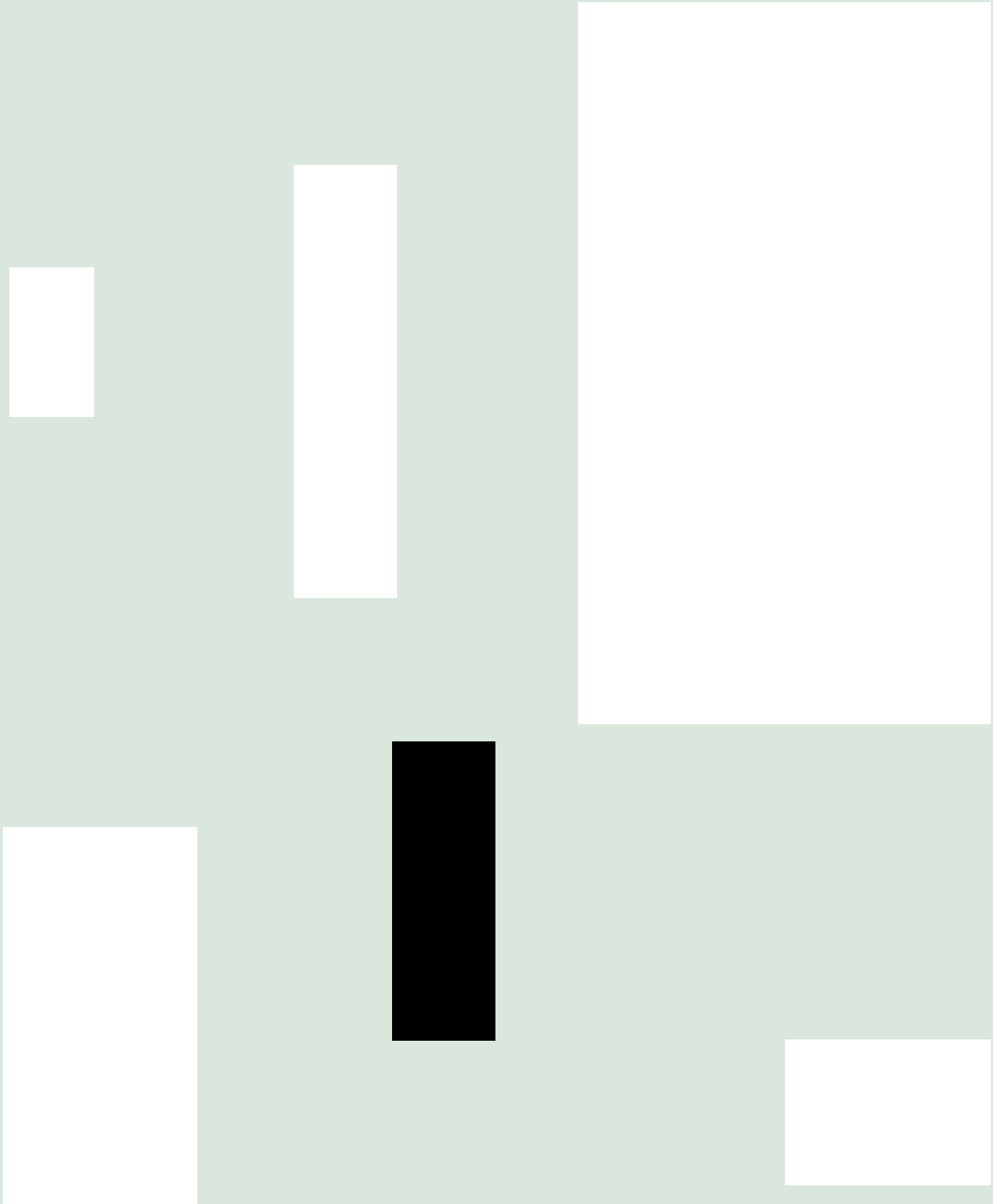
Long-term statistics

UK 2018

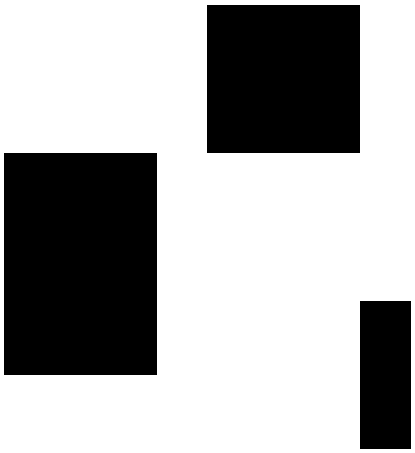


Willis Towers Watson

Welcome to the 2018 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 2018



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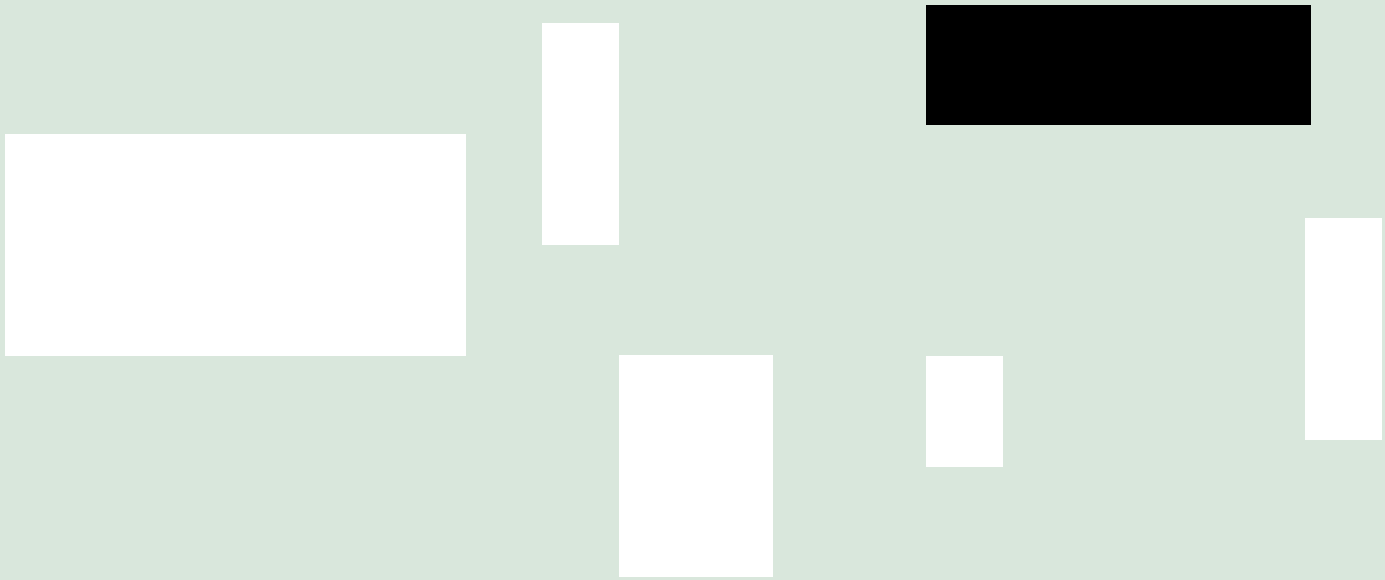
Economic and market outlook

Problems and solutions but no easy answers

January 2018



Problems and solutions but no easy answers

Over the past two-to-three years, our forecasts for positive but low long term asset returns – with global equities expected to outperform global credit and credit expected to outperform developed world government bonds – have had mixed results. Asset class returns over 2017 and the last three years have followed our expected rank order. Average non-US equity returns have generally been moderate. However, US equity returns have been much higher than we expected as we underestimated the strength of valuation increases. Corporate credit has also provided good returns, above our expectations, while risk-free bond returns have more or less followed our outlook.

However, our end objective is not to forecast returns but to build resilient portfolios. Unquestionably, a simplistic equity-bond portfolio will have fared very well in recent years, particularly over 2017. But our portfolio recommendations – to diversify, to hedge unwanted risks, and to harness returns from active management – have both kept pace and also provided investors with a more comfortable ride.

Executive summary

Our global outlook is broadly unchanged:

- Easy monetary policy – despite gradually rising interest rates – is likely to produce moderately above trend global growth and lift developed world inflation in the next 18 months. Over our five year horizon, monetary tightening will slow real growth – in our view a recession is now slightly more likely than not;
- An environment of high asset prices and rising downside risks over the medium-term cause problems for portfolio strategy with no easy answers. Maximising diversity, alpha, and obtaining intelligent downside protection all require significant time, expertise and real time management.
- However, we think the rewards are significant – these steps could improve investment efficiency by 30-40% versus a more conventional portfolio, by delivering a similar level of return at a much lower level of risk.

