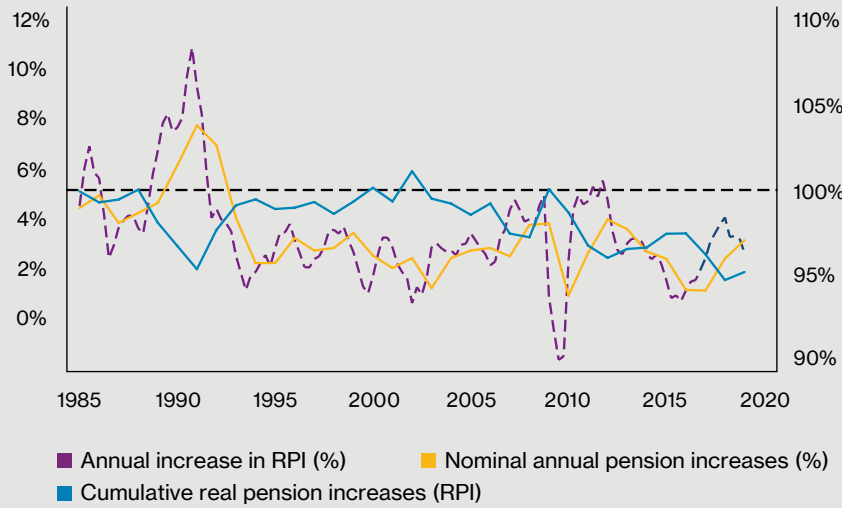
Figure 25 gives the percentage returns on property investment over periods of one, five, 10 and 20 years, ending in December each year, from 1991 to 2018. The first column shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

Figure 25. **Property returns**

Year	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1991	-2.60	11.03	9.57	–	-6.76	4.37	3.70	–	-9.15	–	–	–
1992	-3.90	6.51	8.51	10.21	-6.32	0.34	2.98	0.61	-6.28	–	–	–
1993	20.20	4.85	9.76	10.20	17.91	-0.30	4.51	1.01	17.30	–	–	–
1994	14.20	3.96	10.20	12.15	10.99	-0.24	5.10	3.55	11.90	-0.37	–	–
1995	3.60	5.89	9.79	12.01	0.37	2.79	4.96	4.41	0.62	2.38	–	–
1996	8.10	8.12	9.56	12.14	5.51	5.36	4.87	5.14	5.67	5.52	–	–
1997	17.30	12.52	9.47	11.78	13.19	9.42	4.78	5.23	15.36	9.99	–	–
1998	12.00	10.94	7.85	11.11	9.00	7.72	3.63	4.87	10.29	8.65	–	–
1999	14.10	10.92	7.38	10.59	12.12	7.94	3.77	5.13	12.75	8.81	4.12	–
2000	11.40	12.54	9.16	10.45	8.23	9.58	6.13	5.58	10.57	10.88	6.54	–
2001	8.00	12.52	10.30	9.93	7.25	9.94	7.62	5.65	6.86	11.13	8.29	–
2002	12.50	11.58	12.05	10.26	9.29	9.17	9.30	6.09	10.63	10.20	10.10	–
2003	11.00	11.38	11.16	10.46	7.98	8.96	8.34	6.40	9.63	10.07	9.36	–
2004	20.60	12.62	11.77	10.98	16.54	9.80	8.87	6.97	18.65	11.20	10.00	–
2005	19.90	14.29	13.41	11.59	17.31	11.59	10.58	7.73	17.64	12.59	11.73	–
2006	17.70	16.27	14.38	11.95	12.71	12.70	11.31	8.04	14.30	14.12	12.61	–
2007	-5.60	12.27	11.92	10.69	-9.27	8.58	8.87	6.81	-7.56	10.09	10.15	–
2008	-21.20	4.83	8.06	7.95	-21.94	1.76	5.30	4.46	-23.57	2.43	6.18	–
2009	5.90	2.14	7.25	7.32	3.42	-0.64	4.45	4.11	2.98	-0.44	5.22	4.67
2010	15.20	1.33	7.61	8.39	9.95	-1.92	4.62	5.37	11.06	-1.58	5.27	5.90
2011	8.00	-0.40	7.61	8.95	3.04	-3.66	4.20	5.90	3.65	-3.48	4.95	6.60
2012	3.30	1.41	6.70	9.34	0.20	-1.73	3.30	6.25	0.57	-1.84	3.95	6.98
2013	11.80	8.76	6.78	8.95	8.89	5.04	3.39	5.83	9.61	5.50	3.95	6.62
2014	18.30	11.19	6.57	9.14	16.42	7.55	3.37	6.09	17.65	8.35	3.86	6.89
2015	13.80	10.92	6.02	9.65	12.45	8.03	2.94	6.69	13.64	8.84	3.50	7.54
2016	2.60	9.79	4.57	9.37	0.10	7.41	1.72	6.41	0.99	8.28	2.23	7.30
2017	11.24	11.43	6.30	9.08	6.84	8.80	3.40	6.10	8.06	9.85	3.84	6.95
2018	**7.50**	**10.56**	**9.65**	**8.85**	**4.68**	**7.94**	**6.48**	**5.89**	**5.29**	**8.97**	**7.22**	**6.70**

