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Will the next few years be a New Era?

Yes, of rising inflation, slower economic growth and lower - possibly negative - equity returns

The typical business cycle has a "sweet spot"

The combination of falling unemployment and low inflation in the USA and the UK has been welcomed as a "New Era", and so as the fundamental under-pinning of high equity market valuations. In fact, a typical business cycle has a phase (the "sweet spot") when the macroeconomic news is uniformly favourable. The sweet spot is possible when above-trend growth starts in an environment of high unemployment, abundant spare capacity and empty commercial property. Because of the excess capacity, falling unemployment can be reconciled with low or even falling inflation. But the business cycle has another phase, two or so years later, when beneath-trend growth (or falling output) begins while unemployment is low and capacity is stretched. Rising unemployment then coincides with rising inflation. This phase, which might be called the "bitter spot", occurred in the UK from mid-1974 to late 1975, from late 1979 to mid-1981, and from mid-1990 to late 1991. The next bitter spot will be in 1999, when an inflation rate of about 4%, perhaps more, will need to be countered by several quarters of beneath-trend growth and rising unemployment.

and a "bitter spot"

Greenspan says central banks need to be "cautious" about structural improvements to the economy

Despite some expressions of concern about high monetary growth, the Bank of England's latest *Inflation Report* remained confident that over the medium term inflation would keep close to the target of 2 1/2%. It was not worried about a bitter spot. In the USA Mr. Greenspan's views seem to shift from month to month. In his recent speech to the Center of Economic Policy Research he said that a central bank, "while needing to be open to evidence of structural economic change", also "needs to be cautious". "With labour resources currently stretched tight, we need to remain on alert" about inflation. The warning - that continued above-trend growth would prompt a rise in interest rates - was clear.

Japan shows that negative returns on equities, over extended periods, are possible

Greenspan also noted the dangers of asset price inflation, even in the absence of inflation in goods and services. The Japanese "bubble economy" of the late 1980s - when low consumer price inflation was accompanied by booming share and hand values - has been followed by over six years of trauma for the financial system. The average real return on Japanese equities in the 1990s has been negative by over 7 1/2% a year. No one - and certainly not Greenspan himself - wants this to happen in the USA. But - if the yield on US equities were to return to long-run norms - US share prices would collapse. (See p. 12 of the June *Monthly Economic Review*.) Contrary to the propaganda about the "New Era", official statistics show that productivity growth in the USA has been poor in the 1990s. (See p.15 of this *Review*.) It will be surprising if current equity valuations, and the euphoria associated with them, survive the next cyclical "bitter spot".

Summary of paper on

"Long-run investment returns"

Purpose of the paper

Around the world long-term savings institutions are raising the proportion of their assets invested in equities. This research paper asks whether the shift towards equities is still justified by the prospect of higher returns than on other asset classes.

Main points

- * **UK institutions have increased their weightings in equities substantially since the early 1960s, with equities now constituting almost 90% of pension fund assets and not far from 80% of life companies' assets. (See pp. 6 - 7.)**
- * **A similar move towards equities is taking place around the world, notably in the USA, often on advice from consultants using historical data. In most relevant past periods the excess returns on equities have not been offset by greater volatility of returns (i.e., more risk). (See p. 9.)**
- * **Real yields on UK index-linked gilts have averaged 3 1/2% - 3 3/4% a year since the mid-1980s. The real yield on conventional gilts is inherently uncertain, as it depends on inflation, but it probably needs to be a little higher than on index-linked. (See pp. 12 - 13.)**
- * **Capital gains on equities come from i. a declining yield, and/or ii. dividend growth. For the stock markets as a whole, dividend growth depends on economic growth more generally.**
- * **Further declines in the yield on US and UK equities seem unlikely, and may be reversed. (See p. 11.) Meanwhile long-run prospects for economic growth in both Europe and the USA are deteriorating. (See pp. 14 - 15.) Consequently, future equity returns - crucial for retail savings products - are likely to be disappointing compared with the last 15 years.**

This paper was prepared by Professor Tim Congdon and Mr. Stewart Robertson. Much of the material was derived from a study on investment returns in retail savings products carried out by Lombard Street Research for the Personal Investment Authority. The study is to be published by the PIA.

Long-run investment returns

Is the global enthusiasm for equities justified?

Equities seen as core asset class for long-term investment

Recent years have seen growing enthusiasm for equities as the core long-term asset for institutional investment. In the past equities have out-performed other asset classes, notably bonds and property, over virtually all relevant time-horizons (i.e., time-horizons of 20 years or more). Investment consultants - often with an actuarial background - have examined the data, identified the out-performance by equities and recommended that the equity weightings (in pension and insurance funds, for example) should be increased. This pattern has been most obvious in the USA, where the vast pension fund industry (with total assets of over \$6,000b.) has in the 1990s been gradually raising the proportion of equities to total assets.

UK saw earliest move towards equity dominance

The move towards a high equity weighting in institutional portfolios occurred earliest in the UK. However, the motive in the UK was not positive (i.e., to seek the asset with the highest return), but defensive. Over the decade to the mid-1970s the real value of life companies' and pension funds' assets were ravaged by inflation. In particular, the nominal value of long-dated gilts was cut by the increase in yields, while the real value was further eroded by the rise in the price level. UK institutions moved into "real assets", such as equities and property, to protect their customers against further damage from inflation. ("Real assets" are those which are claims on underlying earnings streams whose nominal value ought to increase in line with inflation.) Today equities, both UK and foreign, represent almost 80% of UK life office assets and not far from 90% of UK pension fund assets. (See charts on pp. 6 - 7.) Equivalent institutions in other countries typically have far lower equity weightings, but are moving towards the UK position.

Equity performance crucial to returns on savings products

Important questions are raised by these trends. How large has the gap in returns between equities and bonds been historically and, if it has been substantial, why do institutions still hold any bonds at all? Given the current preponderance of equities in institutional portfolios, what long-run real returns are to be expected on equities as an asset class? Finally, what illustrative real return can be used for marketing purposes as likely to be achieved on the main types of retail savings products? This research paper provides a sample of material relevant to answering these questions.

Historically, equities have out-performed gilts and - on some criteria - also been less risky

On the first question, the gap in returns between UK equities and gilts has - by any standard - been substantial. From 1919 to 1996 there were 54 periods of 25 years in length. (The first such period ran from 1919 to 1943.) Each 25-year period had an average annual rate of return. The average annual real return on 20-year gilts for all 54 periods was in fact zero. By contrast, the average annual real return on equities on the same basis was 5.8%. In other words, for much of the 20th century a life company investing in gilts would be able to hand back to its policy-holders a sum not worth any more in real terms than the premiums

invested. By contrast, a single-premium policy invested entirely in equities would after 25 years give back a sum worth four times more in real terms than the sum invested.

The relevance of mean-variance analysis

Portfolio theory can justify a decision to invest in an asset with a lower expected return than another asset. The point is that the future return from most assets is uncertain. So the future return is best described not by a single figure, but by a probability distribution of returns around a central mean value. For some assets the probability distribution is highly bunched around the mean value (i.e., the variance around the mean is low). For other assets the probability distribution has long tails (i.e., the variance is high) and the mean value is relatively uncertain. It may be sensible for an institutional investor to buy a relatively low-yielding asset class (i.e., bonds or, in the UK context, gilt-edged securities), because the variance of the return is also low and the institution can have considerable confidence about the final return.