Five-Year Capital Market Outlook

Section 1: 2017 economic and market conditions at a glance

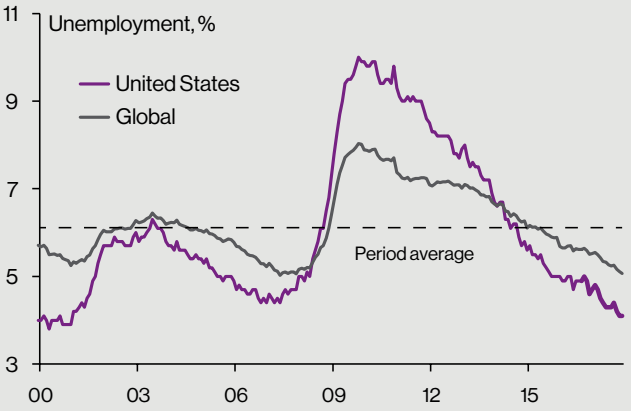
Global economic growth was high and above expectations

Real GDP growth, %	Expected 2017 growth	Realised growth	Difference (ppts)
US	2.2	2.3	+0.1
UK	1.2	1.5	+0.3
Eurozone	1.4	2.3	+0.9
Japan	1.0	1.7	+0.7
China	6.5	6.8	+0.3
Brazil	0.8	0.9	+0.1
Russia	1.1	1.8	+0.7

Source: Bloomberg LLP, Willis Towers Watson

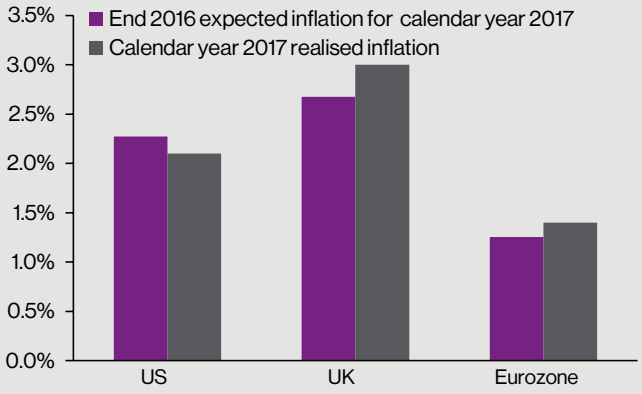
Expected and realised growth is based on the Bloomberg survey of forecasting economists – full year 2017 growth is not yet known.

Above-trend growth continued to reduce spare economic capacity



Source: Bloomberg LLP, Willis Towers Watson

Apart from the UK, inflation in the major advanced economies was low and in line with expectations

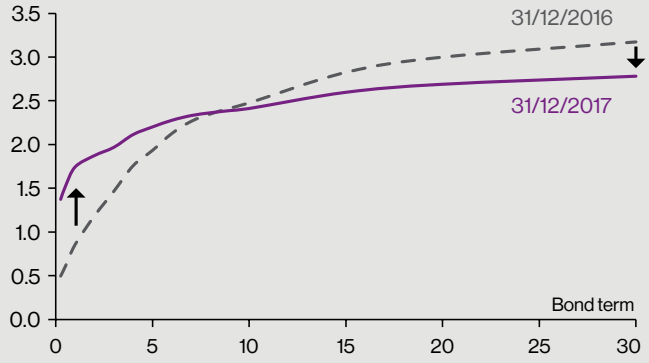


Source: Bloomberg LLP, Willis Towers Watson

Headline CPI inflation expectations based on inflation swaps.
UK expectation adjusted for difference between RPI and CPI.

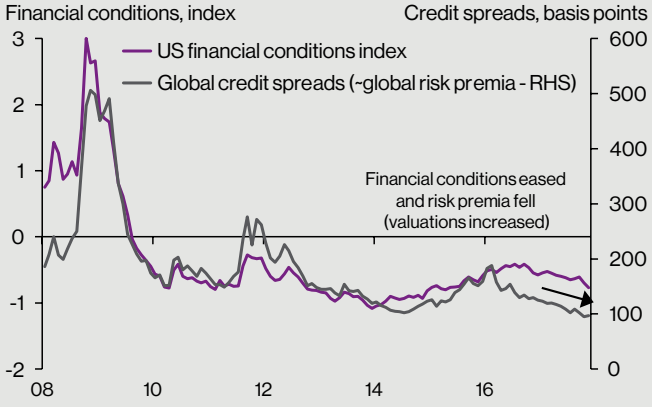
US short-term interest rates increased but falling long-term bond yields supported asset prices

Zero-coupon nominal US treasury yield, %



Source: Bloomberg LLP, Willis Towers Watson

Easier financial conditions and rising confidence drove valuations higher/risk premia lower



Source: OECD, Factset, Willis Towers Watson

Positive growth surprises and falling risk premia drove strong risky-asset returns

USD returns, periods ending 31/12/17	1 year (%)	3 years (%pa)
US cash	1.0	0.5
Developed gov't bonds, hedged	2.2	2.4
EM gov't bonds, unhedged	8.2	6.6
Global corporate bonds, hedged	5.4	3.7
Developed world equities, hedged	20.1	11.2
EM equities, unhedged	37.5	9.4
Commodities	5.8	-7.5
Euro vs. US dollar	14.1	-0.3

Source: Bloomberg LLP, Willis Towers Watson

Five-Year Capital Market Outlook

Section 1: 2017 economic and market conditions in review

Economic and market outcomes were surprisingly strong

Growth and inflation outcomes

Across advanced economies, economic growth in 2017 was generally stronger than most market participants' expectations (including our own), especially in the Eurozone and Japan. Emerging economy growth also picked up, responding to easier financial conditions and buoyant domestic and external demand. Global inflationary pressures and inflation expectations remained low. As a result, there was very little pressure on central banks to tighten monetary policy, which remained highly accommodative.

Economic policy tracked our expectations

The US Federal Reserve increased policy interest rates by a total of 0.75% in three steps in 2017, in line with our expectations. Elsewhere, monetary policy remained extremely easy, aggregating to a global monetary stance which remained highly accommodative. Across the developed world, fiscal policy neither added to nor detracted from growth materially. At the end of the year, a much-anticipated tax reform package was passed in the US, which was roughly in line with our expectations.

The Chinese Communist Party's 19th Party Congress consolidated Mr. Xi's leadership and his centralised reformist agenda, which for the global investment community means continued financial liberalization and the gradual opening up of China's large capital markets to foreign investors.

Confidence a powerful partner to easy money

Easy global monetary policy unquestionably drove this positive growth outcome, a likelihood noted in last year's Outlook. However, business and household confidence was stronger than we anticipated. In particular, a business-friendly US administration and falling perceptions of Eurozone tail-risk alleviated perceptions of considerable uncertainty in late 2016. The combination of easy money and elevated confidence drove strong business fixed investment and was a key reason behind widespread positive growth outcomes.

Capital market outcomes

Economic growth drove robust equity earnings and buoyant confidence pushed up asset valuations in most markets. Earnings growth and higher asset valuations delivered a strong year for risky assets:

- Equity returns were significantly driven by earnings outcomes, with increases in valuations playing a lesser but still significant role. The US (driven by large cap tech), Japan and emerging markets did very well, with European markets lagging (in local currency terms);
- Attractive credit returns were driven by lower credit spreads and declining default rates;
- Low risk intermediate bond returns tracked our expectations providing returns close to, but below, starting yields.

Returns in the context of our view

Over the past two-to-three years, our cautious market forecasts have had mixed results. On the risky asset side, non-US equity returns have generally been modest over recent years, if a little above our central outlook in aggregate. US equity returns have been higher than we expected as we underestimated the strength and persistence of valuation increases. Corporate credit has provided reasonable returns, above our expectations, whilst risk-free bond returns have more or less followed our outlook.

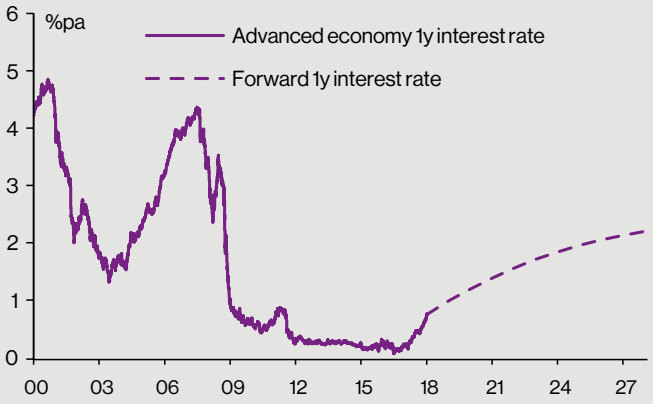
However, our end objective is not to forecast returns but to build resilient portfolios. Portfolios consistent with our outlook have performed well, despite a "mixed bag" of return forecasts. Unquestionably, a simplistic equity-bond portfolio will have fared very well in recent years, particularly over 2017. But our portfolio recommendations – to diversify, to hedge unwanted risks, and to harness the power of active management – have kept pace and also provided investors with a more comfortable ride.

