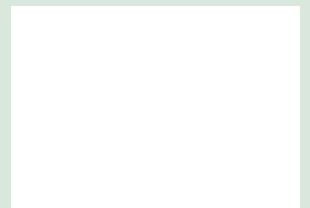
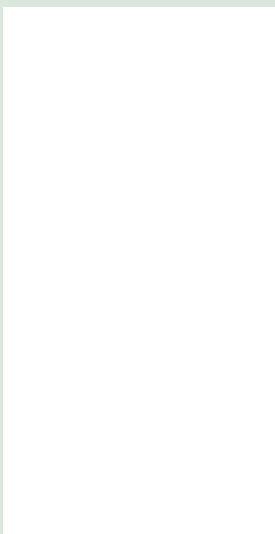
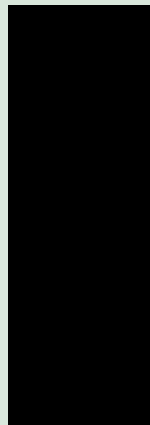
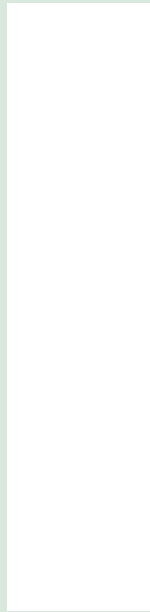
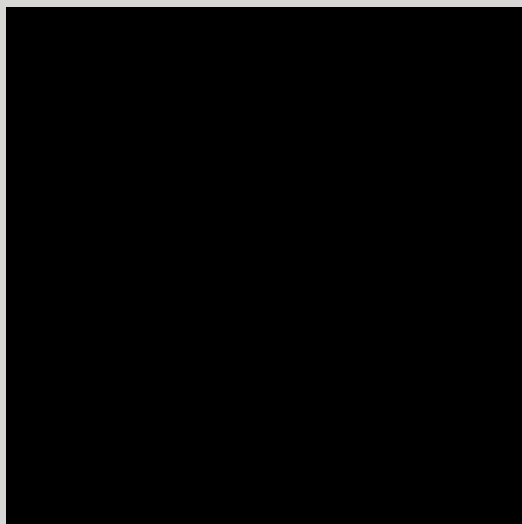
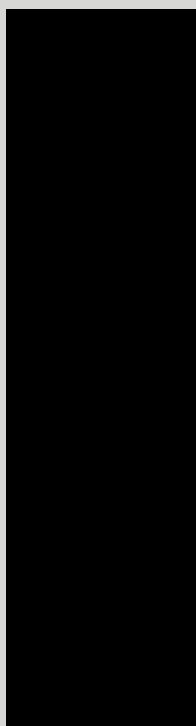
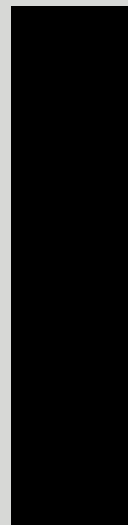


# Long-term statistics

UK 2017

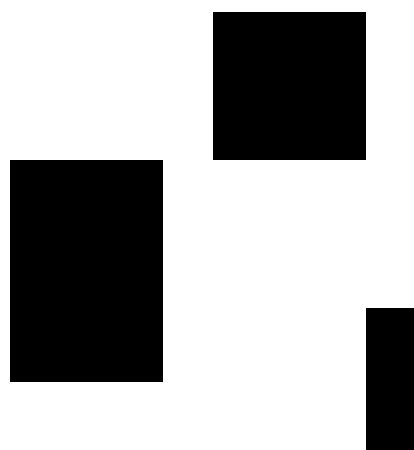


Welcome to the 2017 edition of *Long-term statistics*, Willis Towers Watson's annual publication that presents historical data for key economic and investment indices.



# Long-term statistics

UK 2017

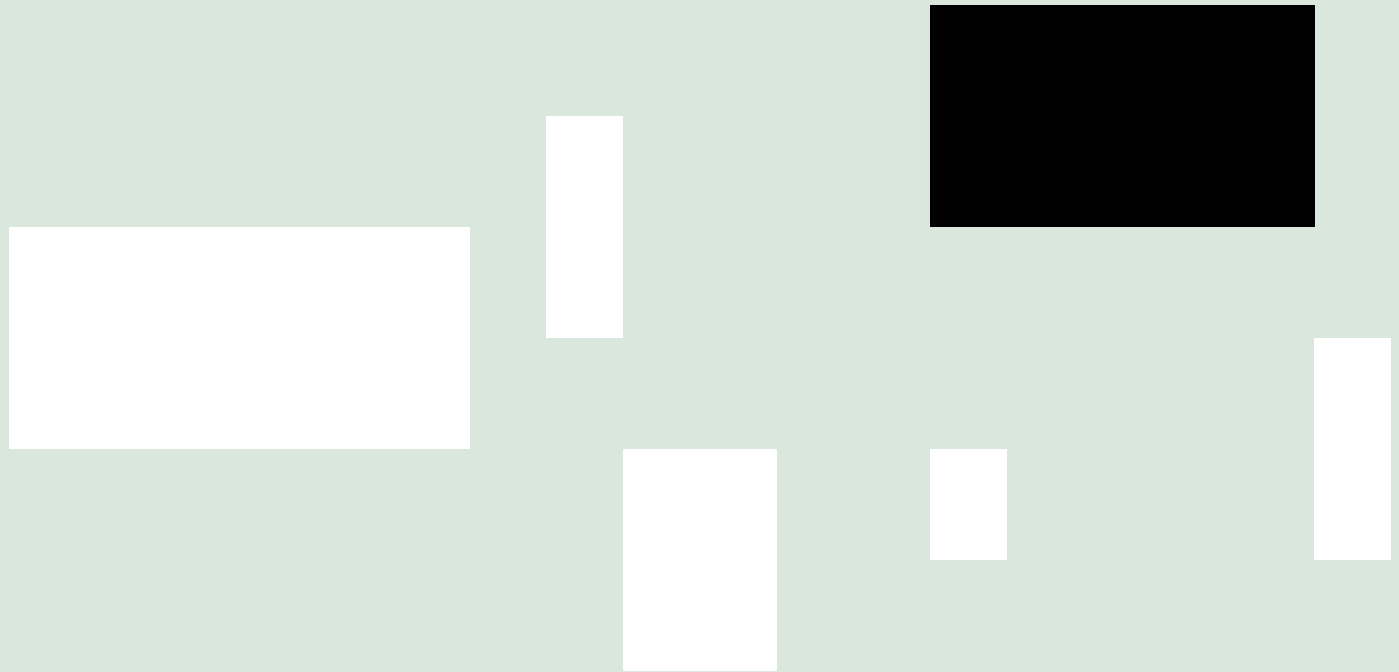


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# Economic and market outlook:

Issues for investors as the central bank liquidity wave crests



## Issues for investors as the central bank liquidity wave crests

Economic policy and political uncertainty – illustrated through events such as Brexit and the US election – were the big surprises in 2016. These risks remain elevated and widen the distribution of possible future outcomes for global growth and inflation – both on the downside and the upside – and will likely be a catalyst for a greater divergence between economies.

To help investors and capital allocators cope with this greater uncertainty and complexity, our latest five-year outlook covers ten key areas we believe investors should focus on. What follows is a potted summary – for a full discussion of the ten areas the full report is available [\[here\]](#).

## The economic and capital market outlook

Ageing populations, inequality, excess global debt and China's weakening competitive position as a producer will slow global GDP growth and keep interest rates low over the next 10 years. However cyclically global economic activity is at roughly normal, mid-cycle levels. The key exception is the US which is approximately at full employment; in other words, it is in the late stage of its business cycle.

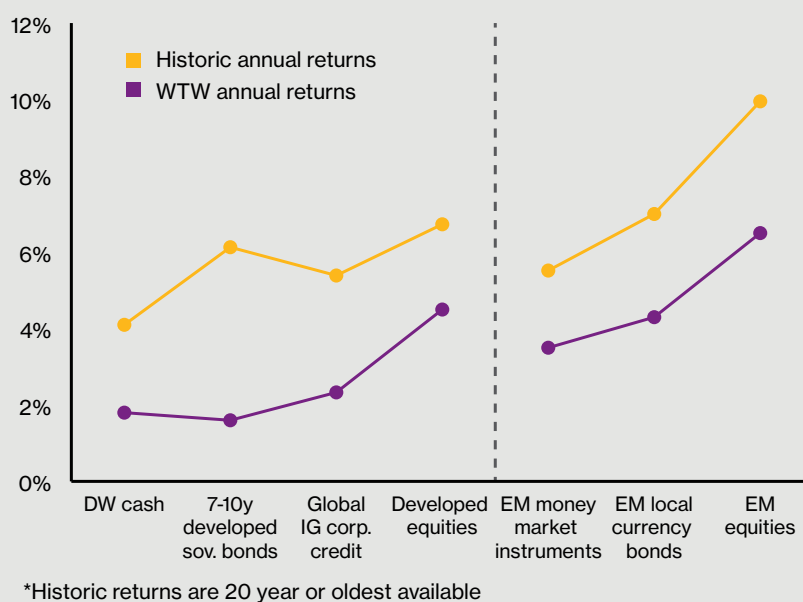
In combination, this means the distribution of possible outcomes for economic conditions is wider both to the downside and upside in the near-term and is a catalyst for greater regional variation. It also means that downside risks rise over time, as the US and global spare economic capacity becomes more limited and quicker US and global monetary tightening is likely.

Looking at specific asset classes, low yields on developed world bonds drive their low future returns. In particular, markets with negative yields have asymmetric risks. Yields are also low in parts of EM but offer better value selectively.

Credit spreads tightened significantly in 2016, leaving prospective returns likely limited to earning the risk premium at best. Globally, we expect stocks to outperform credit, given the mid to late-cycle environment. However, growth, revenue, margin and valuation divergences will cause important country differences.

Markets are pricing-in a relatively narrow range of outcomes, which could amplify the asset price implications of positive/negative growth and inflation surprises. Longer-dated US nominal bonds still provide medium-term diversification. And US inflation-linked bonds are an attractive portfolio hedge, given relatively cheap pricing and the possibility of higher cyclical and long-term inflation.

Figure 1: **Low expected 5 year returns for key asset classes**



\*Historic returns are 20 year or oldest available

Sources: FactSet, Thomson, Bloomberg LP, Merrill Lynch, Willis Towers Watson

Appropriate investor responses are: align investment strategy with low returns; diversify and consider tail risk mitigation strategies; and use dynamic asset allocation and active management.