Even allowing for potential risk in equities, the "equity premium puzzle" remains

Mean-variance analysis is an advance on a simple comparison of expected mean returns. But it has generated a puzzle. Obviously, risk-averse investors will be happier to hold assets with low variances than risk-taking investors. Measures of risk preferences can be estimated and compared with the "efficient frontier" of assets (i.e., those where - for a given mean return - all assets with a higher variance than the least-variance asset are excluded), to determine which particular asset will be chosen by an investor of a particular degree of risk aversion. It turns that - on all plausible measures of risk aversion - the excess return on equities over that on safe assets (cash, Treasury bills) is far more than can be attributed to the higher variance of returns. Dozens of academic articles have been written about this so-called "equity premium puzzle".

Future returns on gilts should be better, with conventionals out-performing index-linked since the mid-1980s

This is not the place to try to resolve the puzzle. In practice, UK institutions - and institutions in other countries - continue to hold assets other than equities. UK institutions' loyalty to gilts appears particularly anomalous in view of the historical record, which shows that - in real terms over 25-year periods - gilts have not only had a lower mean return than equities, but also a higher variance of returns. (See p. 9.) Of course, the future may be different from the past. In the first place the Government introduced index-linked gilts in 1981. If an institution holds these from issue to redemption (i.e., it does not trade them at all), the return is both positive and very predictable in real terms. Experience since 1985 suggests that the real yield on long-dated index-linked settles down to 3 1/2% - 3 3/4%. Because of the danger of another inflationary trauma, conventional gilts must have a higher expected real return from here (whatever happened in the past). In fact, since the mid-1980s the real return on conventionals has been higher than on index-linked. (See pp. 12 - 13.)

**Capital gains on equities reflect
i. falling yield and
ii. dividend growth**

A good starting-point for understanding the determinants of long-run equity returns is the chart of the dividend yield on UK and US equities on p. 11. There are two sources of capital gain on equities. First, with the dividend yield given, increases in dividends imply identical increases in share prices. Ultimately, at the level of the stock market as a whole, dividend growth depends on national

economic growth (or, of course, global economic growth for multi-nationals). Secondly, with nominal dividends given, declines in the dividend yield imply increases in share prices.

Difficult to believe that dividend yield on equities can fall much further - and the fall over the last 15 years may be reversed

A crucial question here is whether - in the long run - the dividend yield on the equity markets reverts to a mean value (presumably related to the return on a very safe asset, such as index-linked government bonds) or is on a downward trend, perhaps due to improvements in capital market liquidity. The evidence here is open to debate in the US case, but in the UK case the data dismiss the hypothesis of a long-run downward trend. If the yield on equities does return to a long-run mean value, both the US and UK markets are currently over-valued. As the fall in the yield has been a major contributor to capital gains since 1982, a new-found stability in the yield would imply disappointing equity returns in the late 1990s and the early years of the next century. (A rise in yields back to long-run norms would be bad news in the UK and a disaster in the USA.) Over the next decade equity returns will - almost certainly - be less than those enjoyed in the last five, ten or 15 years.

Meanwhile long-term growth prospects in the industrial world are *deteriorating*, not *improving*

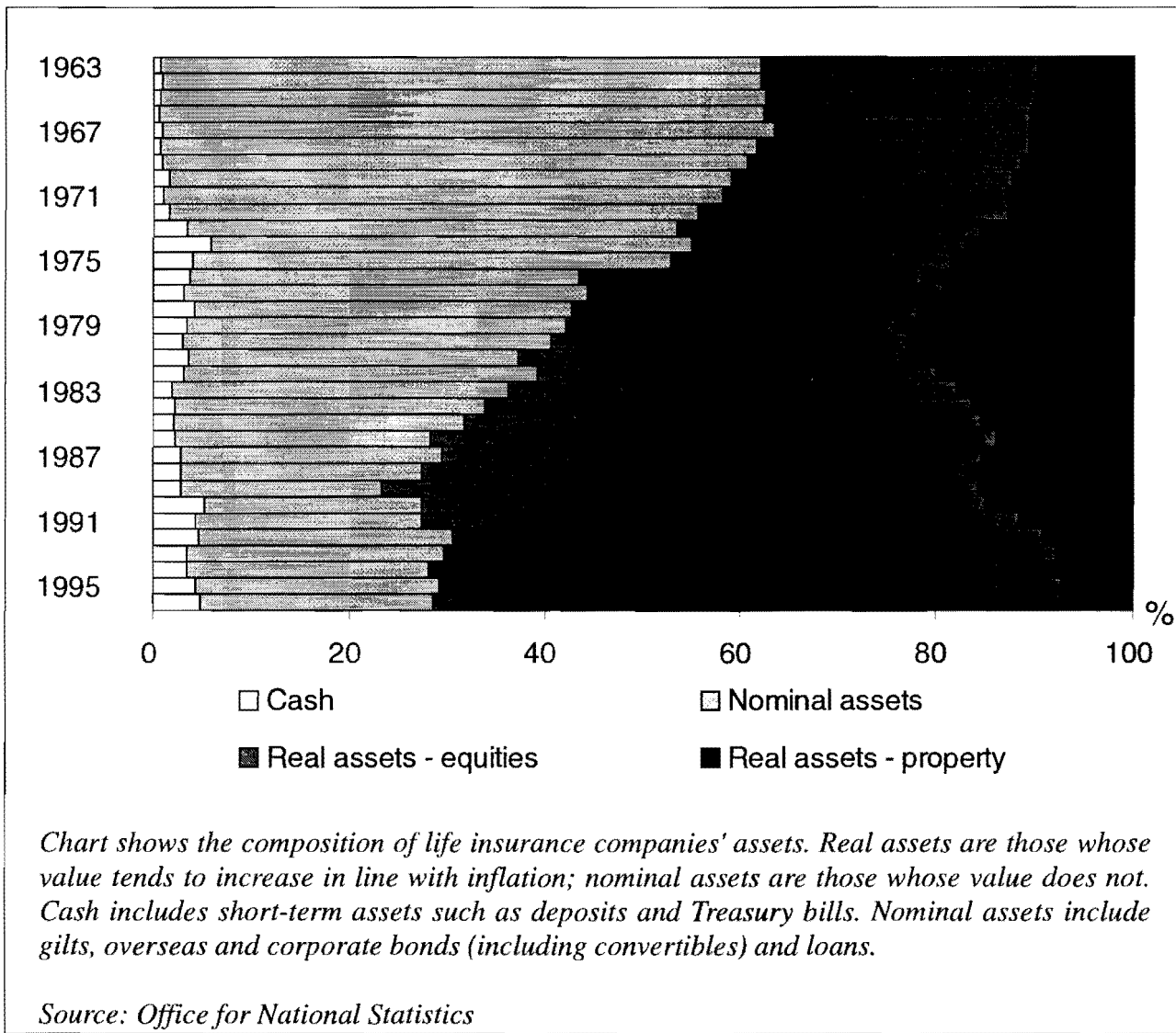
This caution on equity returns is reinforced by deteriorating prospects for economic growth. With the yield on equities given, real capital gains depend on real dividend growth. If dividends are stable as a share of GDP, real dividend growth equals real GDP growth. In the UK case the typical yield on equities in the past has been 4% - 6%, while the long-run trend GDP growth rate has been 2% - 2 1/2% a year. The evidence is that the long-run real return on equities has been 5 1/2% - 7 1/2%, depending on the period chosen, which fits the theory. If the trend growth rate of the economy decelerates from here, real returns on equities will disappoint. From this perspective the charts on pp. 14 - 15 are alarming. The first chart projects the trend growth rates of the four large European economies, if the slowdown in productivity growth seen in the last 20 years continues and labour force growth is determined by demography. In the first 30 years of the next century output growth is a meagre 1% a year or so, far less than has been normal since 1945. In the USA also (see the second chart) the trend rate of productivity growth has been falling since the 1960s, contradicting all the talk about a "new paradigm". Although labour force growth is expected to continue in the USA, economic growth seems likely to fall.