Figure 26.1 **Pension increases relative to RPI**

- ■ Annual increase in RPI (%)
- ■ Nominal annual pension increases (%)
- ■ Cumulative real pension increases (RPI)

Figure 26.2 **Pension increases – CPI**

- ■ Annual increase in CPI (%)
- ■ Nominal annual pension increases (%)
- ■ Cumulative real pension increases (CPI)

Pension increases

Figure 26.1 and *Figure 26.2* show the Willis Towers Watson Index of Pension Increases, which is based on approximately 50 major private sector companies covering the whole spectrum of the economy. Only schemes with a minimum of 2,000 pensioners and which do not promise full indexation have been included. In total, the index now represents the experience of about 750,000 pensioners. The Index is calculated by weighting the increase given by each scheme for pensions in excess of the Guaranteed Minimum Pension by the number of pensioners involved. Shown on the left-hand scale are the average nominal pension increases given each year from 1985 to 2018, alongside the annual increases in the RPI and CPI. Shown on the right-hand scale is a cumulative index of real pension increases over the whole period relative to retail prices and consumer prices.
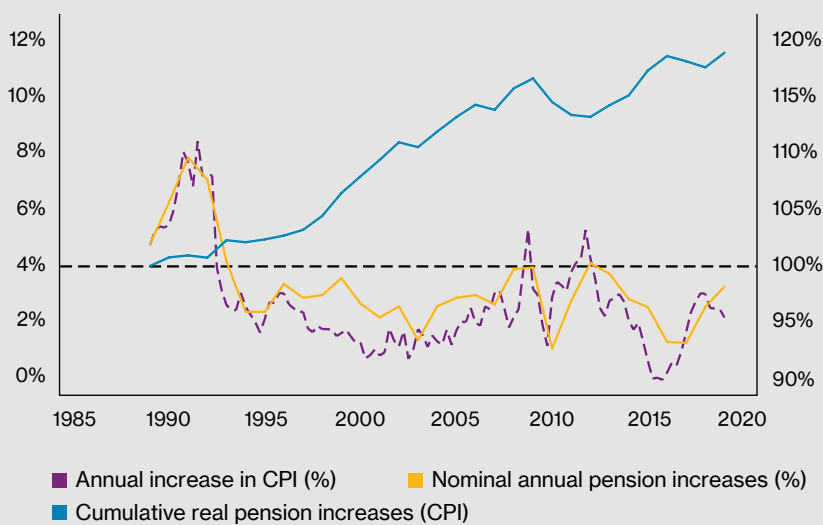
Figure 27 gives the percentage increases in pensions over periods of one, five, 10 and 20 years, ending in December each year, from 1988 to 2018. The first column shows the percentage rates of nominal increases, and the second and third columns show the percentage rates of real increases relative to retail prices and consumer prices respectively.