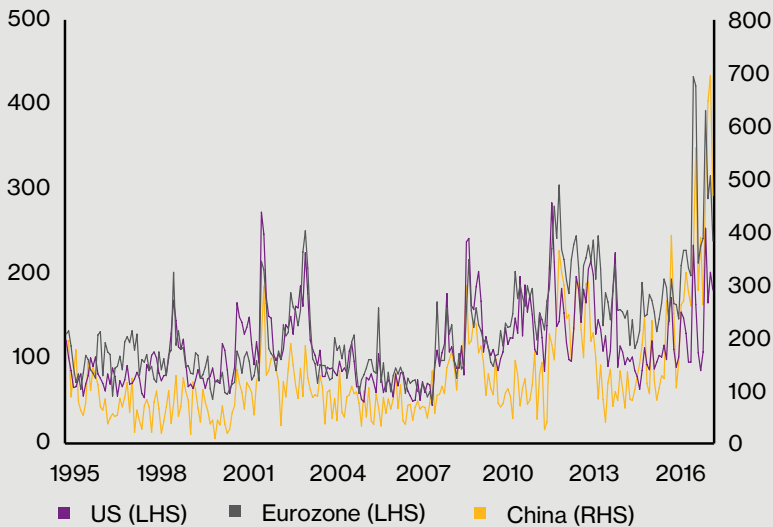
## Navigating in periods of elevated policy uncertainty

We are of the firm view that the current mix of cyclical and secular economic and political conditions means uncertainty – those unknown unknowns – is just more elevated at the moment than normal. This is both to the upside and the downside. Long-term pervasive new technology, infrastructure investment and cross-border flows of trade, people, capital and information could help raise the world economy's long-term growth

rate. Cash holdings are very high and money could move out the risk curve, driving asset prices up in the shorter term. However, political transition risks in the Eurozone are high, inequality is increasing, China faces a very difficult economic transition and the global cycle is maturing, led by the US.

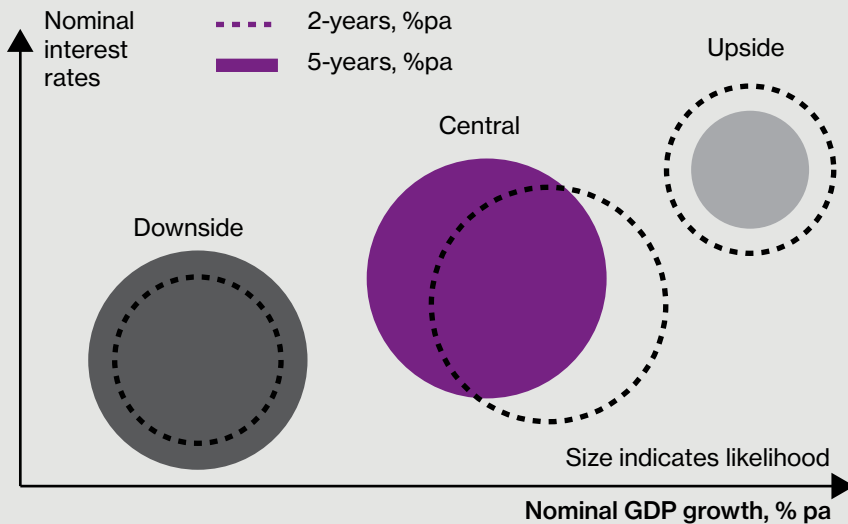
Ultimately the possibility of outsized positive and negative growth and inflation surprises has risen, and we expect downside risks to rise over time. Investors should use stress-testing frameworks to understand portfolio exposure, while the same portfolio levers apply as set out in our central outlook, such as diversity, tail risk hedging strategies and dynamic risk management.

Figure 2: Policy uncertainty is significantly above average



Sources: Thomson, Goldman Sachs, Economic Policy Uncertainty, Willis Towers Watson

Figure 3: Rising downside risks over time

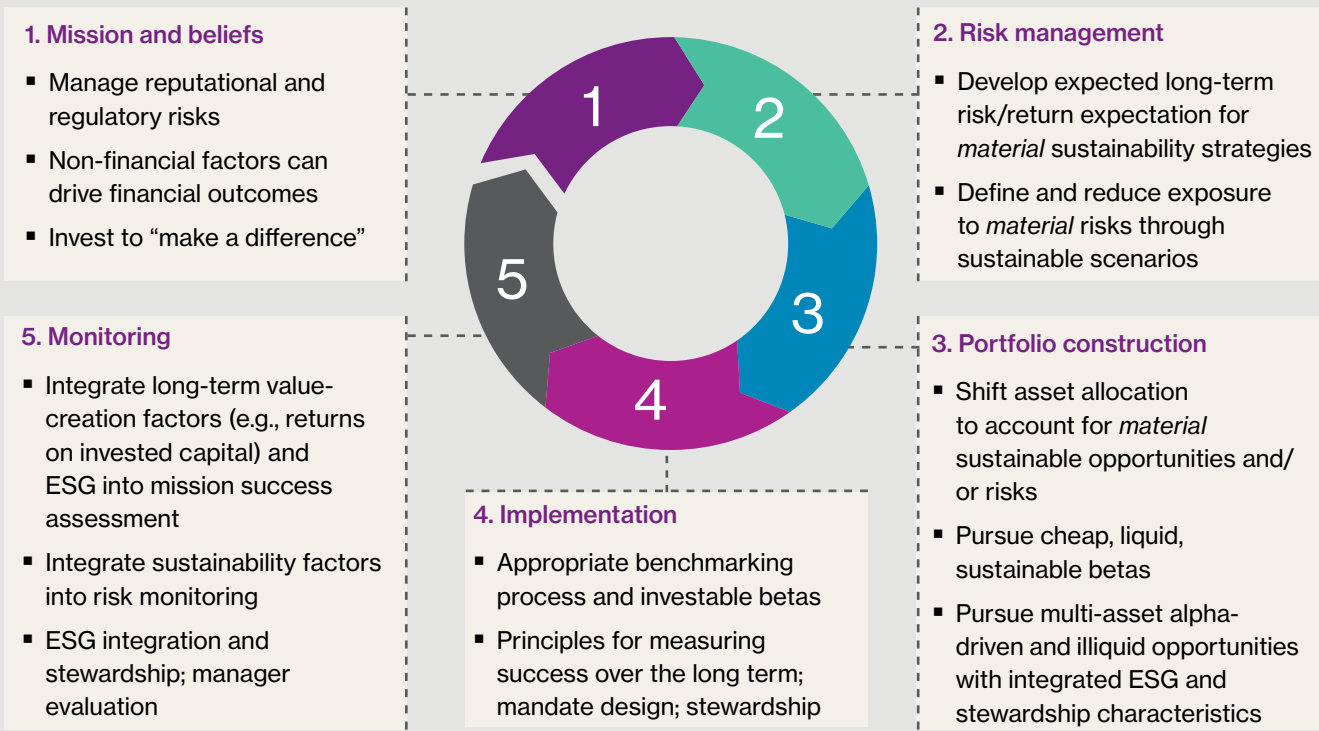


Sources: Thomson, Bloomberg LP, Willis Towers Watson

## Sustainable returns on capital should be the focus

Long-term investors need investment processes and portfolios that deliver sustainable returns over the long-run. Returns must be sustainable despite the elevated uncertainty – both long-term and short-term – at play. Our inclination is to confront the sources of that uncertainty head-on: it may be a daunting task but integrating an assessment of return sustainability into each aspect of the investment process is critical to long-term success. Directly pursuing this by integrating sustainability and non-financial (environmental, social and governance or ESG) factors into the investment process is a key recommendation in this year's Outlook. In short, we expect an investment process that integrates sustainable factors alongside financial factors to outperform one that doesn't, over the long term.

Figure 4: How to integrate sustainable investment principles into your investment process

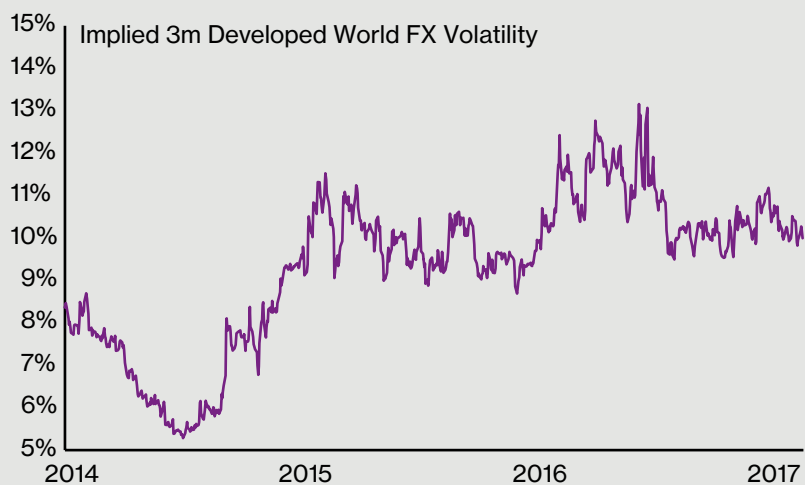


Source: Willis Tower Watson; McKinsey & Company

## Currency risk will be an important driver of asset returns

Currency volatility will likely stay high due to the divergence in central bank monetary policies and economic conditions. As we expect forward-looking asset returns to be low, currencies will have an important impact on portfolio return. Furthermore, strategic FX hedging policy needs to incorporate additional new regulations which typically increase the costs of FX hedging.

Figure 5: We expect currency volatility to remain high



Sources: Bloomberg LP, Willis Towers Watson

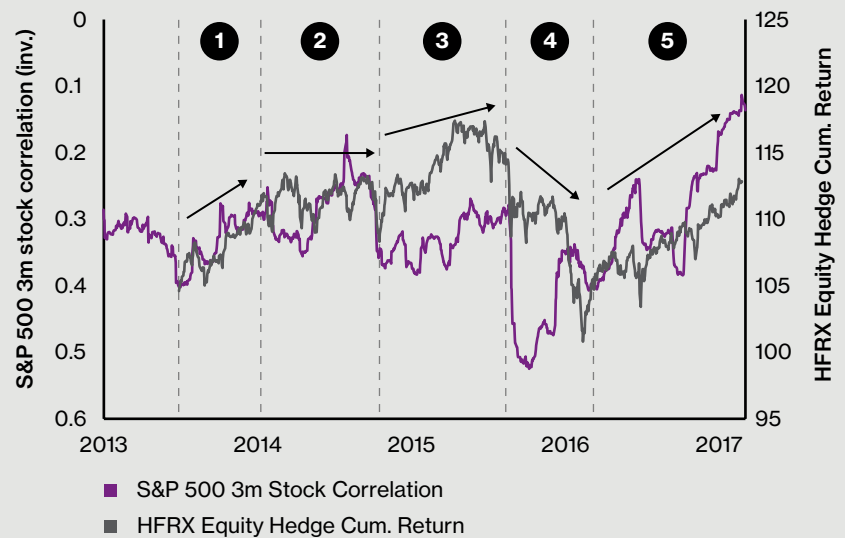
# The attractiveness of adding alpha has increased

Active management can take advantage of higher dispersion across and within asset classes. One example is the opportunity in equity markets. High policy uncertainty drives greater variation in industry and stock returns due to the different directional impacts of policy. Additionally, in the US, late-cycle pressures also increase the importance of company-specific factors, such as margins or leverage. Our outlook for lower average stock correlation and rising volatility amplifies the gross potential alpha from concentrated best-in-class equity portfolios.