Retail savings products should not be marketed on the basis that historical returns will continue indefinitely into the future

A snap answer to the question "what real return should be projected on retail savings products?" might appear to be the historical experience of equity returns (i.e., 5 1/2% to 7 1/2% a year), because equities are such a dominant asset class. But it would be unwise to rely on extrapolations of past performance. Indeed, the low dividend yields now available on the main equity markets and the prospective global slowdown in trend economic growth both argue for expecting much lower returns from equity markets in future. The dreadful returns on UK pension funds in the early and mid- 1970s serve as a warning against taking their performance over the last 20 years as a reliable benchmark. (See p. 16.)

Asset allocation of life offices

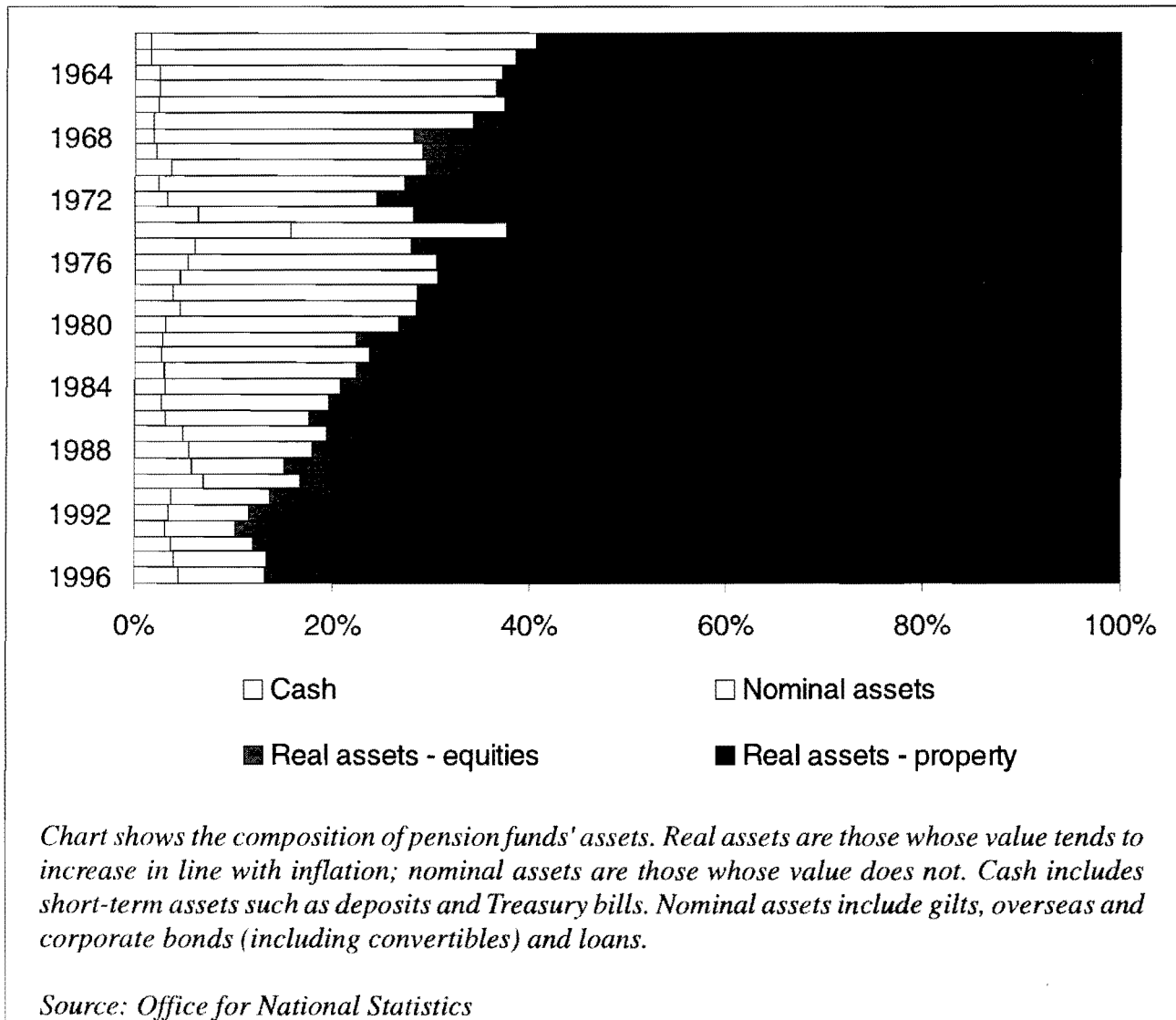
Steady increase in “real assets”, particularly equities



Throughout the 1960s over 60% of life companies' assets could be characterised as “nominal” as opposed to “real”. Nominal assets generate income streams which are fixed in nominal terms, such as conventional gilts and mortgage loans. It is worth noting that mortgages represented up to 20% of life offices' total assets in the 1960s and early 1970s compared with just 1¼% in 1996. While inflation remained low and relatively stable, it was a comparatively easy task to match actuarially predictable liabilities with the known nominal return on such assets. But the real value of nominal assets was ravaged by the high inflation of the 1970s, causing insurance companies to switch into real assets whose value may be expected to rise in line with growth and inflation. The most important real assets are equities, which accounted for less than a quarter of total assets in the 1960s, but are the dominant asset class today.