Nevertheless, the aggregate strength of risky asset returns over the past couple of years has surprised us. The question is: is this the new normal? Is our five-year outlook for risky assets proved wrong?

Five-Year Capital Market Outlook

Section 2: Our global outlook at a glance

Bond markets are pricing-in only a gradual tightening of monetary policy



Source: Thomson, Bloomberg LLP, Willis Towers Watson

Markets are pricing-in a continuation of the current benign corporate environment over five years

Market	Implied default rate (%pa)	Cycle average (%pa)
Global investment grade	~0%	2.2%
Global high yield	0.5%	4.9%

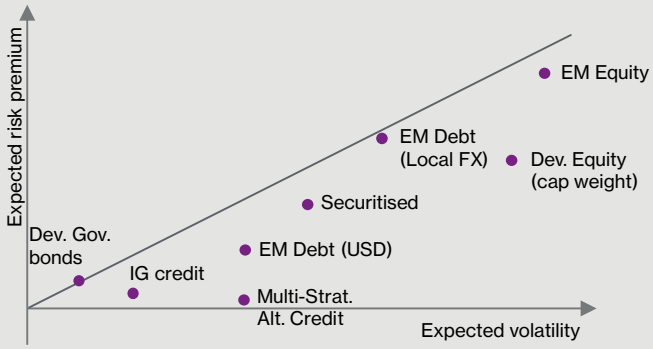
Little downside risk implied by credit markets...

Market	Implied default rate (%pa)	Cycle average (%pa)
Global equity markets	4.3%	3.6%
Developed markets	4.1%	3.5%
Emerging markets	5.3%	4.8%

...whilst optimism about corporate profits is moderately high

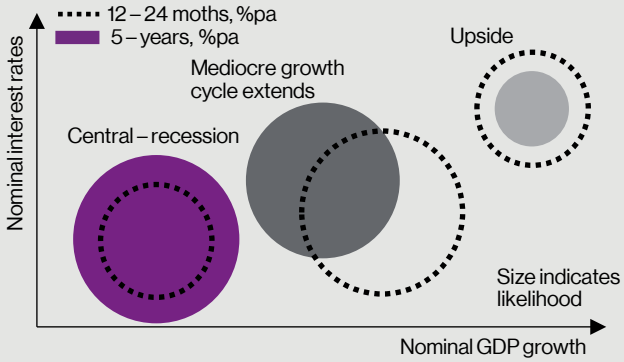
Source: Bloomberg LLP, Merrill Lynch, MSCI, Willis Towers Watson

Starting cash rates are low and asset valuations are high leading to low five-year expected returns



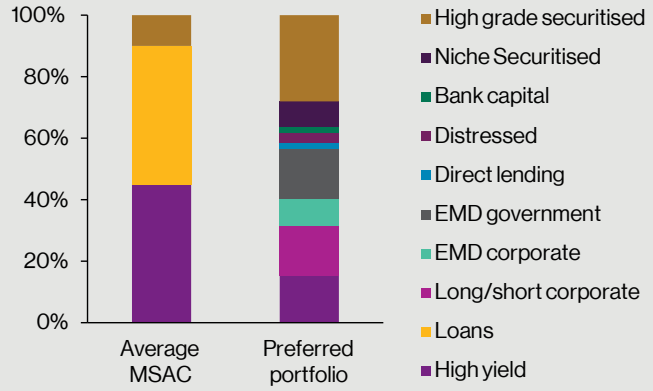
Source: Willis Towers Watson

Our outlook for the next five years is that recession is marginally the most likely outcome



Source: Willis Towers Watson

Traditional multi-strategy credit is poorly rewarded but niche markets offer value



Source: Willis Towers Watson

Long-horizon sustainable investing has the potential to add significant value to portfolios

Actions		Return gains (%pa)
Return opportunities	Active ownership	0.40%
	Liquidity provision	0.25%
	Systematic mispricing	0.15%
	Illiquidity premium	0.20%
	Sustainability tilts	0.10%
Reducing Costs	Avoid buy-high-sell-low	0.15%
	Avoid forced sale	0.15%
	Lower transaction costs	0.20%
Premium for large asset owner		**c. 1.5+%**

Source: Thinking Ahead Institute

Potential benefit for a larger fund with the governance and financial resources to consider all available options for capturing premia.

Five-Year Capital Market Outlook
Section 2: Our global outlook

Do recent economic and market outcomes signal a break to the upside?

One interpretation of the outcomes seen in 2017 is that the global economy and asset markets are in the early stages of a productivity-driven self-reinforcing expansion that could last for another five years.

While the lack of headline inflationary pressures and improvement in growth and confidence mean we cannot rule this out, we continue to expect positive but low asset returns over the next five years, with rising downside risks over time. We point to two key reasons for this.

1. The business cycle is gradually maturing causing rising downside risk

Our analysis of the major developed economies suggests that the global business cycle will mature over the next five years. Led by the US, spare economic capacity has been eroded by years of sufficiently strong GDP growth. We believe the current stage of the business cycle warrants gradual but persistent removal of the monetary stimulus provided by central banks. The Federal Reserve will continue to lead this tightening cycle, but other major central banks will tighten policy as well. Historically, the combination of liquidity tightening cycles and a maturing growth cycle has led, at a minimum, to a growth slowdown and reduced inflation pressures. In the shorter term, the downside risks we are watching include the risk of rising central bank rates leading to volatility in longer-dated bond markets and China's ongoing management of its excess debt.

2. Less scope for upside economic and market surprise

Investor expectations for future economic and asset price outcomes have remained clustered and narrow. For example, the likelihood of large market moves implied by options prices has fallen to cyclical lows. This could amplify the asset price implications of positive/negative growth and inflation surprises – as it did in 2017. However, selective asset markets, e.g., corporate credit, are now pricing-in a materially better growth outcome over the medium term, which makes the scope for sustained upside surprise less likely.

Two likely outcomes – the likelihood of recession is marginally higher

We believe the most likely outcome for the global economy over the next five-years is one of rising interest rates and slowing growth. The key question is whether recession is more likely than not. Our view is that recession is slightly more likely in the next five years than not but expect growth to slow to below potential in three-to-five years in any event.

The maths of low long-term returns

Our forecast that growth will slow, coupled with the observation that asset markets are 'pricing-in' a continuation of the recent good growth and low inflation environment, leads us to conclude that valuation levels are expensive in a number of asset markets. Historically, high valuation levels have led to poor returns above cash over a five-year horizon.

Adding these comments to low expected cash returns leads to the conclusion that long-term asset total returns are likely to be low relative to history, apart from a few exceptions.

Short-term economic momentum

Our outlook in the shorter term allows for continued economic and asset price momentum in selective markets. In 2018, we expect global growth to be above trend and liquidity flows from cash and bonds to support selective markets.

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 on EM bonds offer better value selectively.

Credit spreads tightened significantly in 2017, with returns likely limited to earning the risk premium. Globally, we expect *stocks* to outperform credit, given the mid to late-cycle environment. However, growth, revenue, margin, and valuation divergences will again cause important country differences.

Recommendations to investors

Applying this high level template we explore six recommendations for investors.

Five-Year Capital Market Outlook
Section 3: Implications for portfolio strategy

No easy answers

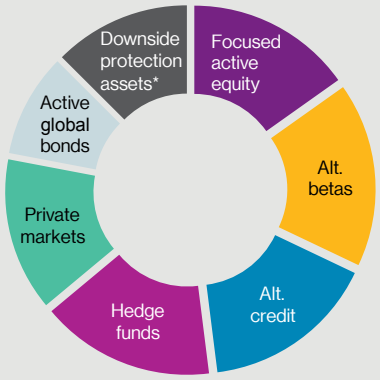
We summarise the key portfolio actions we believe investors should take below. Doing some of these things should improve portfolio efficiency but may struggle to move the portfolio risk-adjusted return dial sufficiently.

Building a portfolio that delivers all these things in combination is the key, in our view. Maximising diversity, alpha, and obtaining intelligent downside protection – all require significant time, expertise and real time management. But the rewards are significant, especially in the high asset price environment we are in. For example, we believe portfolios which combine the first four steps below will **improve investment efficiency by 30-40%** versus a more conventional portfolio, by delivering a similar level of return at a much lower level of risk.