# Build value for the long-term through better implementation

Investors can maximise the net returns they receive through better implementation. First, investors should integrate ESG factors and be engaged owners of both active and passive holdings to improve long-term outcomes. Second, we suggest investors clarify asset manager costs,

Figure 6: Equity long/short outperforms in environments of falling or lower stock correlations



Sources: FactSet, Thomson, Willis Towers Watson

such as the full costs of investing in a fund including trading cost, fund charges and expenses (such as through our own AMX platform).

Small enhancements to value can compound over time and significantly increase long-term portfolio returns. Long-term real value can be fostered on a sustainable basis through capital stewardship, aligning stakeholders and minimising costs.





## Long-term statistics

### A history of economic and investment indices

It gives details of bank rates, shares, rates of inflation, retail prices, index of real earnings, deposits, returns, dividends and pensions.

On 8 July 2010, the Pensions Minister announced that the Consumer Prices Index (CPI) rather than the Retail Prices Index (RPI) would be used 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 2016, 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 1988 to 2016.

Figure 1.1 Rate of inflation

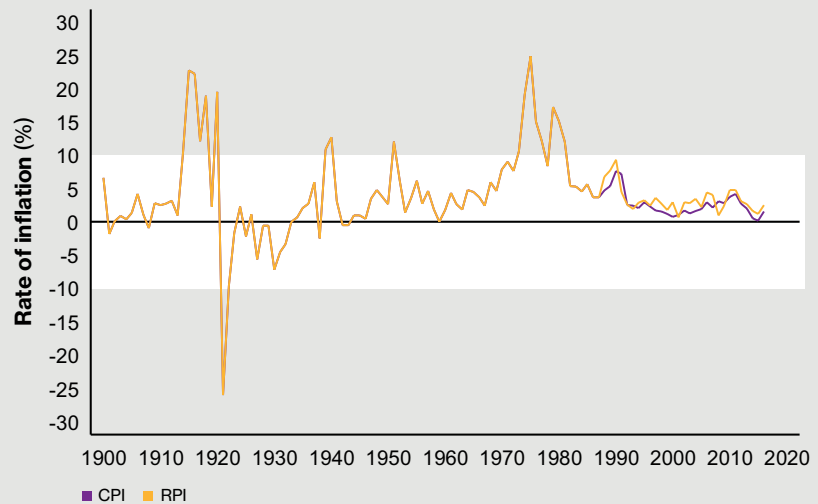


Figure 2.1 Retail Prices and Consumer Prices

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
1988	6.78	4.89	7.86	9.81	4.68	4.47	7.65	9.70
1989	7.71	5.51	6.95	9.97	5.40	4.64	6.51	9.74
1990	9.34	6.22	6.40	10.04	7.61	5.01	5.79	9.73
1991	4.46	6.38	5.66	9.81	7.21	5.71	5.32	9.63
1992	2.58	6.15	5.37	9.54	2.54	5.47	5.03	9.37
1993	1.94	5.17	5.03	9.10	2.48	5.02	4.75	8.95
1994	2.89	4.21	4.86	8.30	2.05	4.35	4.49	8.11
1995	3.22	3.02	4.61	7.27	2.96	3.43	4.22	7.07
1996	2.46	2.62	4.48	6.65	2.30	2.46	4.07	6.45
1997	3.63	2.82	4.47	6.23	1.69	2.29	3.87	5.93
1998	2.75	2.99	4.07	5.95	1.55	2.11	3.56	5.58
1999	1.76	2.76	3.48	5.20	1.20	1.94	3.14	4.81
2000	2.93	2.70	2.86	4.61	0.75	1.49	2.46	4.11
2001	0.70	2.35	2.48	4.06	1.07	1.25	1.86	3.58
2002	2.94	2.21	2.52	3.93	1.69	1.25	1.77	3.39
2003	2.80	2.22	2.60	3.81	1.25	1.19	1.65	3.19
2004	3.49	2.57	2.66	3.75	1.64	1.28	1.61	3.04
2005	2.21	2.42	2.56	3.58	1.92	1.51	1.50	2.85
2006	4.43	3.17	2.76	3.62	2.97	1.89	1.57	2.81
2007	4.05	3.39	2.80	3.63	2.12	1.98	1.61	2.74
2008	0.95	3.02	2.62	3.34	3.11	2.35	1.77	2.66
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
<b>2016</b>	<b>2.49</b>	<b>2.21</b>	<b>2.80</b>	<b>2.78</b>	<b>1.60</b>	<b>1.39</b>	<b>2.29</b>	<b>1.93</b>

## Alternative measures of inflation

Figure 1.2 shows the annual rate of inflation as at every month end each year from 2006 to 2016, based on the RPI, RPIJ, CPI and CPIH indices.

Figure 2.2 gives the percentage increase in the RPI, RPIJ, CPI and CPIH indices over periods of one and five years, ending in December each year from 2006 to 2016.

Figure 1.2 Alternative measures of inflation

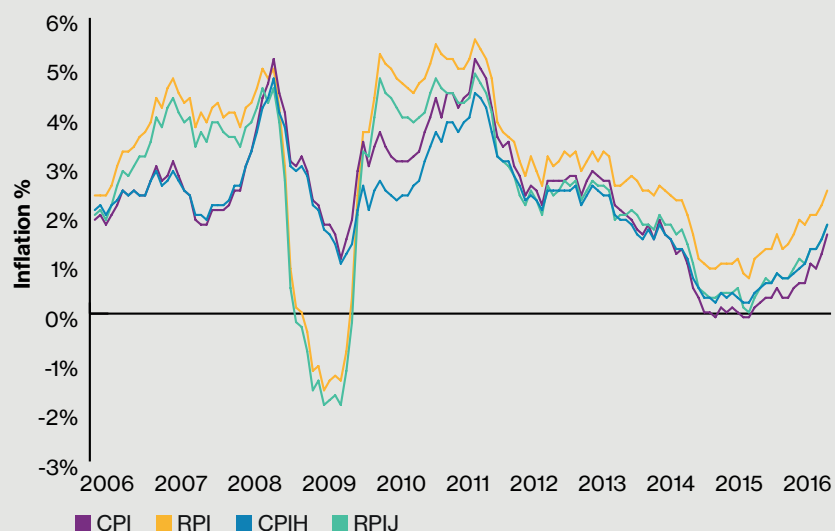


Figure 2.2 RPI, RPIJ, CPI and CPIH

Year	Increase % per year in RPI			Increase % per year in RPIJ			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	Over past year	Over past 5 years	Over past 5 years
2006	4.43	3.17	2.76	3.98	2.81	-	2.97	1.89	1.57	2.99	-	-
2007	4.05	3.39	2.80	3.67	3.03	2.44	2.12	1.98	1.61	2.18	-	-
2008	0.95	3.02	2.62	0.54	2.63	2.26	3.11	2.35	1.77	3.08	-	-
2009	2.40	2.80	2.68	2.01	2.40	2.32	2.83	2.59	1.93	2.07	-	-
2010	4.77	3.31	2.86	4.08	2.85	2.48	3.73	2.95	2.23	3.15	2.69	-
2011	4.82	3.38	3.28	4.15	2.88	2.85	4.20	3.19	2.54	3.71	2.84	-
2012	3.09	3.19	3.29	2.48	2.64	2.84	2.71	3.31	2.64	2.53	2.91	-
2013	2.67	3.54	3.28	2.03	2.94	2.79	2.00	3.09	2.72	1.85	2.66	-
2014	1.62	3.39	3.09	1.02	2.74	2.57	0.55	2.63	2.61	0.71	2.38	-
2015	1.20	2.67	2.99	0.50	2.03	2.44	0.14	1.91	2.43	0.50	1.85	2.27
2016	2.49	2.21	2.80	1.75	1.55	2.21	1.60	1.39	2.29	1.79	1.47	2.15

The Office for National Statistics announced in March 2017 that it intends to cease the publication of RPIJ as considers RPIJ to shares weaknesses with the RPI and to continue its production does not encourage a clear understanding of inflation in the UK

## 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 2016 relative to RPI, while the violet line depicts the indices of real earnings as at December each year from 1988 to 2016 relative to CPI.

Figure 3. Average wages/earnings

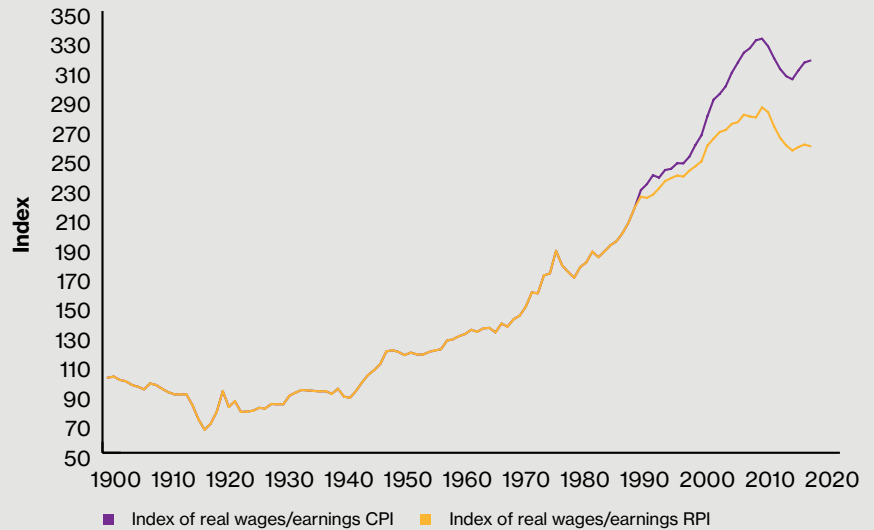


Figure 4.1 gives the percentage increase in the earnings index over periods of one, five, 10 and 20 years, ending in December each year, from 1988 to 2009. The first column

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; comparisons with earlier editions of *Long-term statistics* may show small differences.