Asset allocation of pension funds

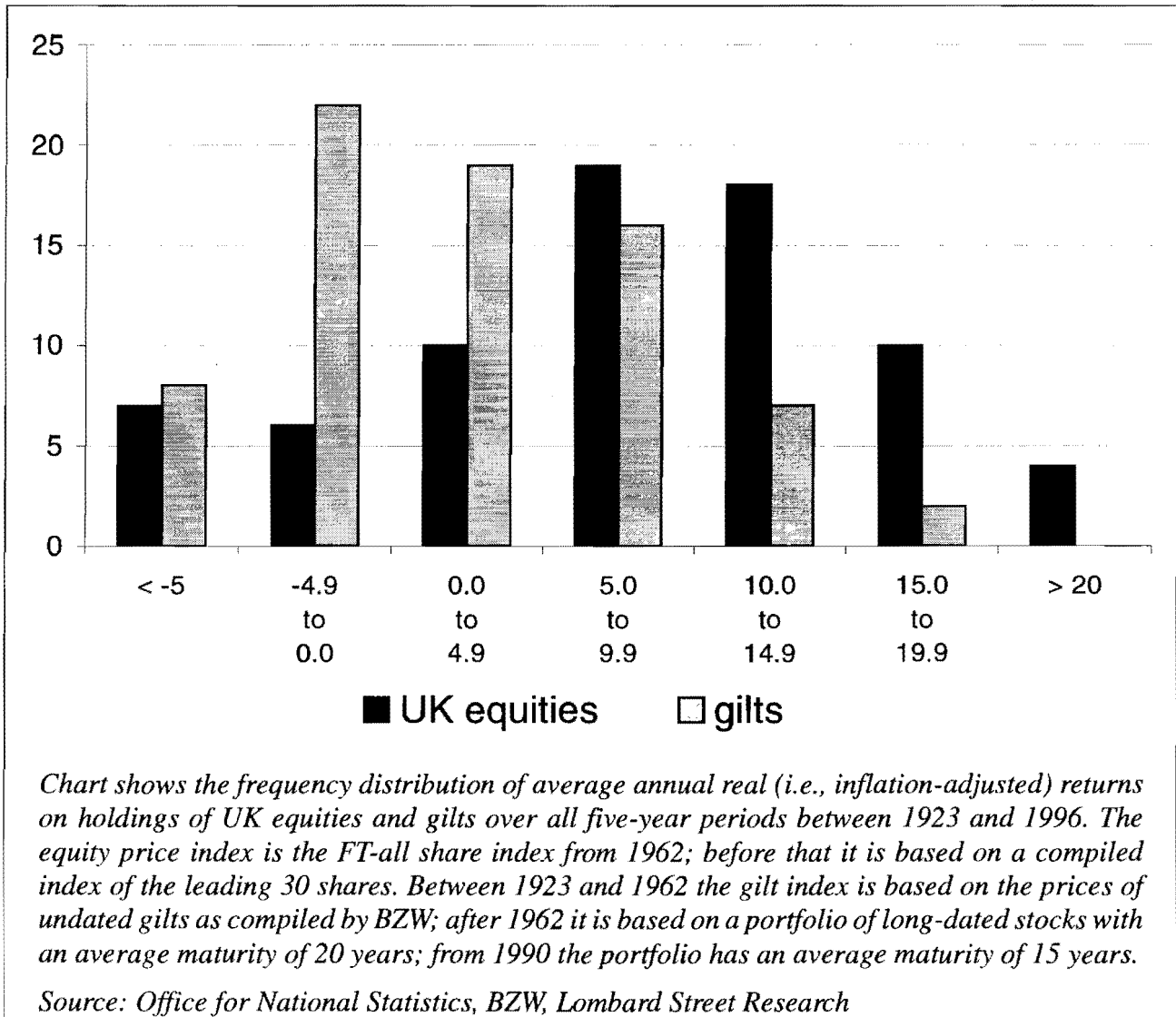
Equities increasingly preponderant



Pension funds' holdings of equities have always represented a greater proportion of their total assets than has been the case for life offices. Unlike the life cover and the redemption value in life policies, pension payments are generally not fixed in nominal terms. Despite the low inflation of the 1950s and 1960s, gilts were regarded as on a par with equities. It still made sense to hold assets whose real value would tend to rise in line with pensions payments. Over the last 30 years, pension funds have moved even further away from nominal assets and towards those which offer some protection to customers from the damage done by inflation. In 1962 gilts accounted for 40% of total assets and equities for around 37%. By 1996, these proportions were 12½% and almost 80% respectively. Foreign equities now comprise over 15% of the total, having been negligible in the early 1960s.

Distribution of 5-year real returns - gilts and UK equities

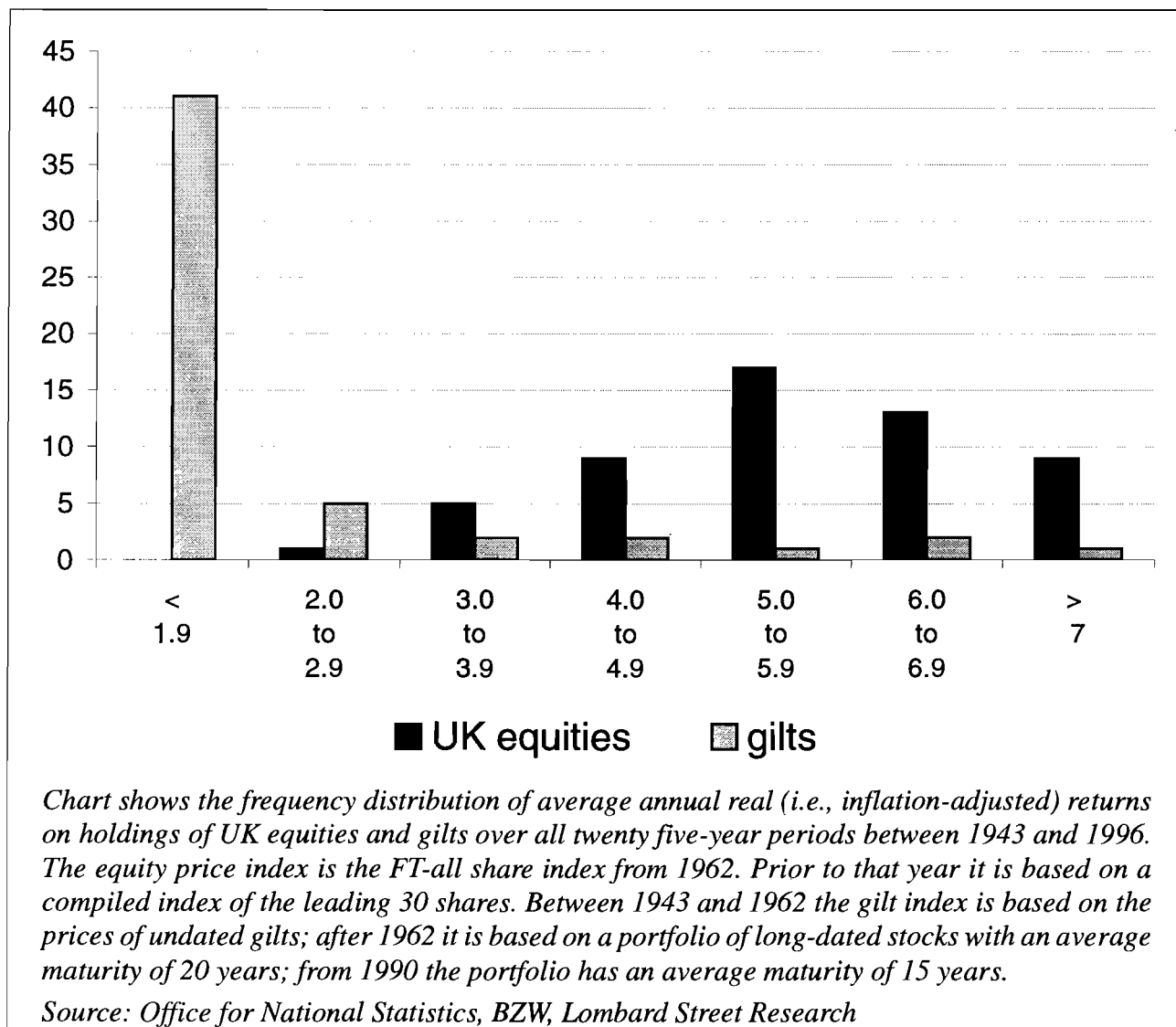
Gilts blighted by rise in inflation, particularly in the 1970s



A visual inspection of the frequency distribution of average annual real returns on UK equities and gilts over the 74 five-year periods between 1923 and 1996 appears to show a similar variability of returns. It also seems apparent that the average return on equities has been higher than that on gilts. These observations are confirmed by statistical analysis which shows that the variance of returns is only marginally higher for equities than for gilts. But the average annual return for equities of 7.4% is significantly higher than the average of 2% generated from holdings of conventional gilts over the same period. The sharp rise in inflation in the 1970s explains the poor performance of gilts. The nominal value was reduced by the rise in yields, while the real capital value was eroded by the general rise in the price level. By contrast, the dividend income stream which equities offer tends to rise in line with prices.