A return-seeking portfolio robust to our outlook: maximum diversity and real-time management

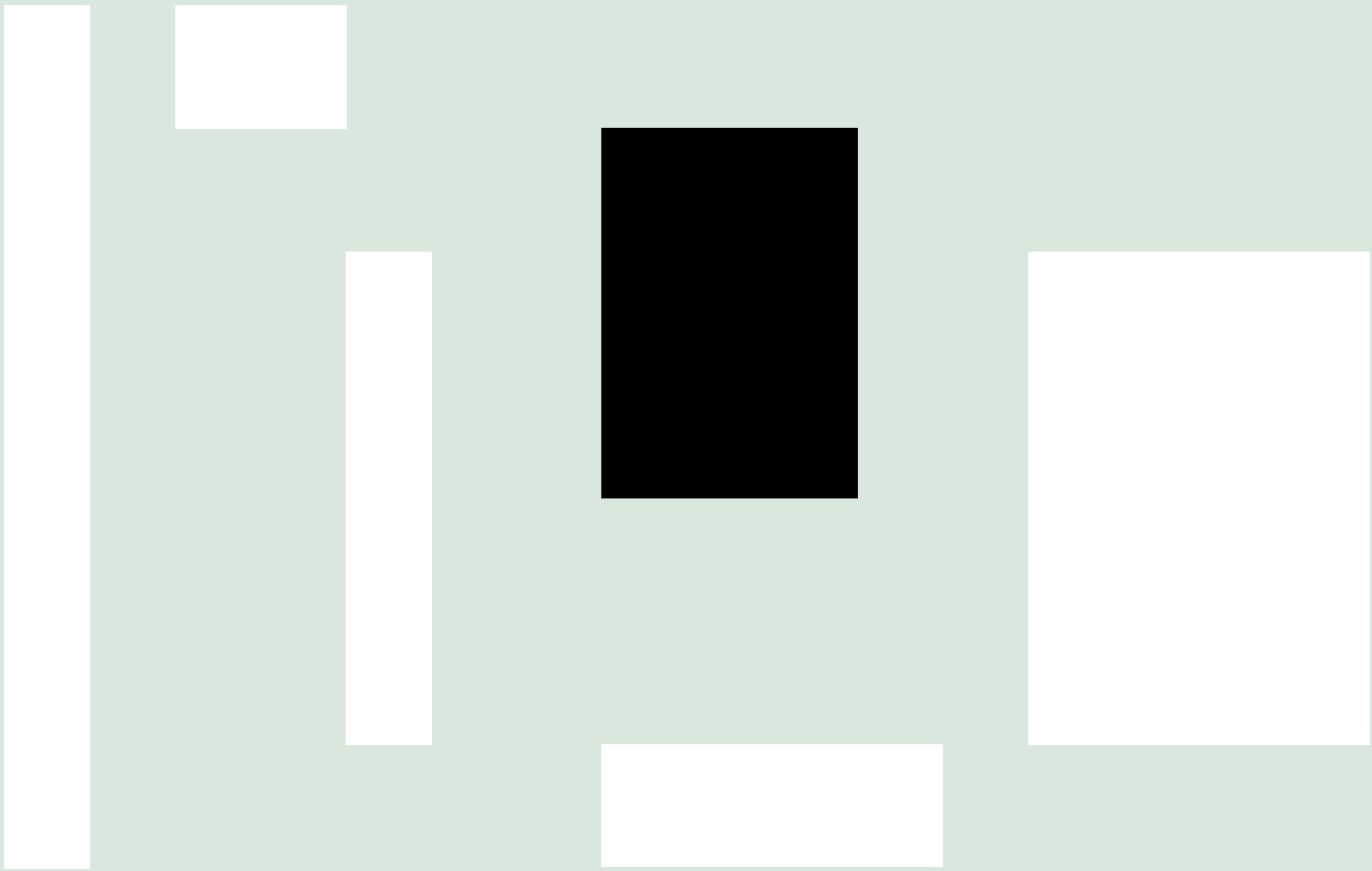
* High quality levered government bonds and unhedged currency

Material currency and liability risks controlled to targeted amounts using hedging



Key statistics	
Number of individual strategies accessed	25
Distinct portfolio changes in the past 12 months	>30
Proportion of return from skill	35-40%
Added value: indicative realised Sharpe ratio (vs. equities) over the last five years	**2.2 (vs. 1.6)**

The problems ...	... our solutions
1. Low expected returns	▪ Review the extent to which your required returns have fallen, alongside expected returns ▪ Improve efficiency where you can by maximizing diversity and alpha capture
2. Rising downside risks but near-term upside	▪ Maximising diversity will provide a smoother ride in downside environments ▪ Consider a phased and gradual de-risking ▪ Allocate to conventional assets which provide downside protection, e.g. levered bonds
3. Mispriced distribution of return outcomes	▪ Macroeconomic uncertainty is elevated, while options markets price in low volatility ▪ Well-designed options strategies may be a cost-effective alternative to outright de-risking
4. Expensive asset valuations (low risk premia)	▪ Return-seeking assets that are easily accessible to yield-chasing investors are particularly expensive, e.g., traditional corporate credit assets ▪ Reasonably priced and/or cheap assets exist but hard work is needed to overcome intense competition
5. Large-scale changes in capital markets	▪ Chinese capital markets are becoming part of the global opportunity set ▪ A larger opportunity set is a good thing, allowing more diverse portfolios to be built – consider how it is accessed and how quickly
6. Regulation driving sustainability integration	▪ Sustainability integration should improve risk/return outcomes over the long run ▪ Many investors without the beliefs or bandwidth to integrate sustainability may be forced by regulation – we suggest getting ahead of the curve



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 2017, 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 2017.

Figure 1.1 **Rate of inflation**

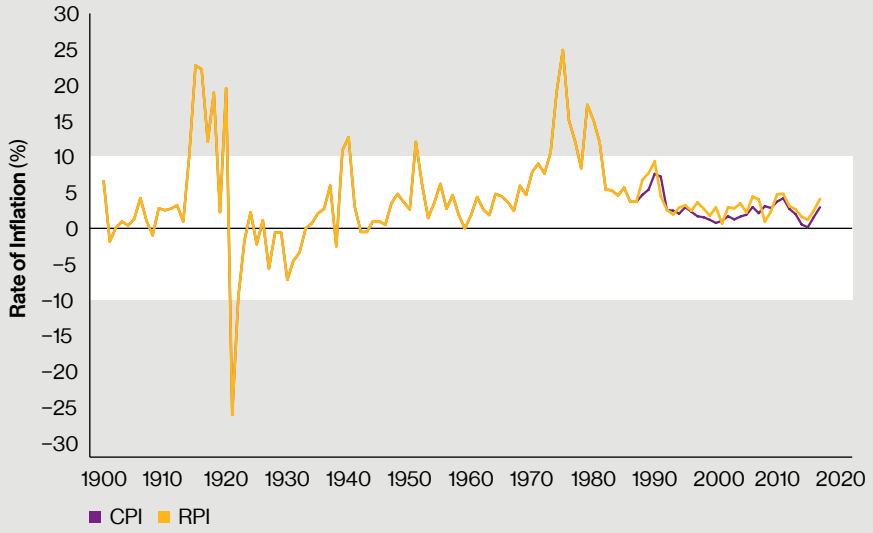


Figure 2.1 **Retail Prices and Consumer Prices**

	Increase % per year in General Index of Retail Prices				Increase % per year in General Index of Consumer Prices			
Year	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
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**

Alternative measures of inflation

Figure 1.2 shows the annual rate of inflation as at every month end each year from 2006 to 2017, 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 2017.