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	5.47	3.68	2.65	2.39	
1989	7.30	8.56	9.34	12.23	-0.38	2.89	2.23	2.06	1.80	3.75	2.66	2.27	
1990	10.45	8.89	8.45	12.00	1.01	2.51	1.92	1.78	2.63	3.69	2.51	2.08	
1991	6.46	8.66	8.11	11.89	1.91	2.15	2.32	1.89	-0.70	2.79	2.65	2.05	
1992	4.80	7.86	7.82	11.32	2.16	1.61	2.32	1.62	2.20	2.26	2.65	1.79	
1993	2.83	6.33	7.32	10.87	0.87	1.11	2.18	1.63	0.34	1.25	2.45	1.76	
1994	3.66	5.60	7.07	9.63	0.75	1.34	2.11	1.23	1.58	1.20	2.47	1.40	
1995	2.90	4.12	6.48	8.87	-0.31	1.07	1.79	1.49	-0.05	0.67	2.17	1.68	
1996	4.17	3.67	6.14	8.47	1.68	1.03	1.59	1.70	1.83	1.18	1.98	1.90	
1997	4.95	3.70	5.76	8.24	1.27	0.85	1.23	1.89	3.21	1.37	1.82	2.18	
1998	4.15	3.97	5.14	7.79	1.37	0.95	1.03	1.74	2.57	1.82	1.53	2.09	
1999	6.25	4.48	5.04	7.17	4.41	1.67	1.51	1.87	4.99	2.50	1.85	2.25	
2000	4.77	4.85	4.49	6.45	1.79	2.10	1.58	1.75	3.98	3.31	1.98	2.25	
2001	2.42	4.50	4.08	6.08	1.71	2.10	1.56	1.94	1.34	3.21	2.19	2.42	
2002	3.50	4.21	3.95	5.87	0.54	1.95	1.40	1.86	1.78	2.92	2.15	2.40	
2003	4.38	4.26	4.11	5.70	1.54	1.99	1.47	1.82	3.10	3.03	2.42	2.44	
2004	3.94	3.80	4.14	5.59	0.43	1.20	1.44	1.77	2.26	2.49	2.49	2.48	
2005	4.12	3.67	4.26	5.36	1.87	1.22	1.66	1.72	2.17	2.13	2.72	2.44	
2006	3.96	3.98	4.24	5.18	-0.45	0.78	1.44	1.51	0.96	2.05	2.63	2.30	
2007	3.81	4.04	4.13	4.94	-0.23	0.63	1.29	1.26	1.66	2.03	2.47	2.14	
2008	3.45	3.86	4.06	4.60	2.47	0.81	1.40	1.21	0.33	1.47	2.25	1.89	
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	
<b>2010</b>	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 2016. 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 do not reflect this change.

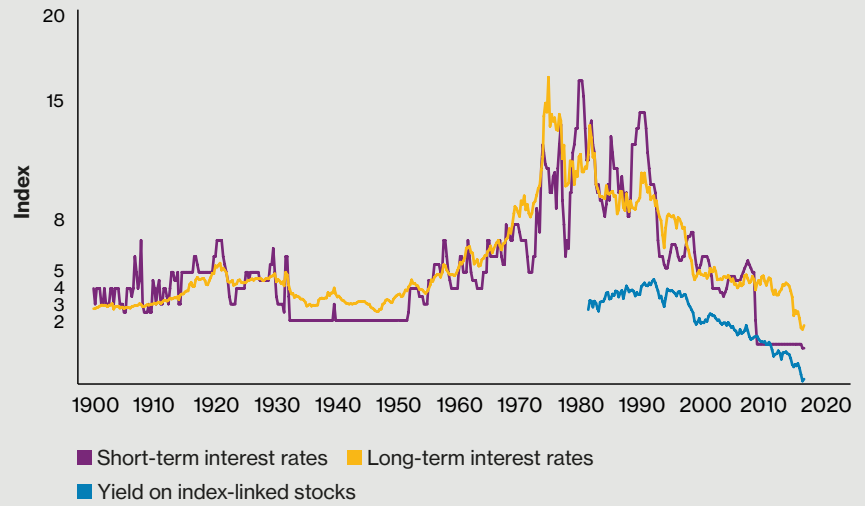
Figure 4.2 **Average Weekly Earnings**

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	4.28	3.71	-	2.02	1.26	-	2.32	2.17	-
2006	5.90	4.21	-	1.40	1.01	-	2.84	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	2.86	3.28	-2.38	-0.44	0.41	-1.40	-0.09	1.03
2011	1.78	2.05	3.12	-2.89	-1.30	-0.15	-2.32	-1.11	0.57
2012	1.09	1.68	2.99	-1.94	-1.46	-0.29	-1.57	-1.58	0.34
2013	1.30	1.47	2.72	-1.34	-2.00	-0.55	-0.69	-1.57	0.00
2014	2.56	1.80	2.53	0.93	-1.53	-0.55	2.00	-0.81	-0.08
2015	1.88	1.72	2.29	0.66	-0.93	-0.68	1.73	-0.18	-0.14
<b>2016</b>	<b>2.04</b>	<b>1.77</b>	<b>1.91</b>	<b>-0.44</b>	<b>-0.43</b>	<b>-0.86</b>	<b>0.44</b>	<b>0.37</b>	<b>-0.37</b>

## Interest rates

Figure 5 shows various interest rates at the end of each quarter from 1900 to 2016. The violet line shows short-term interest rates, represented successively by bank rate, 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



## 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

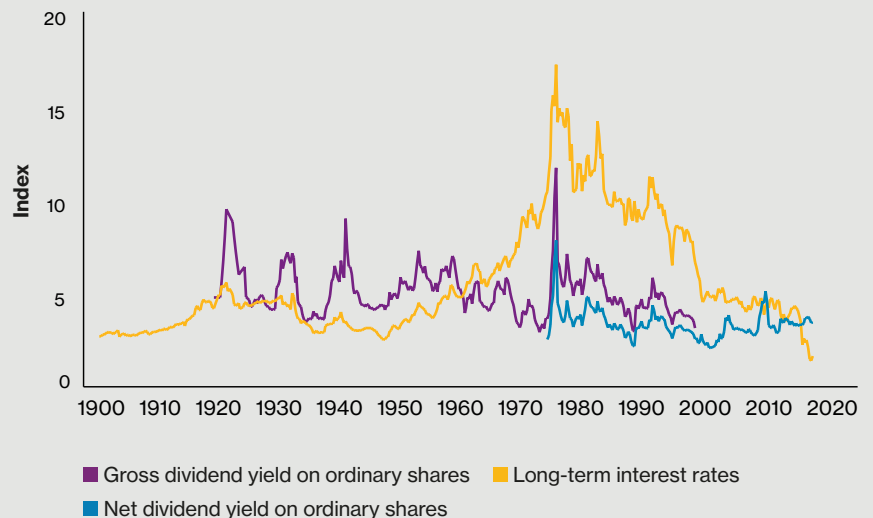
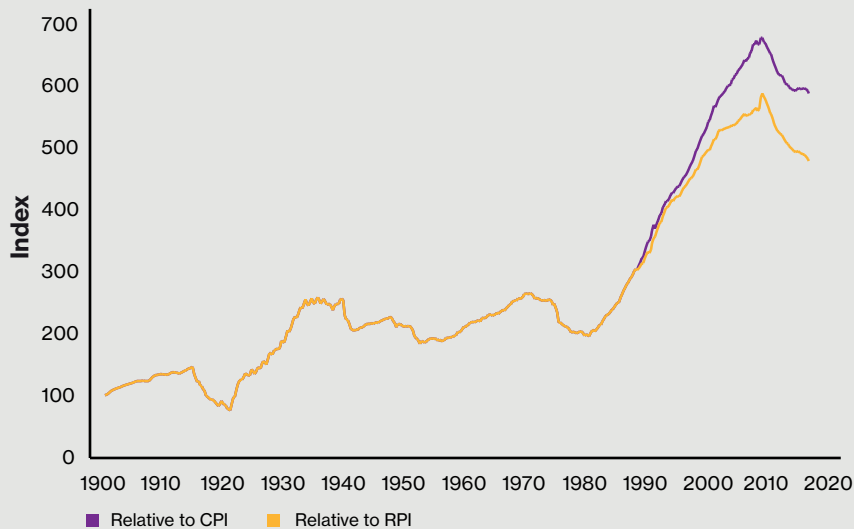


Figure 7. Accumulated real return on short-term fixed interest deposits



## 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 2016, with returns obtained by dividing short-term fixed interest returns by the RPI and from 1988 to 2016 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 1990 to 2016. 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
1990	15.55	12.14	12.12	11.55	5.68	5.57	5.38	1.37	7.38	6.79	5.99	1.66
1991	12.29	12.35	11.91	11.87	7.49	5.61	5.92	1.88	4.74	6.28	6.25	2.04
1992	9.07	12.18	11.53	12.02	6.33	5.68	5.84	2.27	6.37	6.36	6.18	2.43
1993	6.39	11.45	11.12	11.76	4.36	5.98	5.80	2.44	3.82	6.12	6.09	2.58
1994	4.87	9.57	10.59	11.32	1.93	5.14	5.47	2.79	2.76	5.00	5.84	2.97
1995	6.14	7.72	9.91	11.08	2.83	4.57	5.07	3.55	3.09	4.15	5.46	3.74
1996	5.90	6.46	9.37	10.77	3.36	3.75	4.68	3.87	3.52	3.90	5.08	4.07
1997	6.43	5.94	9.02	10.68	2.70	3.03	4.35	4.18	4.66	3.57	4.95	4.48
1998	7.06	6.08	8.73	10.58	4.19	3.00	4.48	4.37	5.43	3.89	5.00	4.73
1999	5.11	6.12	7.83	10.10	3.29	3.27	4.20	4.65	3.86	4.11	4.55	5.05
2000	5.62	6.02	6.87	9.46	2.61	3.23	3.90	4.64	4.83	4.46	4.30	5.14
2001	4.86	5.81	6.14	8.99	4.13	3.38	3.57	4.74	3.75	4.50	4.20	5.22
2002	3.69	5.26	5.60	8.52	0.73	2.98	3.01	4.42	1.97	3.96	3.76	4.97
2003	3.46	4.54	5.31	8.18	0.64	2.27	2.63	4.21	2.18	3.31	3.60	4.84
2004	4.32	4.38	5.25	7.89	0.80	1.77	2.52	3.98	2.63	3.07	3.59	4.71
2005	4.58	4.18	5.10	7.47	2.32	1.71	2.47	3.76	2.61	2.63	3.54	4.49
2006	4.61	4.13	4.97	7.14	0.17	0.93	2.15	3.41	1.59	2.20	3.34	4.21
2007	5.55	4.50	4.88	6.93	1.44	1.07	2.02	3.18	3.36	2.47	3.21	4.08
2008	4.77	4.76	4.65	6.67	3.79	1.70	1.98	3.22	1.62	2.36	2.84	3.91
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

## 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 2016, with returns obtained by dividing long-term fixed interest returns by the RPI, and from 1988 to 2016 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.