Figure 27. **Pension increases**

Year	Nominal increase % per year				Real increase % per year relative to retail prices				Real increase % per year relative to consumer prices			
	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years	Over past year	Over past 5 years	Over past 10 years	Over past 20 years
1988	4.70	4.48	–	–	-1.94	-0.39	–	–	–	–	–	–
1989	6.20	4.82	–	–	-1.40	-0.65	–	–	–	–	–	–
1990	7.80	5.37	–	–	-1.41	-0.80	–	–	0.17	–	–	–
1991	7.00	5.99	–	–	2.43	-0.36	–	–	-0.20	–	–	–
1992	4.10	5.95	–	–	1.48	-0.18	–	–	1.52	–	–	–
1993	2.30	5.46	4.97	–	0.35	0.28	-0.05	–	-0.17	–	–	–
1994	2.30	4.67	4.75	–	-0.57	0.45	-0.10	–	0.24	0.31	–	–
1995	3.30	3.79	4.57	–	0.08	0.75	-0.03	–	0.33	0.34	–	–
1996	2.80	2.96	4.46	–	0.34	0.33	-0.01	–	0.49	0.48	–	–
1997	2.90	2.72	4.32	–	-0.70	-0.10	-0.14	–	1.19	0.42	–	–
1998	3.50	2.96	4.20	–	0.73	-0.03	0.13	–	1.92	0.83	–	–
1999	2.60	3.02	3.84	–	0.82	0.25	0.35	–	1.39	1.06	0.69	–
2000	2.10	2.78	3.28	–	-0.81	0.07	0.41	–	1.34	1.27	0.80	–
2001	2.50	2.72	2.84	–	1.79	0.36	0.35	–	1.42	1.45	0.97	–
2002	1.30	2.40	2.56	–	-1.59	0.18	0.04	–	-0.38	1.13	0.77	–
2003	2.50	2.20	2.58	3.77	-0.29	-0.02	-0.03	-0.04	1.24	1.00	0.92	–
2004	2.80	2.24	2.63	3.68	-0.66	-0.32	-0.03	-0.07	1.14	0.95	1.01	–
2005	2.90	2.40	2.59	3.58	0.67	-0.02	0.02	0.00	0.96	0.87	1.07	–
2006	2.57	2.41	2.57	3.51	-1.79	-0.74	-0.19	-0.10	-0.39	0.51	0.98	–
2007	3.82	2.92	2.66	3.49	-0.22	-0.46	-0.14	-0.14	1.67	0.92	1.03	–
2008	3.88	3.19	2.69	3.45	2.90	0.17	0.07	0.10	0.75	0.82	0.91	–
2009	1.00	2.83	2.53	3.19	-1.37	0.03	-0.15	0.10	-1.78	0.23	0.59	0.64
2010	2.70	2.79	2.59	2.94	-1.97	-0.50	-0.26	0.07	-0.99	-0.16	0.36	0.58
2011	4.04	3.08	2.75	2.79	-0.75	-0.29	-0.52	-0.08	-0.15	-0.11	0.20	0.58
2012	3.65	3.05	2.98	2.77	0.54	-0.14	-0.30	-0.13	0.92	-0.26	0.33	0.55
2013	2.76	2.82	3.01	2.79	0.09	-0.69	-0.26	-0.14	0.75	-0.26	0.28	0.60
2014	2.47	3.12	2.97	2.80	0.84	-0.25	-0.11	-0.07	1.91	0.48	0.36	0.68
2015	1.23	2.83	2.81	2.70	0.02	0.15	-0.18	-0.08	1.09	0.90	0.37	0.72
2016	1.20	2.26	2.67	2.62	-1.27	0.04	-0.13	-0.16	-0.39	0.85	0.37	0.67
2017	2.48	2.03	2.53	2.60	-1.58	-0.38	-0.26	-0.20	-0.45	0.58	0.16	0.59
2018	**3.21**	**2.11**	**2.47**	**2.58**	**0.50**	**-0.30**	**-0.50**	**-0.21**	**1.09**	**0.65**	**0.19**	**0.55**

Figure 28 **Returns on fixed interest deposits and ordinary shares relative to RPI**

Legend:
- ■ Short-term fixed interest deposits
- ■ Long-term fixed interest deposits
- ■ Ordinary shares (net)

Figure 29 **Returns on investments 1981 to 2018 relative to RPI**

Legend:
- ■ Short-term fixed interest deposits
- ■ Long-term fixed interest deposits
- ■ Ordinary shares (net)
- ■ Property
- ■ Index-linked stocks