Figure 1.2 **Alternative measures of inflation**

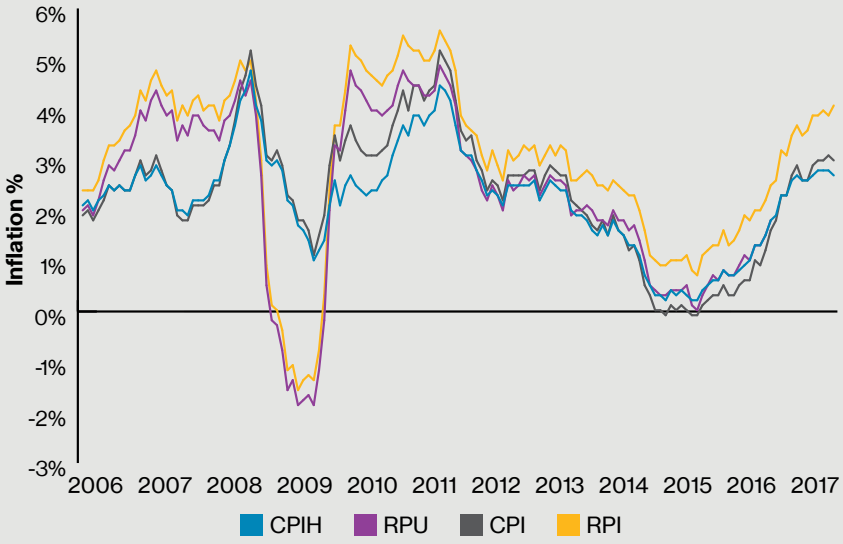


Figure 2.2 **RPI, RPI-J, CPI and CPI-H**

	Increase % per year in RPI			Increase % per year in RPIJ			Increase % per year in CPI			Increase % per year in CPIH		
Year	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
2017	**4.12**	**2.42**	**2.80**	–	–	–	**2.94**	**1.44**	**2.37**	**2.74**	**1.51**	**2.21**

The Office for National Statistics discontinued the RPIJ index with effect from January 2017

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 2017 relative to RPI, while the violet line depicts the indices of real earnings as at December each year from 1988 to 2017 relative to CPI.

Figure 3. **Average wages/earnings**

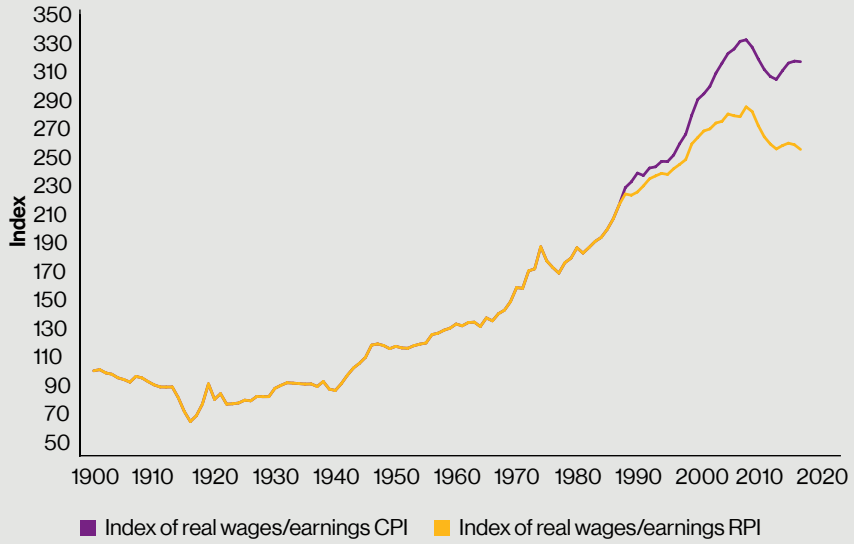


Figure 4.1 gives the percentage increase in the earnings index over periods of one, five, 10 and 20 years, ending in December each year, from 1988 to 2009. The first column shows the percentage increase in the nominal index. The second and the third columns show the percentage increase in the real index, 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**

	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)			
Year	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
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 2017. 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.

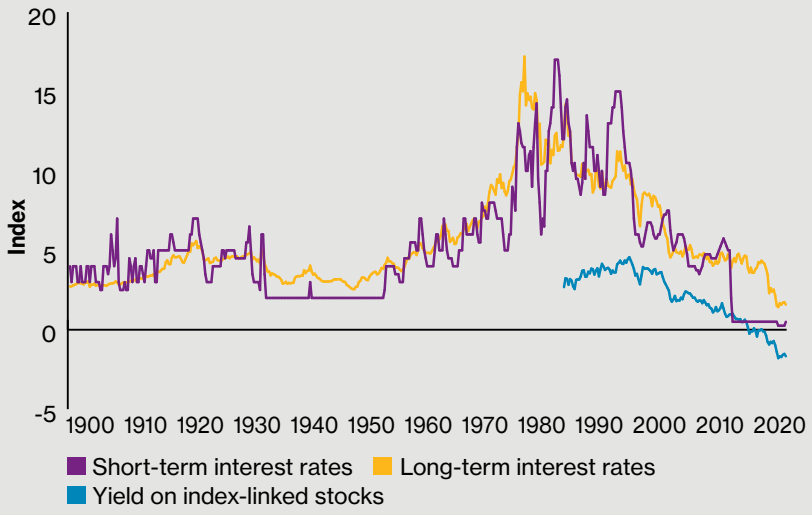
Figure 4.2 **Average Weekly Earnings**

	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)		
Year	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
2016	**1.64**	**1.69**	**1.87**	**-0.84**	**-0.51**	**-0.90**	**0.04**	**0.29**	**-0.41**
2017	**3.22**	**2.12**	**1.90**	**-0.86**	**-0.29**	**-0.88**	**-0.27**	**-0.67**	**-0.46**

Interest rates

Figure 5 shows various interest rates at the end of each quarter from 1900 to 2017. 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**

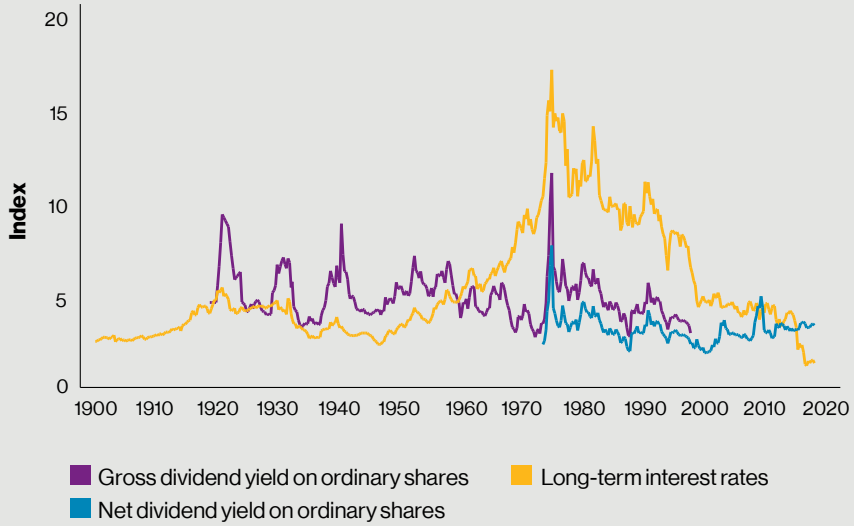
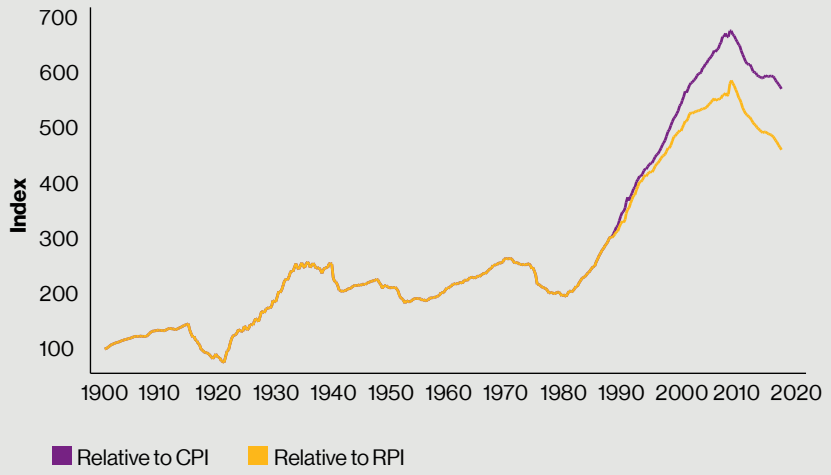


Figure 7. **Accumulated real return on short-term fixed interest deposits**



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 2017, with returns obtained by dividing short-term fixed interest returns by the RPI and from 1988 to 2017 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 2017. 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**

	Nominal increase % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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
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**

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 2017, with returns obtained by dividing long-term fixed interest returns by the RPI, and from 1988 to 2017 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**