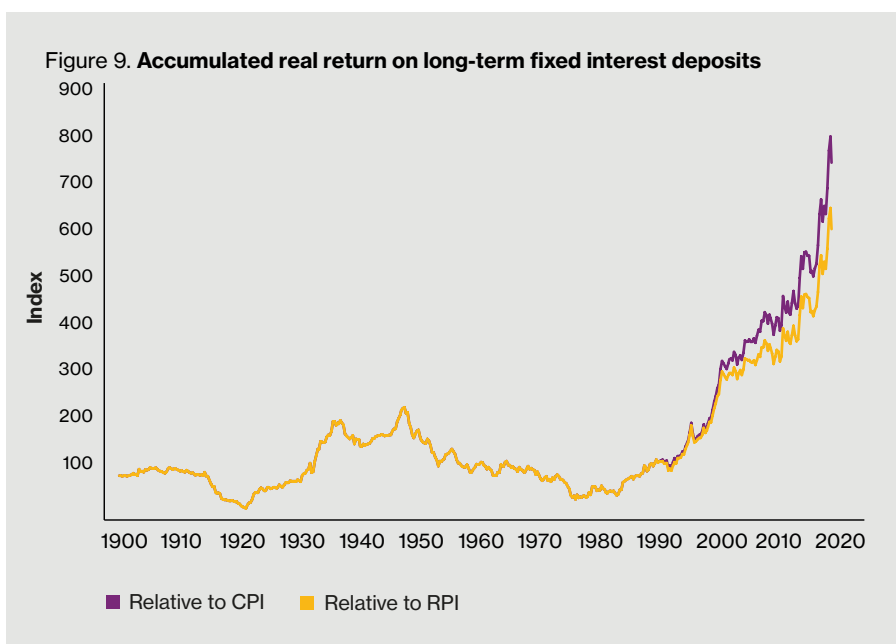


Figure 10 gives the percentage returns on long-term fixed interest investment over periods of one, five, 10 and 20 years, ending in December each year from 1989 to 2016. The first column

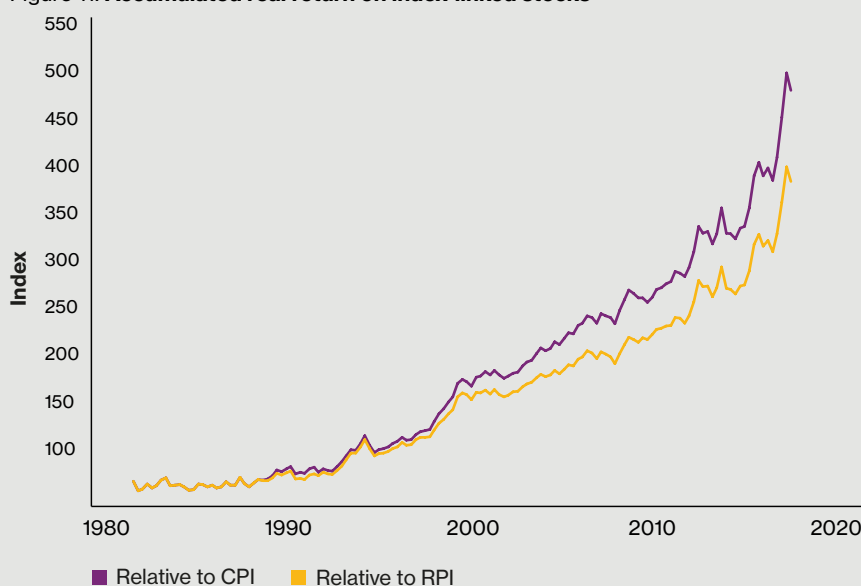
shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

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
1990	4.36	9.33	12.95	11.85	-4.55	2.92	6.16	1.64	-3.02	4.11	6.77	1.93
1991	18.57	10.69	14.71	11.48	13.50	4.06	8.57	1.52	10.59	4.71	8.91	1.68
1992	16.81	10.83	11.62	12.68	13.87	4.41	5.93	2.87	13.92	5.07	6.27	3.03
1993	34.18	15.44	13.21	14.98	31.63	9.76	7.80	5.40	30.94	9.91	8.08	5.54
1994	-12.06	11.27	11.00	15.32	-14.53	6.77	5.86	6.49	-13.83	6.63	6.22	6.67
1995	17.39	13.92	11.60	14.49	13.73	10.58	6.68	6.73	14.02	10.14	7.08	6.93
1996	8.97	12.01	11.35	14.09	6.36	9.16	6.57	6.98	6.52	9.32	6.99	7.19
1997	22.96	13.17	11.99	12.74	18.66	10.06	7.20	6.13	20.92	10.63	7.82	6.43
1998	29.75	12.41	13.91	14.32	26.28	9.15	9.46	7.90	27.77	10.09	10.00	8.28
1999	-0.36	15.25	13.24	13.80	-2.09	12.16	9.43	8.17	-1.54	13.06	9.80	8.58
2000	7.99	13.34	13.63	13.29	4.92	10.36	10.47	8.29	7.18	11.67	10.90	8.82
2001	-0.91	11.21	11.61	13.15	-1.60	8.66	8.91	8.74	-1.96	9.84	9.58	9.24
2002	9.92	8.74	10.93	11.27	6.78	6.39	8.21	7.06	8.09	7.40	9.00	7.63
2003	1.19	3.47	7.85	10.50	-1.57	1.22	5.11	6.44	-0.06	2.25	6.10	7.09
2004	8.42	5.23	10.13	10.56	4.76	2.60	7.27	6.56	6.67	3.90	8.39	7.30
2005	11.00	5.81	9.51	10.55	8.60	3.31	6.78	6.73	8.92	4.24	7.89	7.49
2006	0.03	6.01	8.58	9.96	-4.21	2.75	5.66	6.12	-2.85	4.04	6.90	6.95
2007	2.67	4.57	6.64	9.28	-1.32	1.14	3.73	5.45	0.54	2.55	4.95	6.37
2008	13.65	7.03	5.24	9.49	12.58	3.90	2.55	5.95	10.22	4.58	3.41	6.65
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



Figure 11. Accumulated real return on index-linked stocks



## 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 2016, with returns obtained by dividing index-linked returns by the RPI, and from January 1988 to December 2016 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 1989 to 2016.

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.

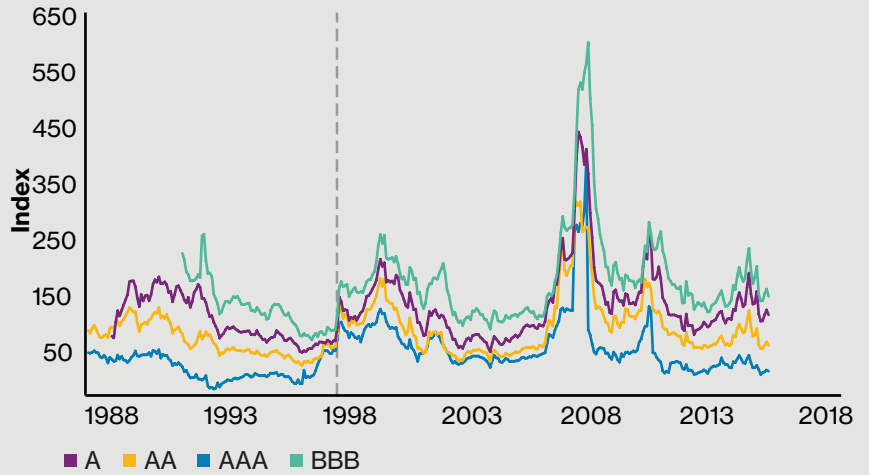
Figure 12. Index-linked returns

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
1990	5.75	9.06	-	-	-3.29	2.67	-	-	-1.73	3.86	-	-
1991	5.33	8.76	7.27	-	0.83	2.24	1.53	-	-1.76	2.88	1.85	-
1992	16.43	10.71	7.34	-	13.50	4.30	1.87	-	13.55	4.96	2.19	-
1993	18.69	11.99	9.14	-	16.43	6.49	3.92	-	15.83	6.64	4.20	-
1994	-7.01	7.44	7.78	-	-9.62	3.10	2.79	-	-8.88	2.96	3.15	-
1995	11.68	8.62	8.84	-	8.19	5.44	4.05	-	8.47	5.01	4.43	-
1996	6.42	8.84	8.80	-	3.87	6.06	4.13	-	4.03	6.22	4.54	-
1997	13.77	8.34	9.52	-	9.78	5.36	4.83	-	11.88	5.91	5.43	-
1998	19.90	8.56	10.26	-	16.69	5.41	5.95	-	18.07	6.31	6.48	-
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	4.15
2002	8.21	7.02	7.68	7.51	5.12	4.71	5.03	3.44	6.42	5.70	5.80	3.98
2003	6.56	4.53	6.52	7.82	3.65	2.25	3.82	3.87	5.24	3.30	4.80	4.50
2004	8.47	5.35	8.18	7.98	4.82	2.71	5.37	4.07	6.72	4.02	6.46	4.79
2005	8.97	6.28	7.91	8.37	6.61	3.77	5.21	4.63	6.92	4.70	6.31	5.37
2006	2.89	7.00	7.55	8.17	-1.47	3.71	4.66	4.40	-0.08	5.01	5.88	5.21
2007	8.45	7.04	7.03	8.27	4.23	3.53	4.12	4.47	6.20	4.97	5.33	5.38
2008	3.72	6.47	5.49	7.85	2.75	3.35	2.80	4.36	0.60	4.03	3.66	5.06
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

## 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.

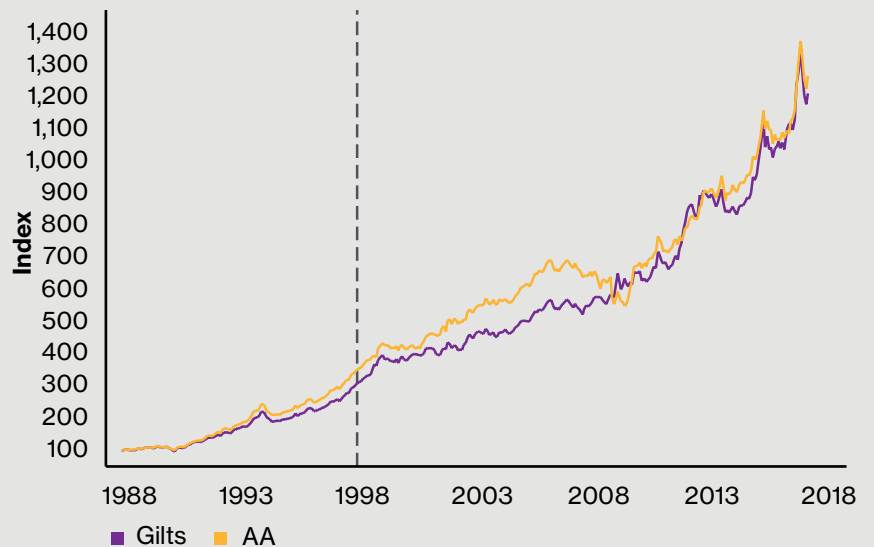
Figure 13. Spreads of corporate bond yields over gilts