Comparison of accumulated real return from different investments

Figure 28 shows *Figures 7, 9 and 20* on the same scale.
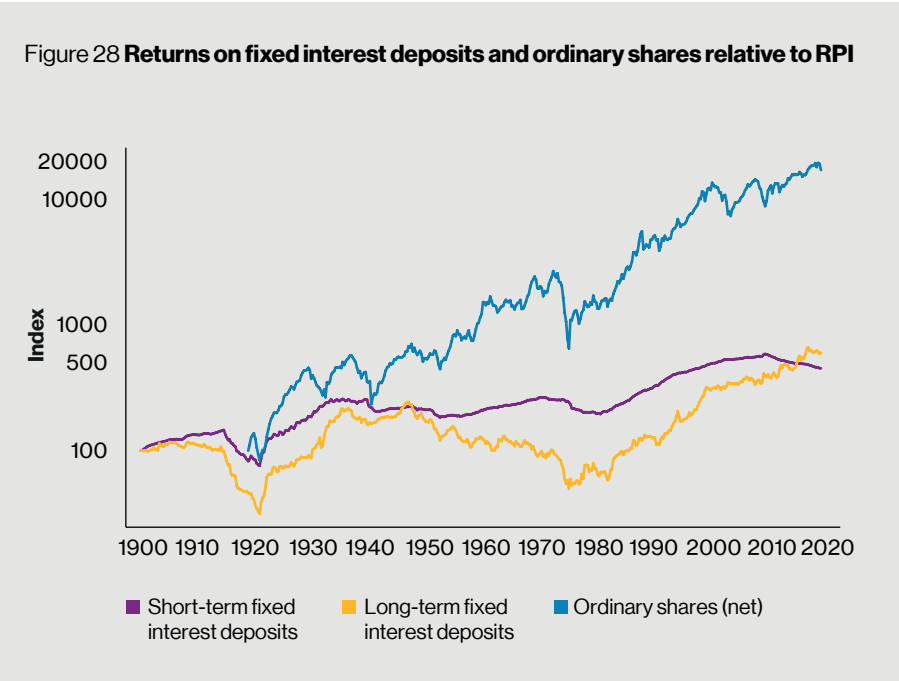
Figure 29 shows *Figures 7, 9, 11, 20* and *24* on the same scale.
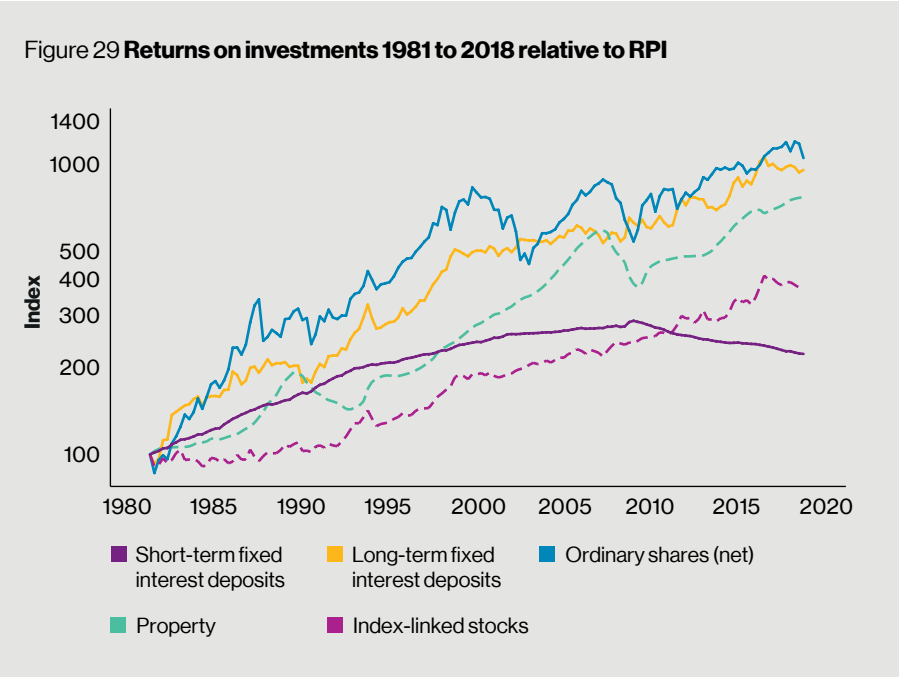
Looking ahead: Five-year Capital Market Outlook
Surviving and thriving in a late-cycle environment

2018 in review: Classic late cycle moves

In our 2018 Outlook, we noted that financial assets were pricing-in a more optimistic view for future economic and corporate conditions than we thought likely.

In 2018, almost immediately, this view seemed to come to fruition with nearly all risky asset markets suffering a poor first quarter. However, strong economic growth – in the US especially – and improving risk sentiment led to a rebound in returns in Q2 2018. From mid-year, monetary tightening by central banks started to have a material impact on markets, with tightening global liquidity pushing up government bond yields and putting pressure on funding conditions for emerging countries, especially Argentina and Turkey. Tighter liquidity and concerns that this would slow growth caused a broader market sell-off in Q4.

Overall, a diversified portfolio of assets outperformed an equivalent risk comparator portfolio, 60% equity/40% government bonds, reversing the outcome in 2017. This asset price behaviour is fairly typical of late-cycle environments.