Distribution of 25-year real returns - gilts and UK equities

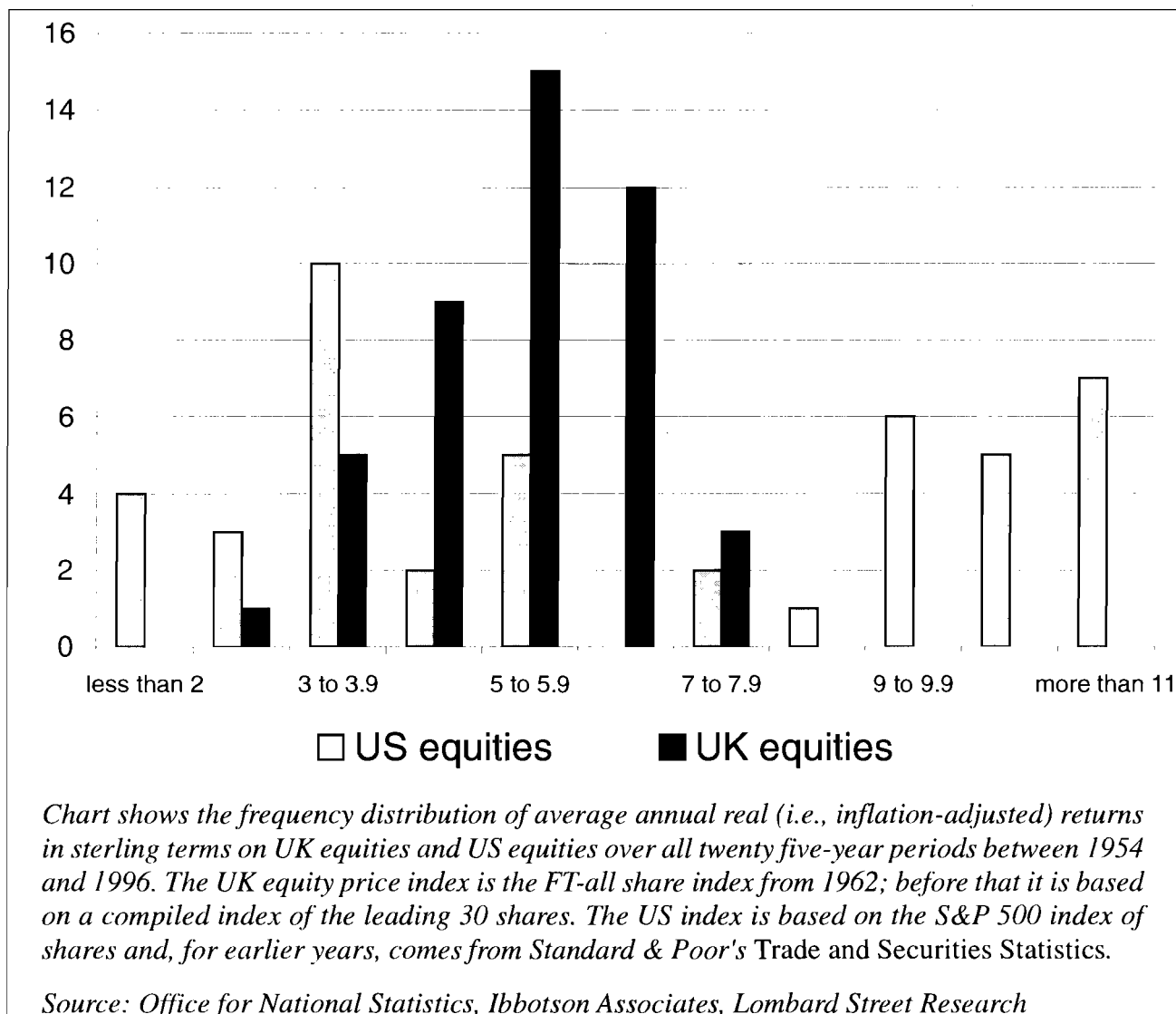
Why does anyone hold gilts?



The poor performance of gilts relative to equities over the last 30 years is especially clear over longer time periods. Over the 54 periods of 25 years ending in the years between 1943 and 1996, the average annual real return from holdings of gilts was zero. Equities, on the other hand, returned almost 6% a year on average in real terms. What is more remarkable is that the variability of returns on gilts was actually greater than that on equities over those time periods. Modern portfolio theory can sometimes justify holding an asset with a lower expected return than another if the variability of the actual returns is lower. But relatively recent history appears to carry the message that not only have gilts returned substantially less than equities over the longer term, but also the variability of those returns has been greater. This begs the question of why investors should hold gilts in their portfolios at all.

Distribution of 25-year real returns - UK and US equities

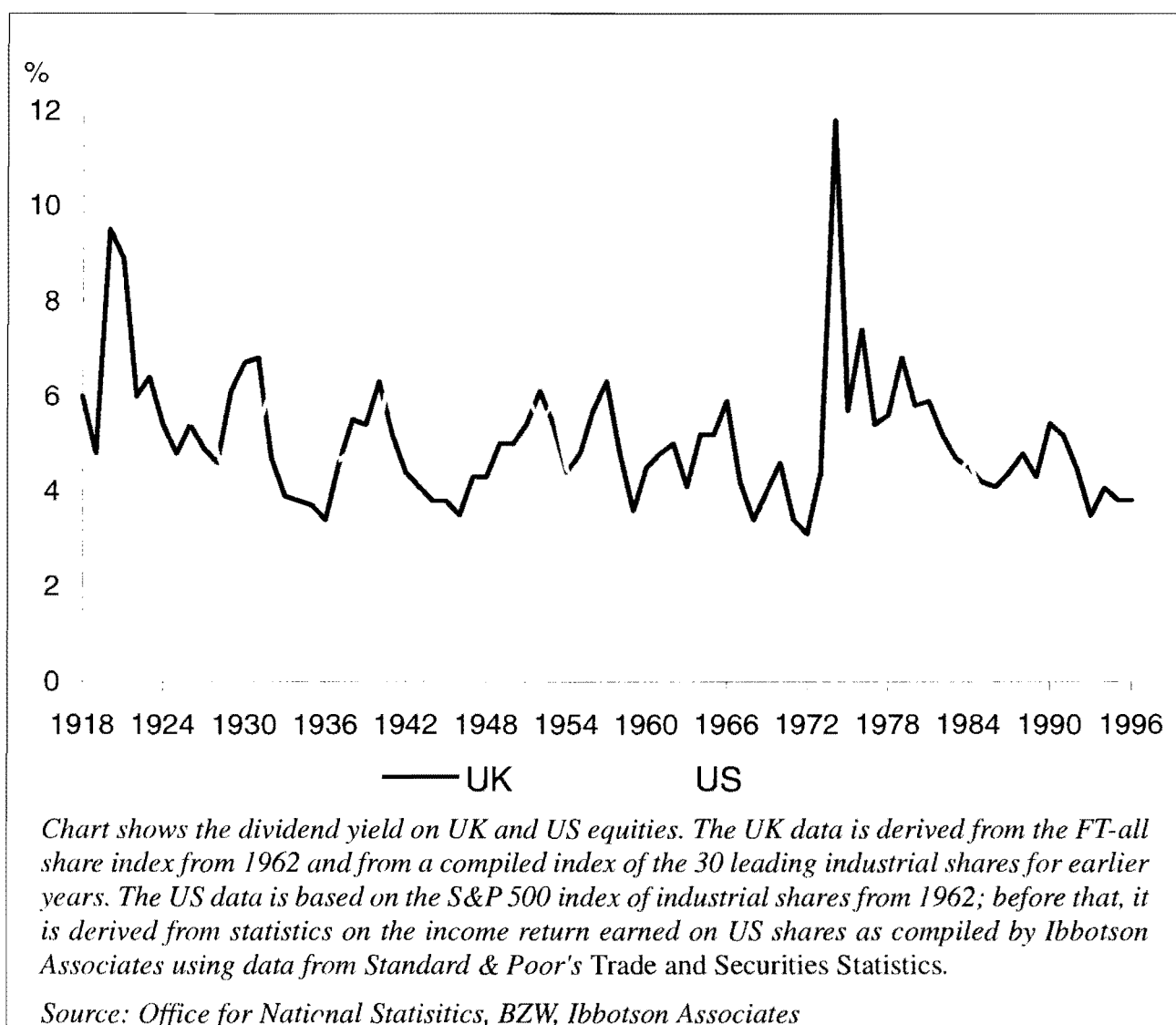
For a UK investor, US equities exhibit far greater volatility than UK equities