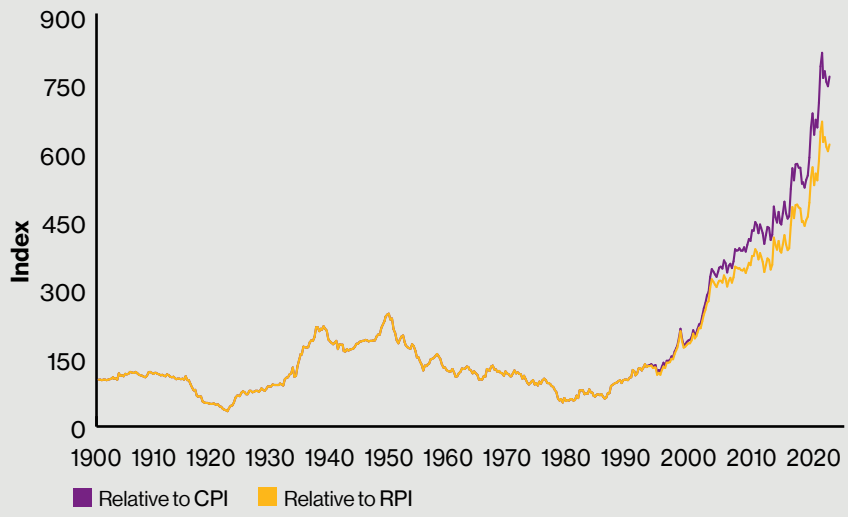
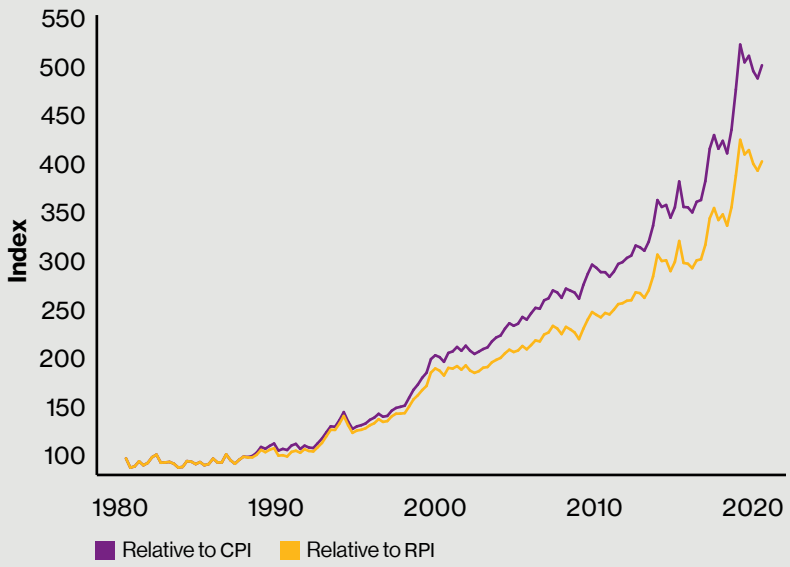


Figure 10 gives the percentage returns on long-term fixed interest investment over periods of one, five, 10 and 20 years, ending in December each year from 1989 to 2017. The first column shows the percentage rates of nominal return, and the second and third columns show the percentage rates of real return, relative to retail prices and consumer prices respectively.

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

	Nominal return % per year				Real return % per year relative to retail prices				Real return per cent per year relative to consumer prices			
Year	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
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**

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 2017, with returns obtained by dividing index-linked returns by the RPI, and from January 1988 to December 2017 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 2017.

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.

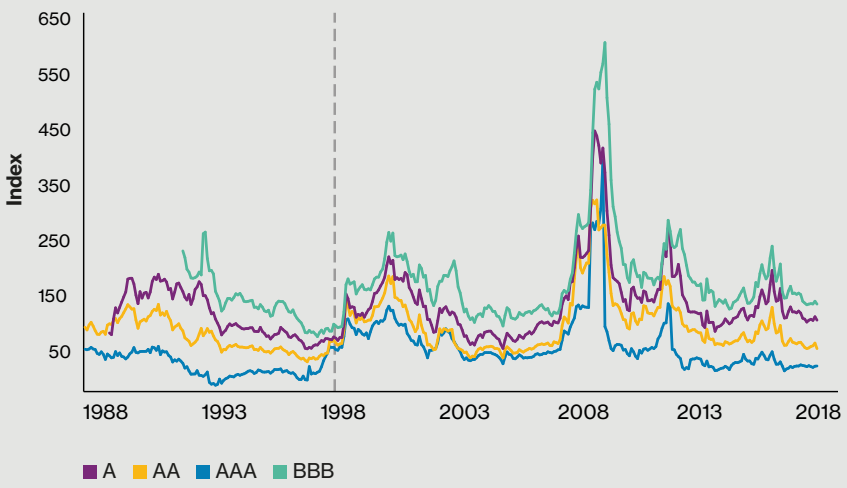
Figure 12. **Index-linked returns**

	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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
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**

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.

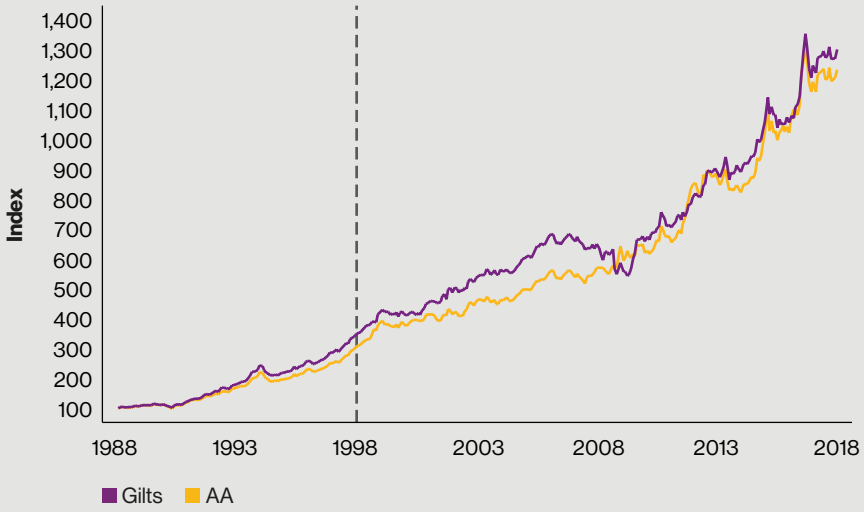
Figure 13. **Spreads of corporate bond yields over gilts**



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 2017. 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**

	Nominal return % per year			Real return % per year relative to retail prices			Real return % per year relative to consumer prices		
Year	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**

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 2017, 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 2017, 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**

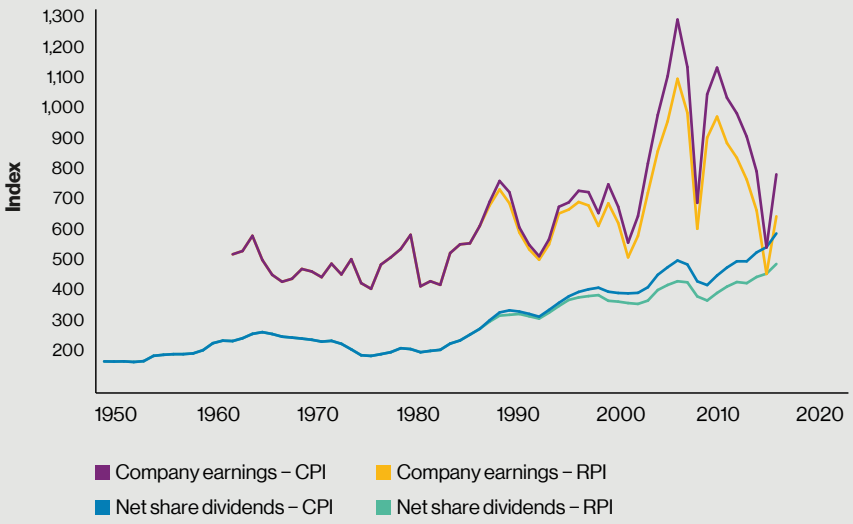


Figure 17 gives the percentage increase in the net dividend index on ordinary shares over periods of one, five, 10 and 20 years, ending in December each year from 1988 to 2017. The first column shows the percentage increase in the nominal index, and the second and third columns show the percentage increase in the real index, relative to retail prices and consumer prices respectively.