## 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 reinvested)



## 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 2016. 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
<b>2016</b>	<b>17.99</b>	<b>9.10</b>	<b>6.42</b>	<b>15.12</b>	<b>6.74</b>	<b>3.52</b>	<b>16.14</b>	<b>7.60</b>	<b>4.04</b>

## 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 2016, constructed by linking together the share indices described under dividend yields in *Figure 6* and dividing by the RPI, and the blue line shows an index of real net dividends on ordinary shares from 1988 to 2016, constructed by linking together the share indices described under dividend yields in *Figure 6* and dividing by the CPI shown in *Figure 2.1*. 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 index of real share dividends is then obtained by dividing the share dividends by the retail prices and consumer prices indices shown in *Figure 2.1*. The gold line shows an index of company earnings divided by the RPI, and the violet line shows 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

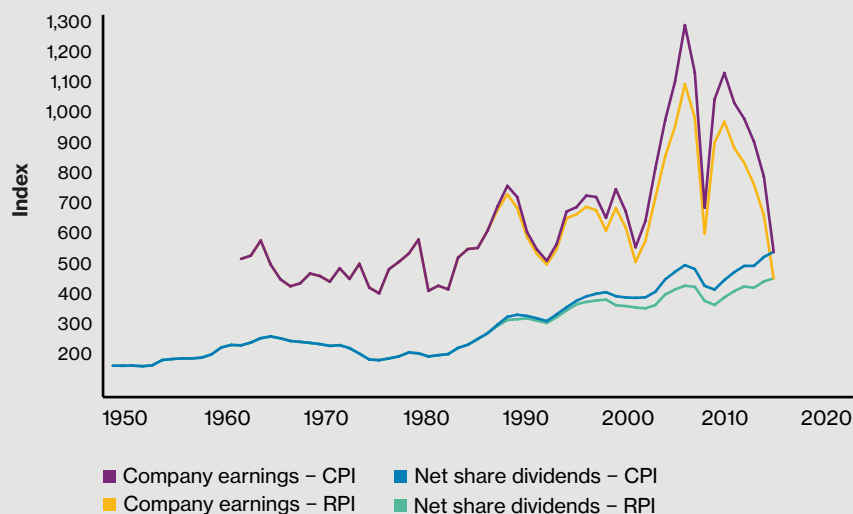


Figure 17 gives the percentage increase in the net dividend index on ordinary shares over periods of one, five, 10 and 20 years, ending in December each year from 1988 to 2016. The first column shows

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.

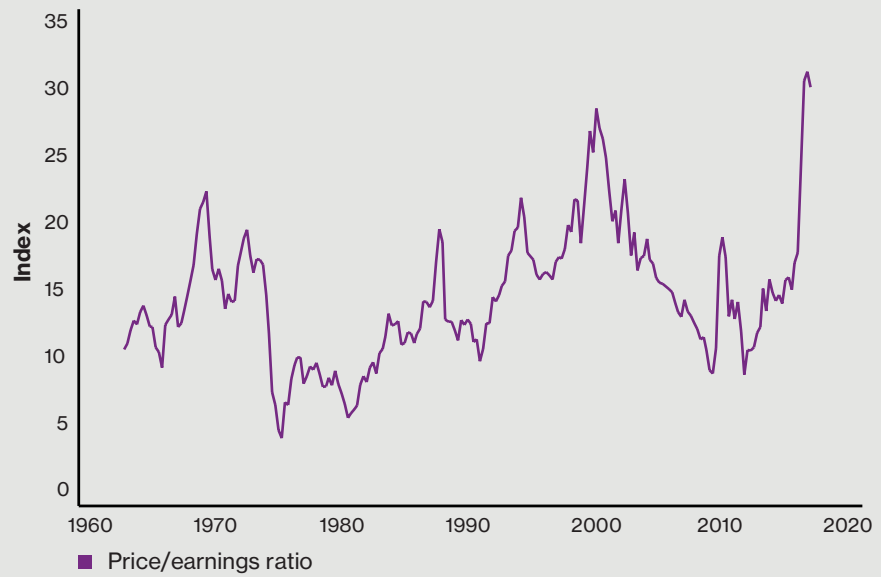
Figure 17. Share dividend increases

Year	Nominal 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
1988	19.27	16.56	14.38	11.27	11.70	11.13	6.04	1.33	13.93	11.57	6.25	1.43
1989	17.04	15.87	13.24	12.00	8.67	9.82	5.88	1.85	11.04	10.73	6.32	2.06
1990	10.54	15.39	13.01	12.27	1.10	8.63	6.21	2.02	2.72	9.88	6.82	2.31
1991	5.59	13.29	13.23	12.29	1.08	6.50	7.17	2.26	-1.51	7.17	7.50	2.43
1992	-0.50	10.15	12.20	11.76	-3.00	3.77	6.48	2.03	-2.96	4.43	6.82	2.19
1993	-1.26	6.06	11.19	11.48	-3.14	0.85	5.86	2.18	-3.64	0.99	6.15	2.32
1994	11.37	5.02	10.31	11.81	8.24	0.77	5.20	3.24	9.13	0.64	5.57	3.42
1995	12.03	5.30	10.23	12.06	8.53	2.21	5.37	4.46	8.81	1.80	5.77	4.66
1996	9.91	6.14	9.66	11.92	7.28	3.44	4.96	4.93	7.44	3.59	5.36	5.14
1997	6.45	7.59	8.86	11.34	2.72	4.63	4.20	4.81	4.68	5.17	4.80	5.12
1998	4.23	8.76	7.40	10.83	1.44	5.60	3.20	4.61	2.65	6.51	3.71	4.98
1999	2.82	7.03	6.02	9.57	1.04	4.16	2.45	4.15	1.60	5.00	2.80	4.54
2000	-3.19	3.95	4.62	8.73	-5.94	1.22	1.71	3.94	-3.91	2.42	2.11	4.44
2001	-0.24	1.96	4.03	8.53	-0.93	-0.38	1.51	4.30	-1.30	0.70	2.13	4.78
2002	1.28	0.95	4.21	8.13	-1.61	-1.24	1.65	4.04	-0.40	-0.30	2.40	4.59
2003	1.79	0.47	4.53	7.81	-0.99	-1.72	1.88	3.85	0.53	-0.71	2.84	4.48
2004	7.45	1.36	4.16	7.19	3.83	-1.18	1.45	3.31	5.72	0.08	2.51	4.03
2005	14.22	4.77	4.36	7.25	11.75	2.29	1.75	3.55	12.08	3.21	2.81	4.28
2006	9.70	6.78	4.34	6.97	5.04	3.49	1.54	3.23	6.53	4.80	2.73	4.04
2007	7.73	8.10	4.46	6.64	3.54	4.56	1.62	2.90	5.50	6.01	2.81	3.80
2008	-0.06	7.71	4.03	5.70	-1.00	4.55	1.37	2.28	-3.07	5.24	2.22	2.96
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
<b>2016</b>	<b>5.46</b>	<b>5.97</b>	<b>3.85</b>	<b>4.09</b>	<b>2.90</b>	<b>3.67</b>	<b>1.02</b>	<b>1.28</b>	<b>3.81</b>	<b>4.51</b>	<b>1.52</b>	<b>2.12</b>

## Price/earnings ratio

Figure 18 shows the price of equity shares as a ratio of company earnings from June 1962 to December 2016 based on the FTSE Actuaries 500 Share Index until March 1994 and the FTSE Actuaries All-Share Index thereafter.

Figure 18. 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 2016 based on the FTSE Actuaries 500 Share Index until March 1994 and the FTSE Actuaries All-Share Index thereafter.

Figure 19. Dividend cover

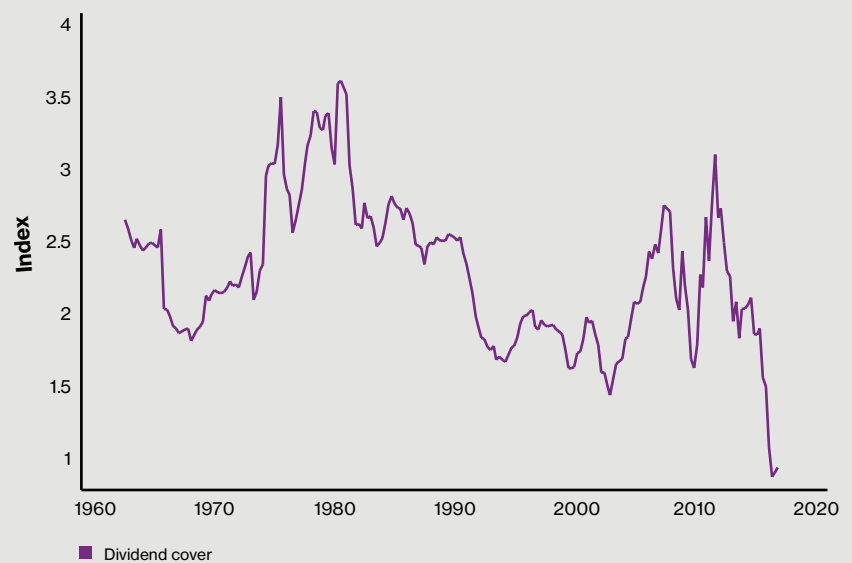
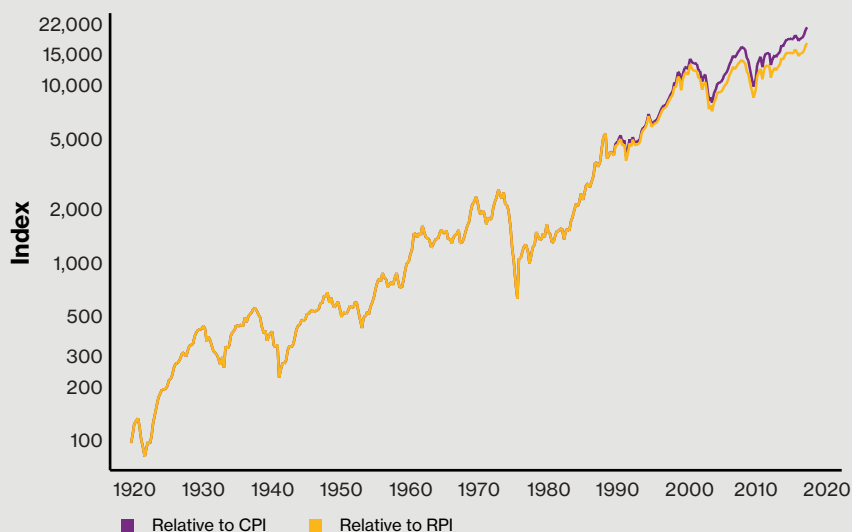