The calculation of returns on foreign equities is complicated by exchange rate movements. In sterling terms (i.e., the measure relevant to a UK investor), the average annual real return on US equities for the 45 periods of 25 years ending between 1952 and 1996 has been 6.7%. The comparable figure for UK stocks is 5.4%, suggesting that investors may be better off investing in the US. However, the higher average is due to the extra gains made as a result of the secular decline of sterling against the dollar over much of the period. Moreover, the occasionally sharp swings in the exchange rate have added considerably to the volatility of returns on US equities. Specifically, the variance of long-term returns on US equities has been twice that on UK stocks for the 25-year periods ending between 1952 and 1996. US stocks have therefore generated higher average returns for a UK investor, but at the cost of greater volatility.

Dividend yield on UK and US equities

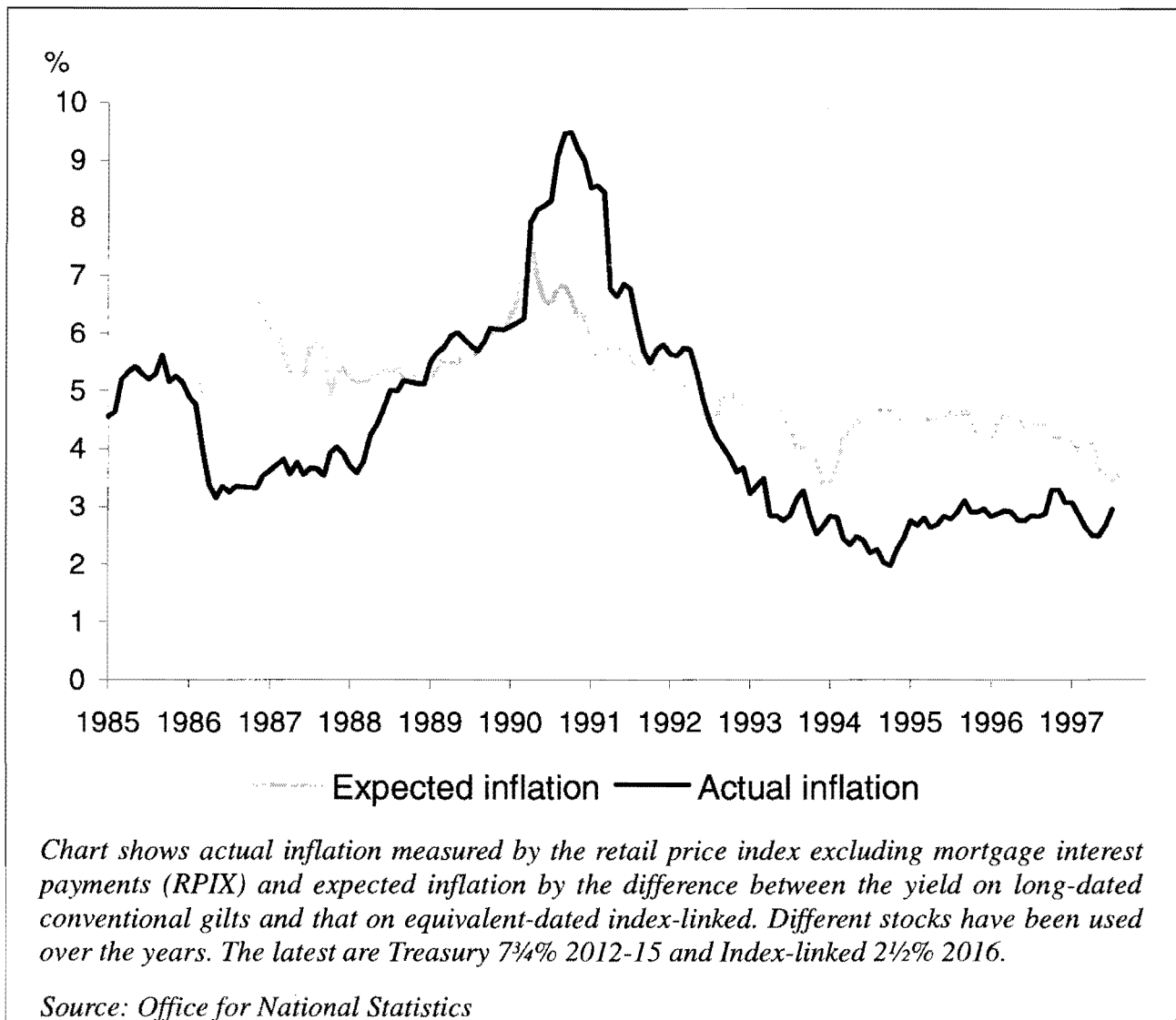
A regression to the mean? Or into unknown territory?



An obvious interpretation of this chart is that, in the long run, the dividend yield on the US and UK stock markets reverts to a mean value. In the UK this mean value has been between 4% and 5%, while in the USA it has been arguably somewhat lower, at any rate in the post-war period. (In late 1931 and early 1932 the yield on US equities was well into double digits. This is not shown by the chart, which - before 1962 - is based on actual income returns, as compiled by Ibbotson Associates.) If the traditional pattern is re-asserted in the current cycle, both stock markets are vulnerable. Counter-arguments are that the acceptable level of the dividend yield has been reduced by the better liquidity of equity markets and the achievement of very low inflation. Claims of radical supply-side improvements in the USA are not substantiated by official productivity statistics. (See p. 15.)