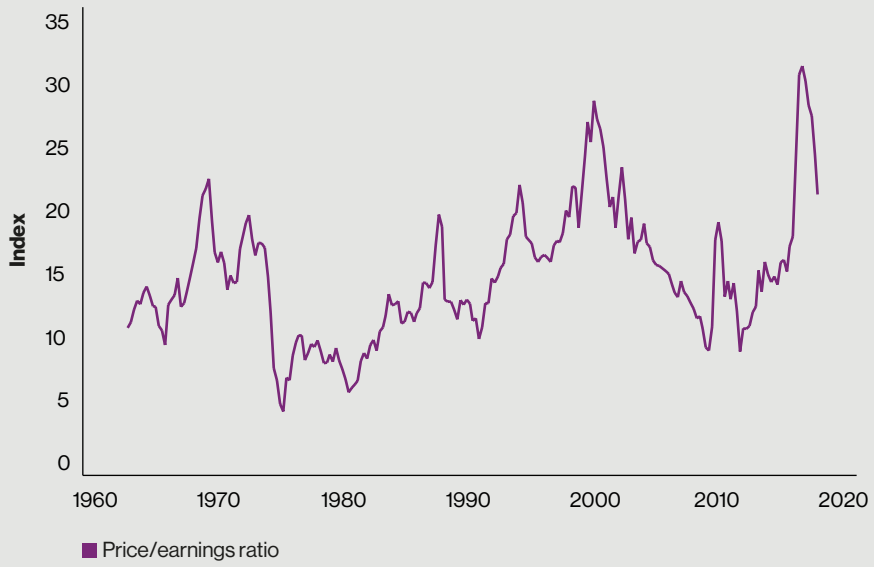
Figure 17. **Share dividend increases**

	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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
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**

Price/earnings ratio

Figure 18 shows the price of equity shares as a ratio of company earnings from June 1962 to December 2017 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 2017 based on the FTSE Actuaries 500 Share Index until March 1994 and the FTSE Actuaries All-Share Index thereafter.

Figure 19. **Dividend cover**

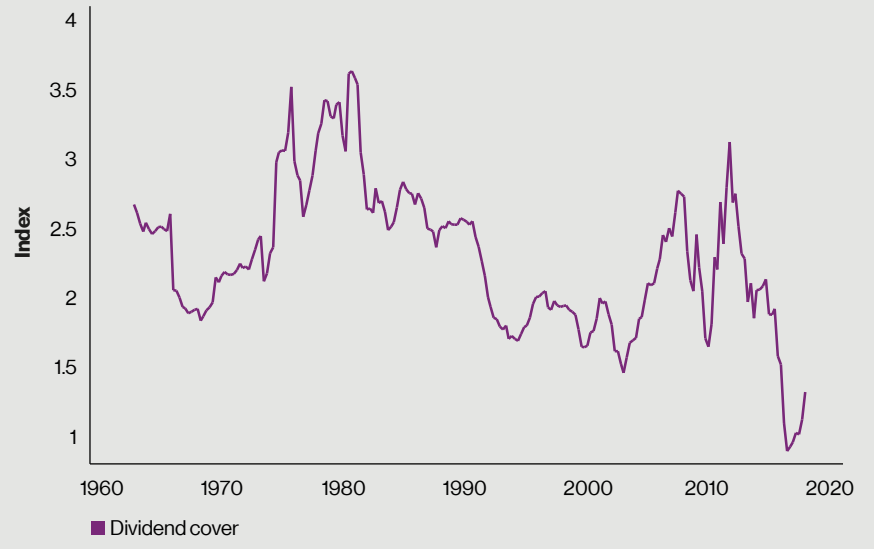
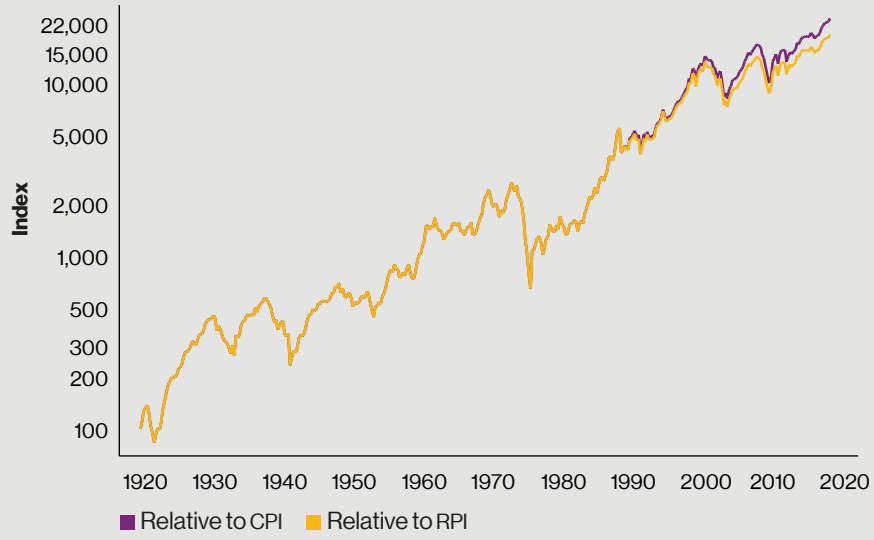


Figure 20. **Accumulated real return on UK ordinary shares (based on net dividends)**



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 2017, with returns obtained by dividing the UK ordinary share returns by the RPI, and from 1988 to 2017 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 2017. 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)**

	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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
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**

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 2017. 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 2017. 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**

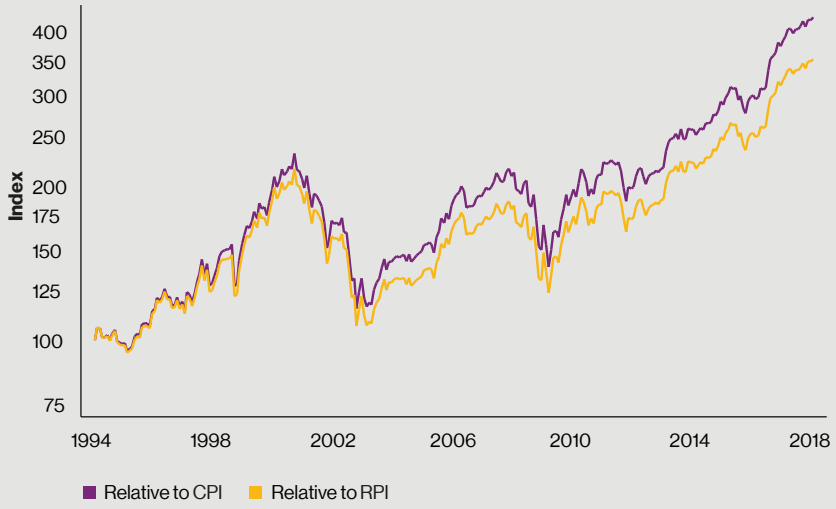
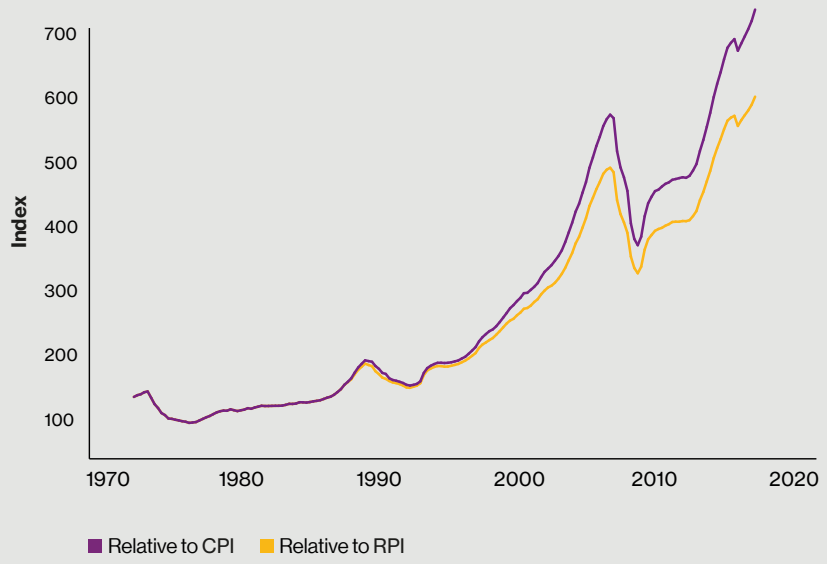


Figure 23. **Overseas ordinary share returns**

	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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**