Figure 20. Accumulated real return on UK ordinary shares (based on net dividends)



## 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 2016, with returns obtained by dividing the UK ordinary share returns by the RPI, and from 1988 to 2016 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 1990 to 2016. 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
1991	20.80	12.35	19.86	15.52	15.63	5.61	13.44	5.20	12.67	6.28	13.80	5.36
1992	20.49	14.81	19.00	15.71	17.46	8.16	12.94	5.63	17.51	8.85	13.30	5.80
1993	28.39	18.09	18.90	19.15	25.95	12.28	13.21	9.22	25.29	12.44	13.52	9.36
1994	-5.85	9.70	14.91	23.17	-8.49	5.27	9.59	13.73	-7.74	5.12	9.97	13.93
1995	23.85	16.86	15.21	18.87	19.99	13.44	10.13	10.81	20.29	12.98	10.54	11.02
1996	16.70	16.05	14.18	19.63	13.91	13.10	9.29	12.17	14.08	13.26	9.71	12.39
1997	23.56	16.64	15.72	18.49	19.23	13.43	10.77	11.54	21.51	14.02	11.41	11.87
1998	13.77	13.85	15.95	18.75	10.73	10.55	11.41	12.09	12.04	11.50	11.97	12.48
1999	24.20	20.34	14.89	19.41	22.05	17.10	11.03	13.51	22.73	18.05	11.40	13.93
2000	-5.90	13.90	15.37	17.25	-8.58	10.91	12.16	12.08	-6.60	12.23	12.60	12.62
2001	-13.29	7.33	11.61	15.66	-13.89	4.87	8.91	11.15	-14.21	6.01	9.58	11.67
2002	-22.68	-2.27	6.77	12.72	-24.89	-4.39	4.14	8.45	-23.97	-3.48	4.91	9.02
2003	20.86	-1.08	6.12	12.33	17.57	-3.23	3.43	8.21	19.37	-2.25	4.40	8.86
2004	12.84	-2.96	8.06	11.43	9.04	-5.39	5.26	7.40	11.02	-4.19	6.35	8.15
2005	22.04	2.22	7.90	11.49	19.40	-0.20	5.21	7.64	19.75	0.69	6.30	8.40
2006	16.75	8.48	7.91	11.00	11.80	5.15	5.01	7.13	13.38	6.47	6.24	7.96
2007	5.32	15.40	6.20	10.86	1.22	11.61	3.30	6.97	3.13	13.16	4.51	7.90
2008	-29.93	3.48	1.17	8.31	-30.59	0.45	-1.41	4.81	-32.04	1.10	-0.59	5.50
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

## 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 2016. 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 2016. 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

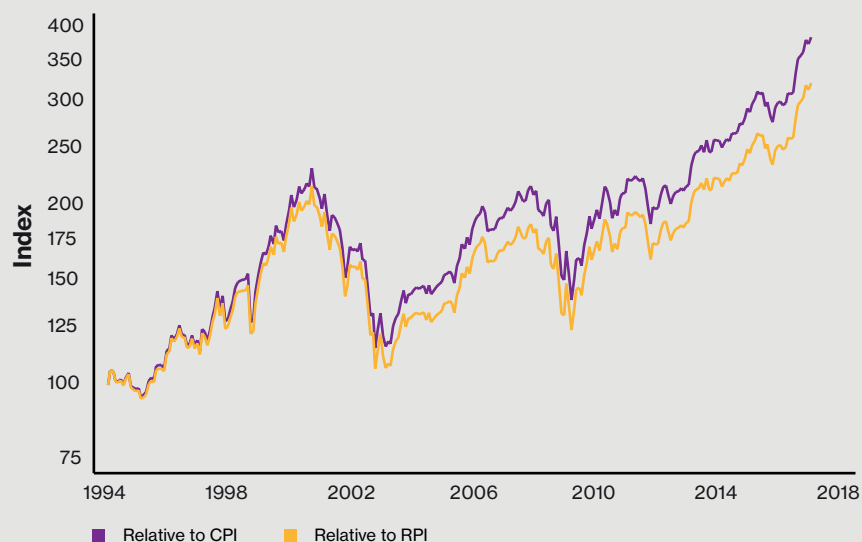
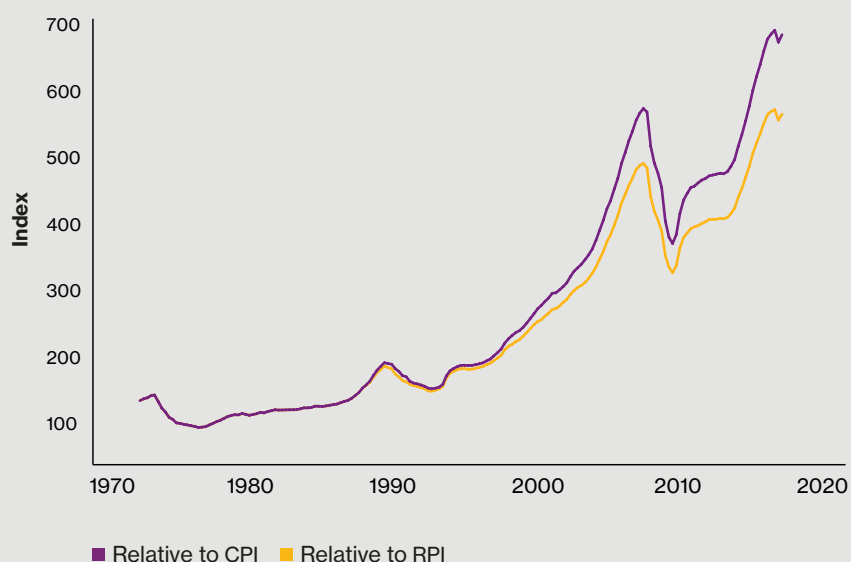


Figure 23. Overseas ordinary share returns

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



Figure 24. Accumulated real return on property



## Property returns

Figure 24 shows an index of the accumulated real return on UK property at the end of each quarter from 1973 to 2016, with returns obtained by dividing property returns by the RPI and from 1988 to 2016 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 1989 to 2016. 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
1990	-5.50	13.85	11.75	-	-13.58	7.18	5.03	-	-12.19	8.41	5.63	-
1991	-2.60	11.03	9.57	-	-6.76	4.37	3.70	-	-9.15	5.03	4.03	-
1992	-3.90	6.51	8.51	10.21	-6.32	0.34	2.98	0.61	-6.28	0.98	3.31	0.77
1993	20.20	4.85	9.76	10.20	17.91	-0.30	4.51	1.01	17.30	-0.16	4.78	1.14
1994	14.20	3.96	10.20	12.15	10.99	-0.24	5.10	3.55	11.90	-0.37	5.46	3.73
1995	3.60	5.89	9.79	12.01	0.37	2.79	4.96	4.41	0.62	2.38	5.35	4.61
1996	8.10	8.12	9.56	12.14	5.51	5.36	4.87	5.14	5.67	5.52	5.27	5.35
1997	17.30	12.52	9.47	11.78	13.19	9.42	4.78	5.23	15.36	9.99	5.39	5.53
1998	12.00	10.94	7.85	11.11	9.00	7.72	3.63	4.87	10.29	8.65	4.15	5.24
1999	14.10	10.92	7.38	10.59	12.12	7.94	3.77	5.13	12.75	8.81	4.12	5.52
2000	11.40	12.54	9.16	10.45	8.23	9.58	6.13	5.58	10.57	10.88	6.54	6.09
2001	8.00	12.52	10.30	9.93	7.25	9.94	7.62	5.65	6.86	11.13	8.29	6.14
2002	12.50	11.58	12.05	10.26	9.29	9.17	9.30	6.09	10.63	10.20	10.10	6.65
2003	11.00	11.38	11.16	10.46	7.98	8.96	8.34	6.40	9.63	10.07	9.36	7.05
2004	20.60	12.62	11.77	10.98	16.54	9.80	8.87	6.97	18.65	11.20	10.00	7.71
2005	19.90	14.29	13.41	11.59	17.31	11.59	10.58	7.73	17.64	12.59	11.73	8.49
2006	17.70	16.27	14.38	11.95	12.71	12.70	11.31	8.04	14.30	14.12	12.61	8.88
2007	-5.60	12.27	11.92	10.69	-9.27	8.58	8.87	6.81	-7.56	10.09	10.15	7.74
2008	-21.20	4.83	8.06	7.95	-21.94	1.76	5.30	4.46	-23.57	2.43	6.18	5.16
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

## Pension increases

Figure 26.1 Pension increases relative to RPI

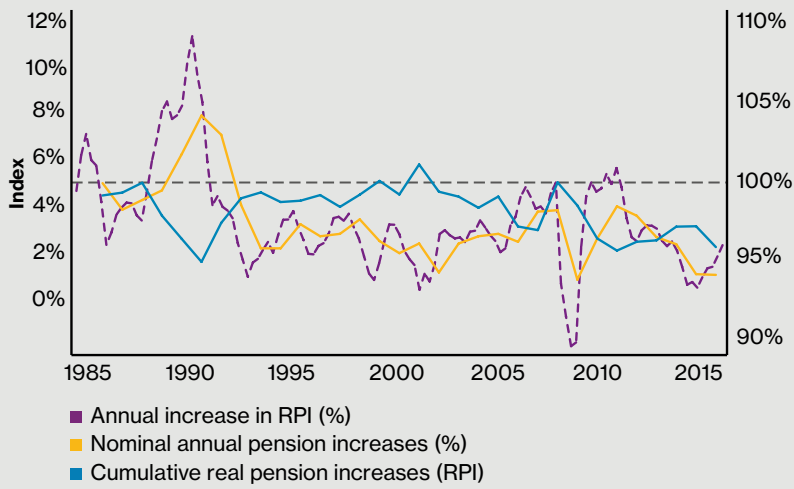


Figure 26.1 and Figure 26.2 show the Willis Towers Watson Index of Pension Increases, which is based on over 50 major private sector companies covering the whole spectrum of the economy. Only schemes with a minimum of 2,000 pensioners and which do not promise full indexation have been included. In total, the index now represents the experience of about 815,480 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 2016, 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 26.2 Pension increases relative to CPI