Our outlook in a nutshell

Since the beginning of 2019, central banks globally adapted a move dovish monetary stance than the market expected, in response to concerns over weak global growth. This led to a strong rally of risky assets and the Q4 2018 sell-off has been largely retrieved. At the current market pricing, we believe markets continue to misprice

rising downside risks. Over the next few pages we highlight our forward looking views for all major asset markets by comparing the economic and fundamental conditions implied by market pricing and our outlook for conditions.

In summary, our global outlook is as follows:

- *Bonds:* After recent yield declines, developed world bond markets are now pricing-in that cash rates will remain at current levels, e.g., in the US, or rise very gradually. Based on our central outlook for an economic slowdown or recession, we expect policy rates to be cut in 2020/21 – below what is priced-in;

- *Credit:* Markets continue to price in an average at best level of default and downgrade risk over the medium term. Our outlook is for economic conditions, corporate cash flows and funding to be weaker than markets are pricing-in, given our forecast for slower economic growth in 2019 and recession likelihood over the next three years;

- *Equities:* Investors expect moderate future earnings growth, with the US as an outlier where market prices imply a continued above average outcome. We expect economic growth and earnings growth to be lower than market expectations.

Overall, relative to our medium-term outlook, we think valuations for growth-related assets are still high and expect low returns on average over five years.

Investors reappraised risk throughout 2018: Ranking asset returns in 2017/18

	14	13	12	11	10	9	8	7	6	5	4	3	2	1
2017		US Gov bonds	REITs	TIPS	Global Gov Bonds	IG Credit	Commodities	High Yield	Hedge Funds	EMD (HC)	Preferred portfolio	60/40 Comparator	DM Equities	EM Equities
	0.0%	1.2%	1.8%	2.2%	2.5%	4.6%	5.8%	7.2%	7.4%	9.1%	9.2%	10.3%	15.5%	22.7%
Q1 2018	REITs	DM Equities	EM Equities	EMD (HC)	60/40 Comparator	IG Credit	US Gov bonds	TIPS	High Yield	Preferred portfolio	Hedge Funds	Global Gov Bonds		Commodities
	-7.7%	-3.0%	-2.5%	-2.1%	-2.0%	-1.7%	-1.5%	-1.2%	-1.1%	-0.9%	-0.5%	-0.5%	0.0%	2.2%
Q2 2018	EMD (HC)	EM Equities	High Yield	IG Credit	US Gov bonds	Global Gov Bonds		TIPS	Hedge Funds	60/40 Comparator	Preferred portfolio	DM Equities	Commodities	REITs
	-4.2%	-3.1%	-1.7%	-1.1%	-0.5%	-0.2%	0.0%	0.2%	0.3%	1.5%	2.5%	2.5%	7.8%	11.9%
Q3 2018	TIPS	US Gov bonds	EM Equities	Global Gov Bonds	Hedge Funds		IG Credit	REITs	Commodities	Preferred portfolio	High Yield	EMD (HC)	60/40 Comparator	DM Equities
	-1.5%	-1.2%	-1.0%	-0.3%	0.0%	0.0%	0.2%	0.9%	1.2%	1.6%	1.6%	1.7%	2.6%	4.5%
Q4 2018	Commodities	DM Equities	60/40 Comparator	Hedge Funds	EM Equities	Preferred portfolio	High Yield	REITs	EMD (HC)	TIPS	IG Credit		Global Gov Bonds	US Gov bonds
	-23.0%	-13.9%	-8.0%	-6.4%	-5.8%	-4.8%	-3.7%	-3.3%	-1.9%	-1.1%	-0.5%	0.0%	0.8%	2.0%

Sources: Bloomberg/Barclays, JP Morgan, MSCI, HFRI, S&P, FTSE, ICE BofAML, Willis Towers Watson

Notes: The 60/40 comparator represents a portfolio of 60% DM equities/40% global government bonds in each period. Our preferred portfolio is represented by Willis Towers Watson's Partners' Fund, gross of top-level management fees; returns are excess returns above cash