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



Property returns

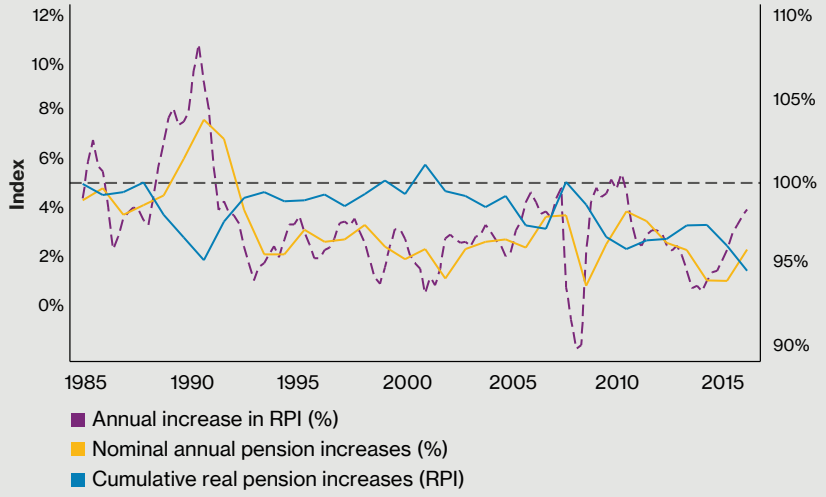
Figure 24 shows an index of the accumulated real return on UK property at the end of each quarter from 1973 to 2017, with returns obtained by dividing property returns by the RPI and from 1988 to 2017 with returns obtained by dividing property returns by the CPI shown in *Figure 2.1*. The index used 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 2017. 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**

	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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
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**

Figure 26.1 **Pension increases relative to RPI**



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 825,000 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 2017, 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**

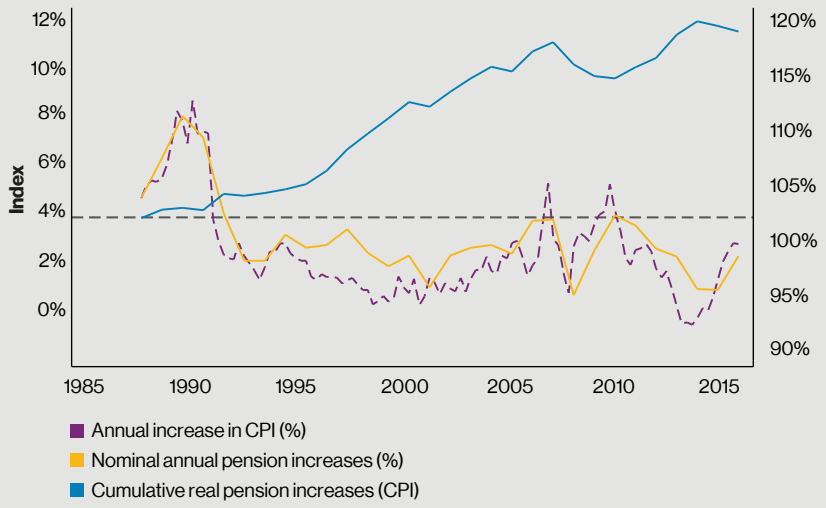
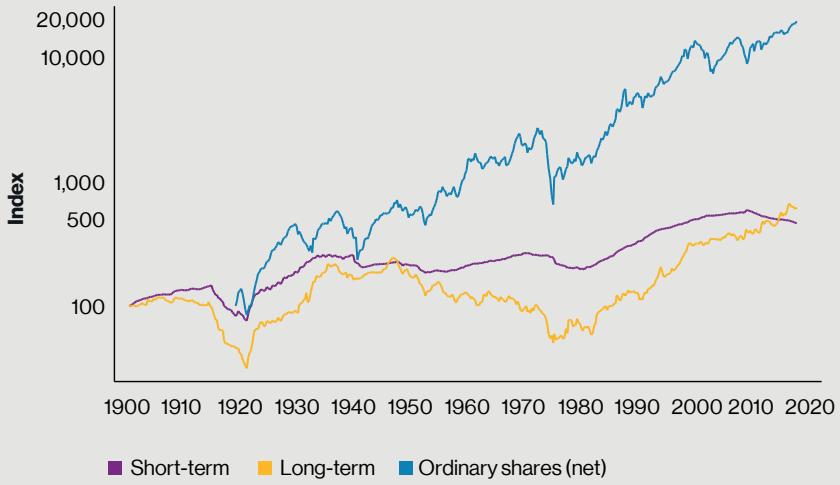


Figure 27 gives the percentage increases in pensions over periods of one, five, 10 and 20 years, ending in December each year, from 1988 to 2017. The first column shows the percentage rates of nominal increases, and the second and third columns show the percentage rates of real increases relative to retail prices and consumer prices respectively.

Figure 27. **Pension increases**

	Nominal return % per year				Real return % per year relative to retail prices				Real return % per year relative to consumer prices			
Year	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
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**

Figure 28.1 **Shares 1900 to 2017 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 2017 relative to CPI**

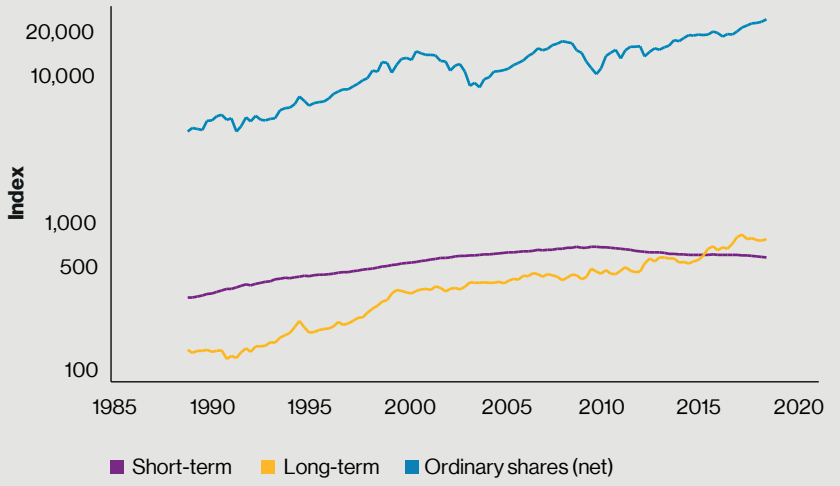


Figure 28.2 shows *Figures 7, 9* and *20* on the same scale.

Figure 29.1 **Returns 1981 to 2017 relative to RPI**

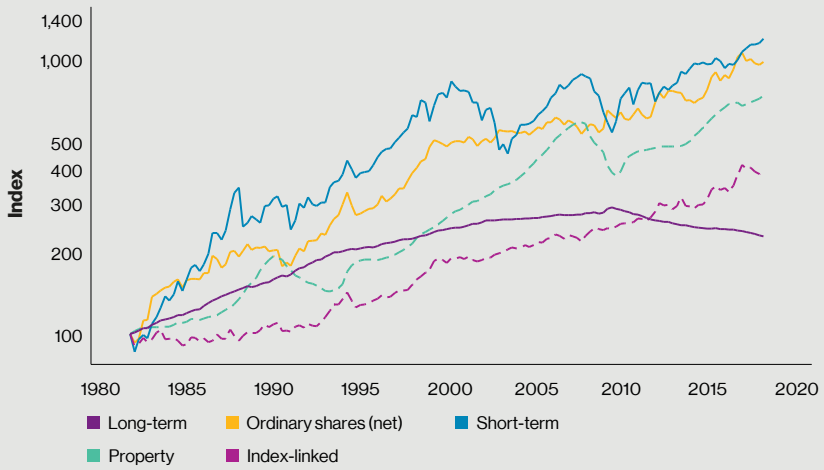


Figure 29.1 shows *Figures 7, 9, 11, 20* and *24* on the same scale.

Figure 29.2 **Returns 1988 to 2017 relative to CPI**

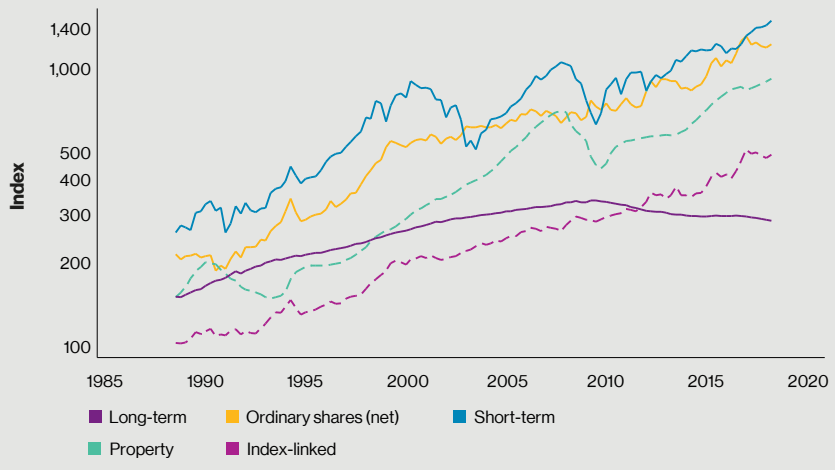


Figure 29.2 shows *Figures 7, 9, 11, 20* and *24* on the same scale.

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 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

Further information

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

Please contact **statistics@willistowerswatson.com**

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