Actual and expected inflation

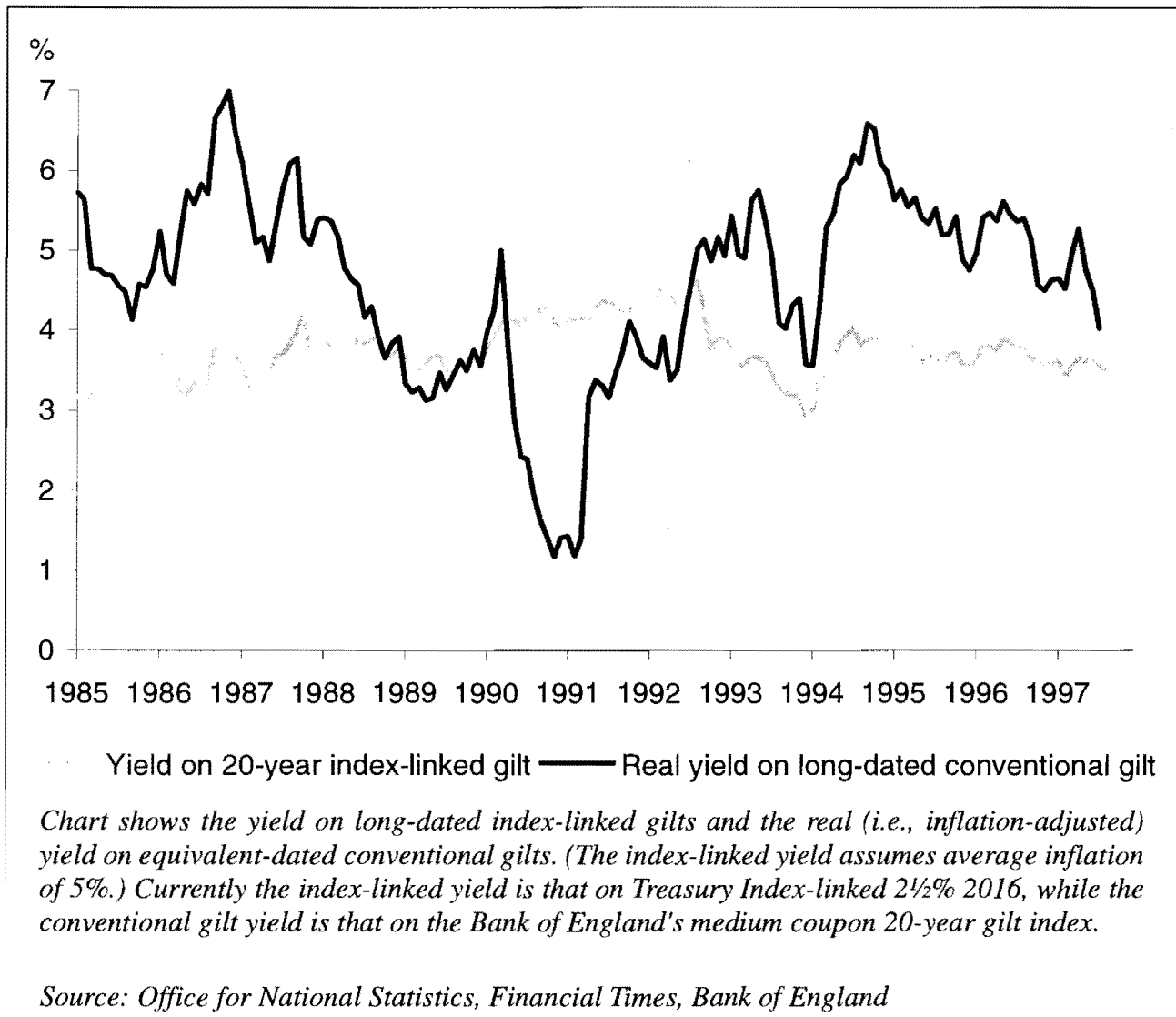
Since the mid-1980s inflation has generally been lower than expected



Inflation expectations can be measured by the difference between yields on index-linked and conventional gilts. Since 1985 actual inflation has been less than expected inflation, calculated in this way. The experience of the last 12 years is open to various interpretations. The first is that gilt investors have simply made a mistake, consistently over-estimating the dangers of future inflation. The second is that the yield difference between the two types of security is not an unbiased measure of inflation expectations, because the real capital value of conventional gilts is believed to be more uncertain than that of index-linked. (See p. 13.) A cross-check is provided by survey-based measures of inflation expectations, such as those prepared by Barclays Bank. It turns out that such survey-based measures have also generally over-estimated actual inflation.

Real yields on the two types of gilts

Real yield on conventionals above the index-linked yield most of the time



When first introduced in 1981, index-linked gilts had artificial scarcity and unsustainably low yields. A more balanced market developed in the mid-1980s. In the 12 years to 1997 the yield on long-dated index-linked stocks has averaged 3 1/2% - 3 3/4%. This is remarkably similar to the long-run return on undated gilts in the pre-inflation era (i.e., the 200 years to the mid-1930s) and may be regarded as a “natural constant” of the investment world. Another feature of the last 12 years is that the real yield on conventionals (n.b., the yield, not the total return) has been above that on index-linked. One interpretation is that investors have been systematically wrong about inflation. Alternatively, they may require a higher expected return on conventionals, on the grounds that conventionals are more likely to be wiped out by rapid inflation than index-linked by large falls in the price level.

Demographic trends in the G7

An alarming message for long-run equity returns

Estimated trend growth rates with falling productivity growth and unchanged participation rates

Numbers in the table indicate % per annum growth rates

	1995-2000	2000-2010	2010-2020	2020-2030
United Kingdom	1.70	1.62	1.42	1.14
Germany	1.30	1.02	0.78	0.51
France	1.84	1.46	1.18	0.89
Italy	0.82	0.41	0.10	-0.16
Europe: the big four	1.65	1.25	1.00	0.72

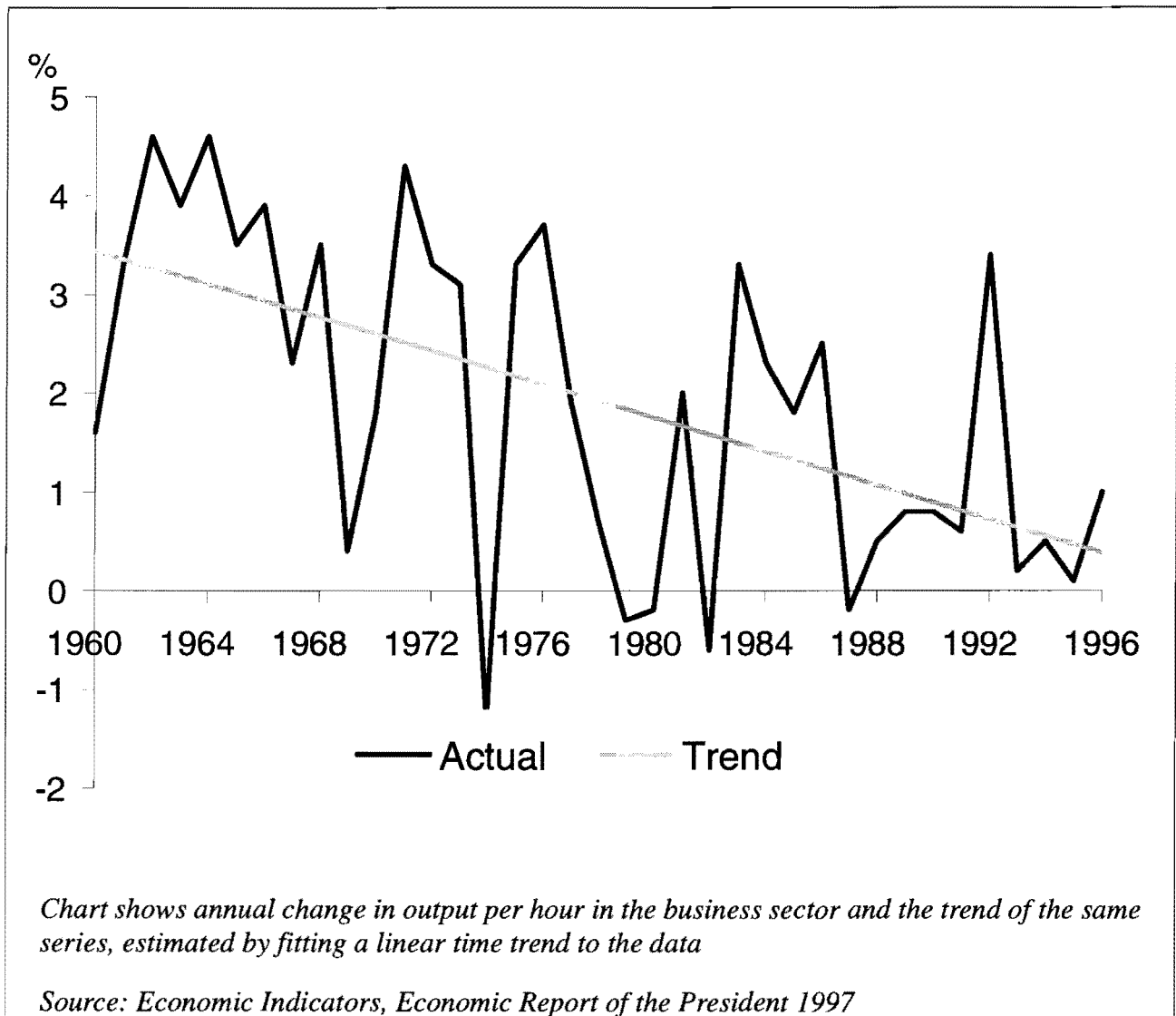
Table shows the estimated annual trend growth rate of GDP for the periods shown. It is assumed that productivity growth falls by 0.2% each decade and that participation rates (i.e., the proportion of the population of working age who are in the labour force, either in work or involuntarily unemployed) are unchanged over the entire period.