Five-Year Capital Market Outlook
At a Glance – Our Outlook for Markets

Key: Highly negative | Negative | Neutral | Positive | Highly positive

Sovereign bonds	Economic conditions vs priced-in	Our outlook for economic conditions =	Asset return outlook
Nominal short rates			
US	Neutral	Negative	Positive
Japan	Negative	Negative	Highly negative
AAA-Eurozone	Negative	Negative	Highly negative
UK	Negative	Negative	Negative
Australia	Neutral	Negative	Neutral
Canada	Neutral	Negative	Neutral
Intermediate nominal bonds (10yr)			
US	Neutral	Negative	Positive
Japan	Negative	Negative	Negative
AAA-Eurozone	Negative	Negative	Negative
UK	Negative	Negative	Negative
Australia	Neutral	Negative	Neutral
Canada	Neutral	Negative	Neutral
Intermediate inflation-linked bonds (10yr)			
US	Neutral	Negative	Positive
UK	Negative	Negative	Neutral
Credit spreads			
Sovereign credit			
Europe	Neutral	Negative	Negative
Emerging	Neutral		
Corporate credit			
Investment grade		Negative	
US	Neutral	Negative	Negative
Eurozone	Neutral	Negative	Negative
UK	Positive	Negative	Negative
Canada		Negative	
High yield	Positive		
US	Positive	Negative	Negative
Europe	Positive	Negative	Negative
Loans	Positive	Highly negative	Highly negative
US	Positive	Highly negative	Highly negative
Europe	Positive	Negative	

- Across developed markets bond markets are pricing low levels of central bank tightening for policymakers to achieve adequate levels of GDP growth rates and inflation.
- From current levels, the US has the most room among central banks to ease, followed by Australia and Canada.
- Short rates in Japan and the Eurozone remain constrained by the lower bound.

- Yield curves are pricing-in relatively muted intermediate yield moves over the next five years.
- There is a risk that curves could steepen over the next few months as risk premia widen and/or discounted interest rates and inflation respond to late-cycle pressures.
- Over the next three years, our forecasts imply that nominal bonds should offer reasonable returns in developed markets with higher starting yields.

- US real yields are the highest in developed markets; breakevens look low
- UK real yields appear low, relative to economic conditions.

- Euro credit spreads remain low and underprice stagnation risk
- EM sovereign spreads appear to price a reasonable probability of defaults in aggregate

- Following spread widening, investment grade markets are pricing an allowance for an average level of defaults (outside of the UK)
- We forecast the default environment to be skewed to the downside
- At current levels high quality credit assets are unlikely to provide attractive returns above equivalent government bonds
- Lower grade credit markets continue to imply a low level of defaults relative to historic average pricing
- We believe risks are skewed towards a deterioration in defaults, particularly in the US leverage loan space in coming years and so continue to expect unattractive outcomes

Notes: The columns above disaggregate our view on forward looking returns.

- The first column contains our assessment of the future economic conditions that markets are pricing-in relative to trend (green equates to above trend conditions). Higher priced-in interest rates than our assessment of neutral imply a positive view of nominal GDP growth vs. trend. Similarly higher priced-in real interest rates than neutral embed a positive view of real GDP growth vs. trend. Low credit spreads embed a positive view of expected credit losses (and therefore of GDP growth vs. trend). High discounted earnings growth in equities imply above-trend GDP growth.
  In FX, high interest rate differentials and/or spot rates above long-term measures of fair value imply positive economic conditions.
- The second column summarises how our economic outlook translates onto these economic conditions. In effect, this is our view of "what should be priced-in".
- The third column, compares the economic conditions that are priced-in with our outlook and summarises our view on market attractiveness (risk adjusted returns relative to local cash). Note that, absent a strong view on inflation, if our view of economic conditions is more negative than that implied by market pricing, this is bad for equity returns but good for bond returns.

Five-Year Capital Market Outlook

At a Glance – Our Outlook for Markets

Key: Highly negative | Negative | Neutral | Positive | Highly positive

Global equities	Economic conditions priced-in	vs	Our outlook for economic conditions	=	Asset return outlook
Developed	Positive				
US	Positive		Negative		Highly negative
Eurozone	Neutral		Negative		Negative
Japan	Neutral		Negative		Negative
UK	Neutral		Negative		Negative
Australia	Neutral		Negative		Negative
Canada	Neutral		Negative		Negative
Emerging	Negative		Neutral		Neutral

- The sharp YTD equity price rally has left levels of discounted sales growth at or slightly below average levels for the cycle
- The major outlier to this picture is the US where market prices imply a continued above average outcome
- We expect earnings growth to come under pressure in 2019 and the next three years
- Again, the US stands out as being the most likely to suffer poor growth relative to expectations due to downside risks from the 2018 fiscal stimulus rolling over, declining buybacks and pressure on tech. earnings