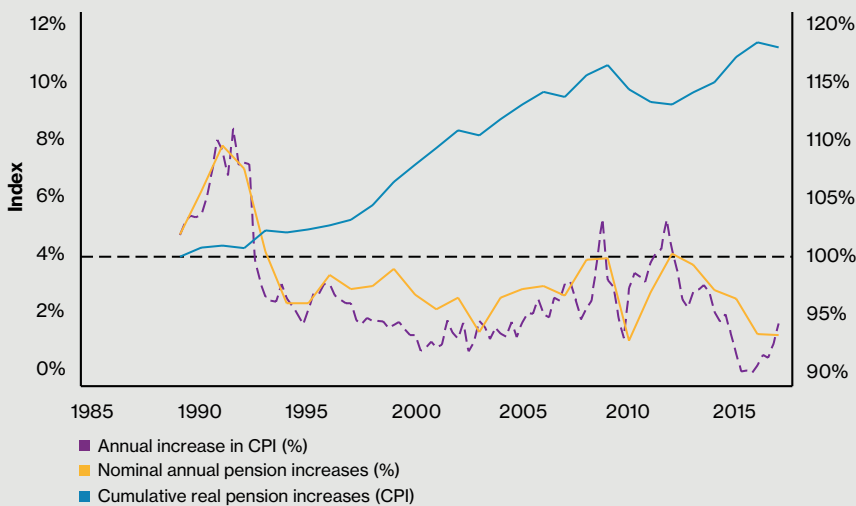
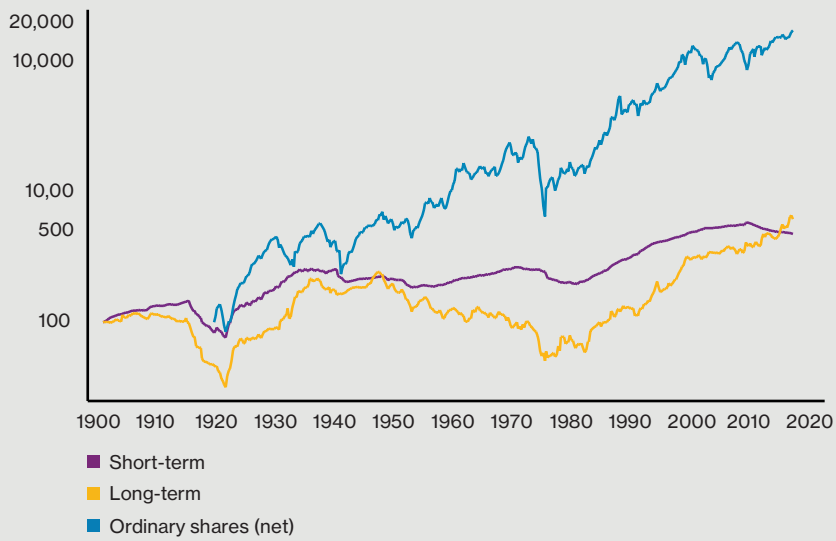


Figure 27 gives the percentage increases in pensions over periods of one, five, 10 and 20 years, ending in December each year, from 1988 to 2016. The first column shows the percentage rates of nominal increases, and the second and third columns show the percentage rates of real increases relative to retail prices and consumer prices respectively.

Figure 27. Pension increases

Year	Nominal 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
1988	4.70	4.48	–	–	-1.94	-0.39	–	–	0.01	0.01	–	–
1989	6.20	4.82	–	–	-1.40	-0.65	–	–	0.76	0.17	–	–
1990	7.80	5.37	–	–	-1.41	-0.80	–	–	0.17	0.34	–	–
1991	7.00	5.99	–	–	2.43	-0.36	–	–	-0.20	0.27	–	–
1992	4.10	5.95	–	–	1.48	-0.18	–	–	1.52	0.45	–	–
1993	2.30	5.46	4.97	–	0.35	0.28	-0.05	–	-0.17	0.42	0.21	–
1994	2.30	4.67	4.75	–	-0.57	0.45	-0.10	–	0.24	0.31	0.24	–
1995	3.30	3.79	4.57	–	0.08	0.75	-0.03	–	0.33	0.34	0.34	–
1996	2.80	2.96	4.46	–	0.34	0.33	-0.01	–	0.49	0.48	0.37	–
1997	2.90	2.72	4.32	–	-0.70	-0.10	-0.14	–	1.19	0.42	0.43	–
1998	3.50	2.96	4.20	–	0.73	-0.03	0.13	–	1.92	0.83	0.62	–
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	0.56
2004	2.80	2.24	2.63	3.68	-0.66	-0.32	-0.03	-0.07	1.14	0.95	1.01	0.62
2005	2.90	2.40	2.59	3.58	0.67	-0.02	0.02	0.00	0.96	0.87	1.07	0.70
2006	2.57	2.41	2.57	3.51	-1.79	-0.74	-0.19	-0.10	-0.39	0.51	0.98	0.68
2007	3.82	2.92	2.66	3.49	-0.22	-0.46	-0.14	-0.14	1.67	0.92	1.03	0.73
2008	3.88	3.19	2.69	3.45	2.90	0.17	0.07	0.10	0.75	0.82	0.91	0.77
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

Figure 28.1 Shares 1900 to 2016 relative to RPI



### Comparison of accumulated real return from different investments

Figure 28.1 shows Figures 7, 9 and 20 on the same scale.

Figure 28.2 Shares 1988 to 2016 relative to CPI

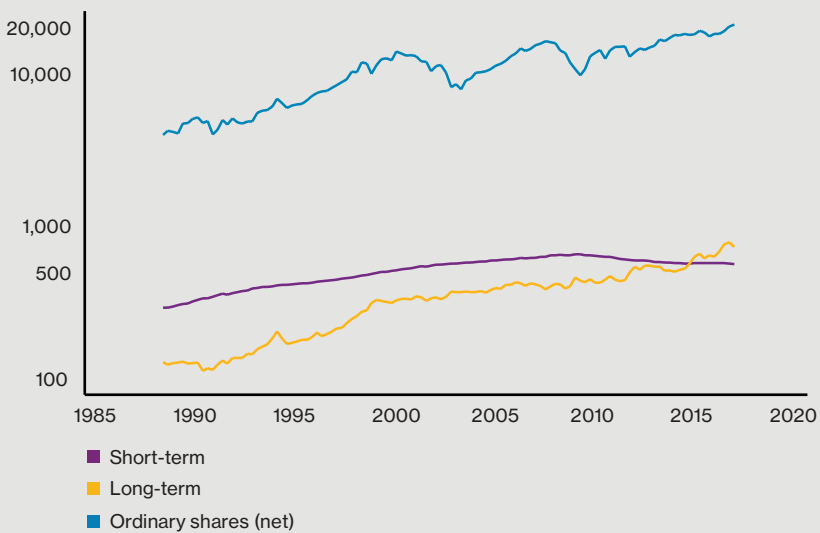


Figure 28.2 shows Figures 7, 9 and 20 on the same scale.

Figure 29.1 Returns 1981 to 2016 relative to RPI

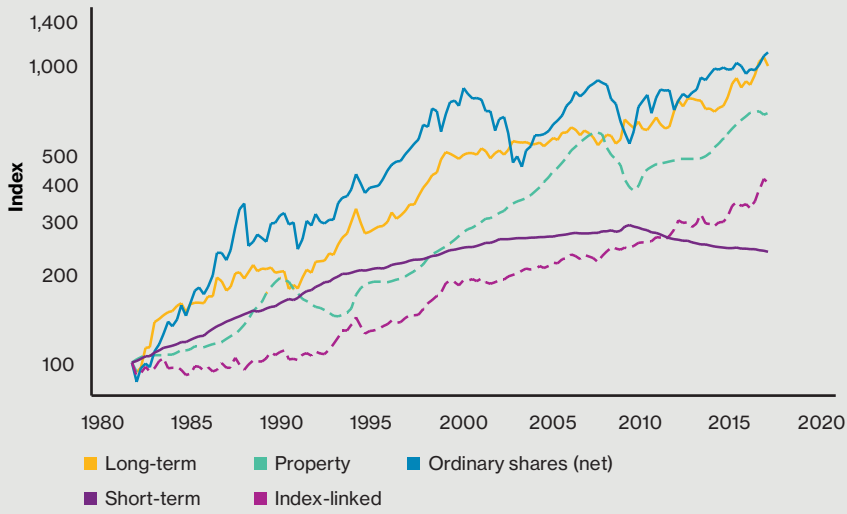


Figure 29.1 shows Figures 7, 9, 11, 20 and 24 on the same scale.

Figure 29.2 Returns 1988 to 2016 relative to CPI

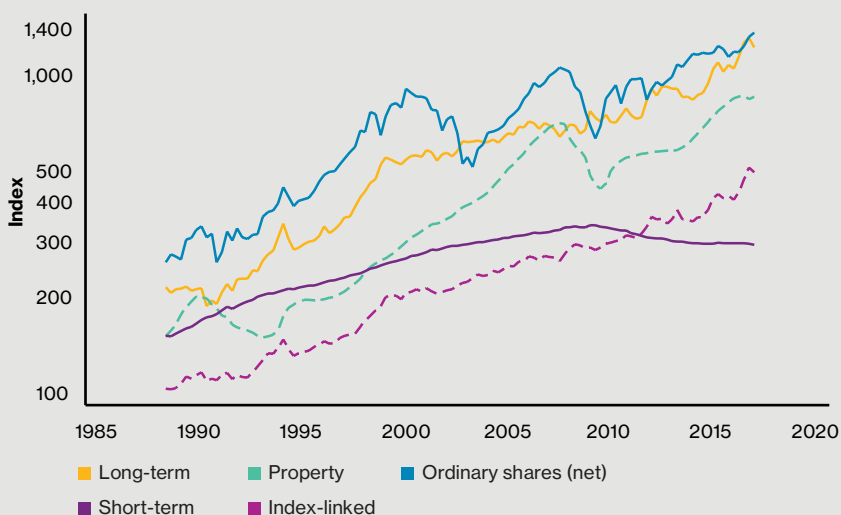


Figure 29.2 shows Figures 7, 9, 11, 20 and 24 on the same scale.

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, RPIJ 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 1992	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	IPD UK Property Returns Index – Standing Investment
	1978 – 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

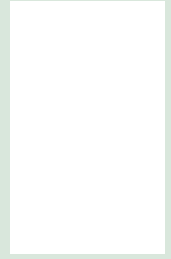
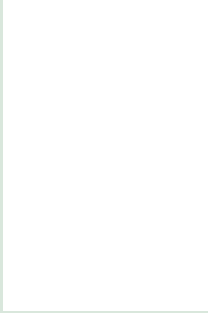
## Further information

We would welcome any suggestions to improve or expand Willis Towers Watson's *Long-term statistics*.

Please contact [statistics@willistowerswatson.com](mailto:statistics@willistowerswatson.com)

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