Source: World Bank and OECD, Lombard Street Research estimates

Economic growth provides the backdrop to the rising dividend streams that have been behind the capital gains and excellent long-run returns on equities. But the trend rate of economic growth in the industrial world has been slower since the mid-1970s than before. The table above assumes that the trend rate of productivity growth continues to decline, while the growth rate of the population of working age is determined by demography and the participation rate is stable. On this basis, the medium- and long-term growth prospects for the four large European economies are bleak, with disturbing implications for dividend growth. Long-run actuarial assumptions of a 3%, 4% or 5% annual growth rate of real dividends would be difficult to justify, if the numbers in the table were to prove correct.

Productivity growth in the USA

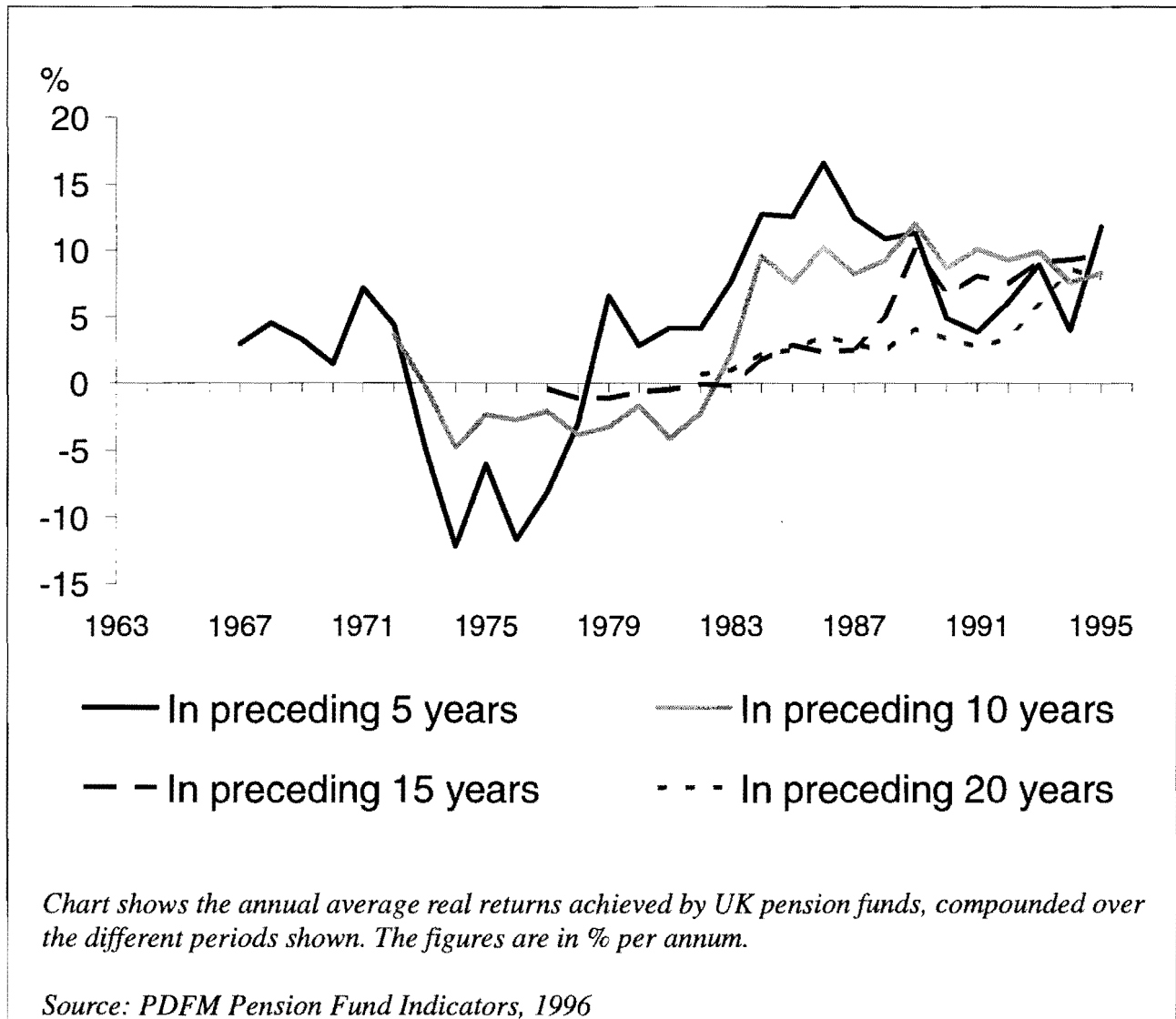
A “New Era”? - Yes, of *falling* productivity growth



Economists puzzled by the high valuation of the US equity market have appealed to a “new paradigm” of inflation-free growth. This is said to have been forged by the supply-side reforms and extra labour market flexibility in the USA over the last 20 years. In fact, the USA’s economic growth has owed much to large rises in the employed labour force, due to increased female participation and employers’ readiness to recruit relatively untrained workers, including immigrants. On the official statistics, recent productivity growth has been poor. If a trend line is fitted to the official productivity series and extrapolated, the message is that productivity growth will halt altogether in less than 10 years. Admittedly, the trend line does not have a particularly good fit, but - on any basis - US productivity trends do not imply a future acceleration of growth in output, profits and dividends.

Real returns achieved by UK pension funds

Only recently has performance matched long-run equity returns



As shown on p. 7, the dominant assets in UK pension funds nowadays are equities. The projection of future returns might therefore appear simple, to measure achieved real returns on equities in the past and to assume that they continue. (The answer can be readily translated back into nominal returns by making an allowance for inflation, if that is what is needed.) The data on p. 9 show that, over 25-year periods, the annual real return on UK equities is bunched at between 4% and 7%. This suggests that the retail savings industry might use a figure of 5 1/2% a year for the prospective real return on its core asset, or 8% a year in nominal terms if inflation meets the Government's target. The chart shows that pension funds have indeed been achieving return figures like these or better in the last 15 years. But the appalling numbers in the 1970s are a warning against taking high returns for granted.