Foreign exchange

FX (vs USD)	Economic conditions priced-in	vs	Our outlook for economic conditions	=	Asset return outlook
Developed					
EUR	Negative		Neutral		Neutral
JPY	Negative		Neutral		Neutral
GBP	Negative		Neutral		Neutral
AUD	Neutral		Neutral		Neutral
CAD	Neutral		Neutral		Neutral

- Interest rate differentials between the US and other developed markets imply that the US dollar will depreciate against all major currencies
- We see the dollar as modestly overvalued
- However, the dollar provides tail risk hedging characteristics and we advise investors to retain a strategic weight, balancing these two points

Liquid alternatives

Liquid alternatives	Economic conditions priced-in	vs	Our outlook for economic conditions	=	Asset return outlook
Alternative betas	Neutral		Neutral		Neutral
Low beta hedge funds	Neutral		Neutral		Positive

- Portfolios of well-constructed alternative beta strategies will, by design, be less sensitive to the macro cycle
- Skilled, low beta hedge funds will add meaningful uncorrelated return

Private markets (developed world)

Illiquidity premium (avg.)	Economic conditions priced-in	vs	Our outlook for economic conditions	=	Asset return outlook
Core real estate	Positive		Negative		Negative
Core infrastructure	Positive		Neutral		Neutral
Private equity (US)	Positive		Negative		Highly negative
Direct lending	Neutral		Negative		Negative

- Years of liquidity creation has compressed illiquidity risk premia to low levels. In general, returns from taking illiquidity risk are unattractive
- However, this is only part of the picture for illiquid assets. For example:
    - Despite historically rich pricing and some exposure to the economic cycle, core real estate and infrastructure benefit from exposure to declining risk free rates
    - Large-cap private equity valuations are high, but there remains value in niche areas
    - Direct lending spreads are low and under-discount the prospects for economic weakness driving credit losses higher
- Note, the assessments opposite are the average across developed world markets. Important local differences will exist

Notes: The columns above disaggregate our view on forward looking returns.

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Five-Year Capital Market Outlook
Implications for portfolio strategy

Portfolio construction is a multi-dimensional problem. Not only are we seeking to maximise the return per unit of risk spent, we must also manage the impact of the plan on the sponsor and increasingly extra-financial impacts. The size of those impacts is one thing but perhaps as important is minimising the chances of negative surprises.

A trilogy of challenges

The economic and market outlook implies a trilogy of challenges for pension plan management:

1. Slowing global growth in 2019 and elevated recession risks beyond threaten the operating environment of many corporate sponsors. Unexpected defined benefit ("DB") cash contributions will be even less palatable than normal in this environment. These forces also threaten DC members' real incomes and their ability to maintain contributions;

2. A weakening macro environment is likely to cause return-seeking asset values to fall and undermine DB funding ratios and defined contribution ("DC") members' savings pots. For equities in particular there is a good chance of a 20-30% decline within the next three years;

3. Volatile bond yields could create further challenges to DB funding ratios and the savings adequacy of mature DC members. Slowing global growth will likely place downward pressure on nominal yields. Additionally, for the UK, Brexit and regulatory risks create considerable uncertainty for inflation and hence real gilt yields.

For DB plans, in particular, these challenges suggest an increased chance of large, unexpected funding requirements at a time when corporate earnings are less able to absorb that additional stress. The good news is portfolio strategy can help.

Surviving and thriving in a late-cycle environment

We summarize the key portfolio strategy actions we believe investors should take in the diagram below, with the following pages adding more detail. They are positioned through some of the lenses we use when constructing portfolios to indicate that: a) these actions are good ideas independent of the macro outlook; and b) are added support by it. What all these ideas share is a focus on achieving savers' objectives whilst controlling the financial impact on any sponsor or the extra-financial impact on wider society.

In closing, we repeat our observation from last year's outlook: doing some of these things should add value but may struggle to "move the dial". Building a portfolio that delivers all these things in combination is the key. For most, this requires more delegation – either to an internal sub-committee or to aligned external decision makers but the rewards of doing so are significant.

Key actions from a macro viewpoint also make sense through other portfolio construction lenses

At Willis Towers Watson, we believe no single approach to portfolio construction can yield "the answer". Therefore, we consider the problem through multiple "lenses", four of which are displayed opposite – our delegated/"outsourced-CIO" portfolios capture more but we simplify for illustration. Doing so shows that ideas that make sense based on our macro views will tend to make sense anyway.
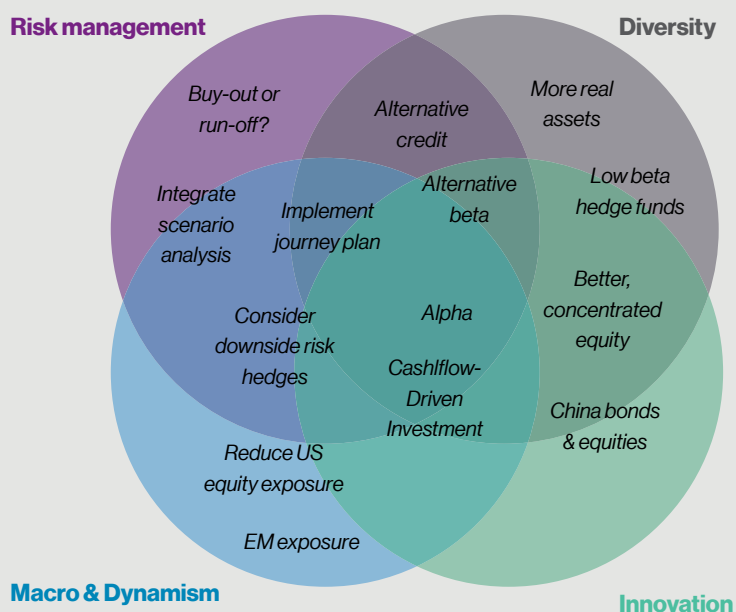

Risk management / **Diversity**
- Buy-out or run-off?
- Alternative credit
- More real assets
- Integrate scenario analysis
- Implement journey plan
- Alternative beta
- Low beta hedge funds
- Consider downside risk hedges
- Alpha
- Better, concentrated equity
- Cashlflow-Driven Investment
- China bonds & equities
- Reduce US equity exposure
- EM exposure

Macro & Dynamism / **Innovation**

Figure 30. **Sources of investment and economic statistics for the UK**

| Statistic	Date	Source
Retail price inflation	–	**General Index of Retail Prices and predecessor indices**
Consumer price inflation	–	**General Index of Consumer Prices**
Alternative measures of inflation	**From January 2006**	**Retail price, consumer price and CPIH indices**
Average wages/earnings	**From January 2011**	**Average Weekly Earnings**
	Up to December 2010	**Average Earnings Index and predecessor indices**
Short-term returns index	**From January 2018**	**Sterling overnight index average (SONIA) lending rate**
	January 1992 to December 2017	**LIBID seven-day notice**
	January 1973 to December 1991	**Local authority seven-day deposit**
	Up to December 1977	**Bank rate, Minimum lending rate and Bank Base rates**
Long-term returns index	**From January 1981**	**FTSE Actuaries Government Securities Over 15 Years Index**
	January 1978 to December 1980	**FTSE Actuaries Government Securities Index-Linked**
	Up to December 1977	**2.5% Consols**
Index-linked returns	–	**FTSE Actuaries Government Securities Index-Linked Index (all stocks, assuming 5% inflation)**
Corporate bonds	**From January 1998**	**iBoxx indices of sterling-denominated bonds of more than 10 years' duration**
	Up to December 1997	**UBS Warburg indices of sterling-denominated bonds of more than 10 years' duration**
UK equity returns	**From June 1962**	**FTSE Actuaries All-Share Index**
	January 1924 to June 1962	**Various actuaries indices**
	Up to December 1923	**de Zoete Index**
Overseas equity returns	**From December 1993**	**FTSE All-World Ex UK Index**
UK company earnings and price earnings ratios	**From April 1994**	**FTSE Actuaries All-Share Index**
	Up to March 1994	**FTSE Actuaries 500 Share Index**
Property returns	**From 2016 onwards**	**IPD UK Property Returns Index – Standing Investment.**
	From 1978 to 2015	**Jones Lang LaSalle Index**
	Up to 1978	**Actual returns achieved by pension funds**
Pension increases	–	**Willis Towers Watson Index of Pension Increases from nearly 60 major private sector companies which do not promise full indexation**

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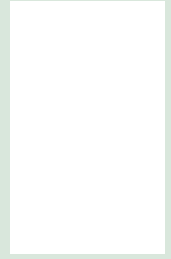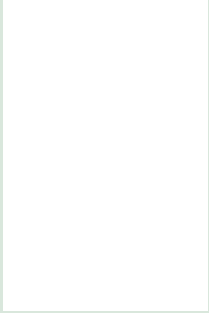
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