Profitability and company finance

This note updates previous estimates of real profitability and other measures of company finance.

- *Pre-tax profitability fell again in 1981; but it showed signs of recovery in the second half of the year.*
- *Structural changes may have distorted the statistics on profitability.*
- *Bank borrowing grew rapidly but companies' underlying financial position was little changed.*

A box explains some of the concepts used.

Profitability

Returns on trading assets

The pre-tax real rate of return on trading assets continued to decline in 1981 and was less than 2¾% for the year as a whole, the lowest ever recorded[1] (Table A and Chart 1). The principal influences were sluggish demand, and the deterioration in UK competitiveness over the previous four years, which restricted the ability of companies to pass on cost increases in domestic markets and depressed export margins. Nevertheless, there are indications—particularly in the latter half of the year, when real profitability rose to over 3¼% (from 2¼% in the first half)—that the trend decline in profitability may be coming to an end.

For various reasons, the statistics may be giving unduly low estimates of profitability. First, redundancy payments, which are classified in the national accounts as current spending, will have depressed profitability in 1980 and 1981. However, redundancy payments are, in some respects, more akin to capital expenditure, since they secure future profits by raising labour productivity; if they were treated as capital expenditure, pre-tax real profitability would have been rather higher in 1980 and 1981 (perhaps by half a percentage point). Second, the recent easing of labour and raw material prices has meant that local authority rates are now one of the faster growing components of companies' costs. If rates were classified in the same way as income taxes levied by central government and deducted *after* pre-tax profits have been struck instead of being a cost of production, the pre-tax real rate of return between 1978 and 1981 would have been about one and a quarter percentage points higher. (Over this period, rates

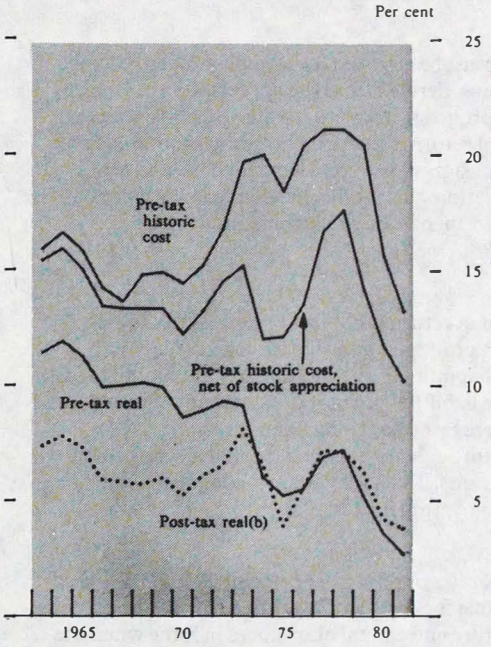
Table A
Rates of return on trading assets[a]

Per cent

	Pre-tax historic cost	Pre-tax historic cost, net of stock appreciation	Pre-tax real	Post-tax real[b]
1963	15.9	15.4	11.4	7.4
1964	16.6	15.9	11.9	7.8
1965	15.8	15.0	11.2	7.3
1966	14.2	13.4	9.9	5.9
1967	13.6	13.3	10.0	5.8
1968	14.8	13.3	10.1	5.7
1969	14.9	13.3	9.9	6.0
1970	14.4	12.2	8.6	5.2
1971	15.2	13.2	8.9	6.1
1972	16.8	14.5	9.3	6.5
1973	19.7	15.2	9.1	8.1
1974	20.0	12.0	6.0	6.6
1975	18.4	12.1	5.2	3.9
1976	20.4	13.5	5.5	5.5
1977	21.1	16.7	6.9	7.2
1978	21.1	17.6	7.2	7.1
1979	20.4	14.2	5.2	6.3
1980	15.6	11.7	3.6	4.2
1981	13.2	10.2	2.7	3.8

(a) Industrial and commercial companies excluding their North Sea activity.
(b) Backward-looking.

Chart 1
Rates of return on trading assets[a]



(a) Industrial and commercial companies, excluding their North Sea activity.
(b) Backward-looking.

(1) The Central Statistical Office's estimates of gross trading profits in 1977 to 1980 have been revised upwards from the estimates upon which the June 1981 *Bulletin* article was based (by between £1¼–2¼ billion each year). In consequence, estimates for these years for the pre-tax real rate of return are somewhat higher than those published in June 1981, though the extent of the decline during these years is unaffected by the revisions.

Measures of profitability and finance

The methodology used to estimate company profitability and related concepts has been described in previous Bulletin *articles. (See the June 1980* Bulletin, *page 191.) The measures have been amended where necessary to take account of changes in the tax structure, for example the new stock relief scheme (see appendix).*

Profitability

Profitability is the ratio of profits earned to capital employed. Profits, and profitability, can be measured either before or after deducting taxes on income. Real rates of return are current cost measures of profitability, based on a valuation of the capital stock at replacement cost, rather than historic cost. The objection to historic cost accounting is that it undervalues the capital stock in periods of inflation, and thus overestimates profitability.

Profits, too, must be adjusted for the effects of inflation by deducting gains, derived from the appreciation of stocks and work in progress, from gross trading profits. The real pre-tax rate of return is then gross trading profits *plus* rent, *less* capital consumption at replacement cost, and *less* stock appreciation, this total being divided by net capital stock at replacement cost *plus* stocks and work in progress.

Post-tax rates of return differ from pre-tax rates in two ways. Pre-tax profits are adjusted for tax accruals; and deferred tax liabilities are deducted from the capital base, because these liabilities are part of a company's assets which can be regarded as being financed by the government through, for example, capital allowances or investment grants. Tax accruals are analogous to the return to the government's 'stake'.

Two post-tax rates of return are calculated, one backward-looking and one forward-looking. The former is based on the tax structure and capital allowances in force when the capital was acquired, and is therefore a measure of realised profitability. The forward-looking measure, by contrast, is based on the concurrent tax structure and investment allowances, and is a more appropriate proxy for the expected rate of return on new capital.

Return to equity

The rate of return on trading assets is used as the base to measure the return to the equity interest (ie excluding the return to holders of debt). Three steps are involved:

- Net interest payments are subtracted from real operating profits.
- A 'natural' gearing adjustment is added to earnings, to reflect the gains accruing to equity holders which arise from the erosion by inflation of the real value of debt (net of monetary assets). The 'natural' gearing adjustment is calculated by applying a measure of the rate of inflation to the stock of net debt.
- Net debt is subtracted from the denominator (total trading assets) to leave the equity interest in the company.

The cost of capital and the valuation ratio ('q')

The real cost of capital is measured by dividing forward-looking real post-tax profits by the market value of equity *plus* net debt.

The ratio between the real rate of return and the real cost of capital — the 'valuation ratio' — can be considered as an expression of the inducement to invest. The valuation ratio, 'q', is calculated by dividing the average forward-looking rate of return on trading assets by the cost of capital; alternatively (since both the rate of return and the cost of capital have real post-tax profits in their numerators) it can be calculated by dividing the market value of companies' liabilities (debt and equity)—the financial valuation—by the replacement cost value of trading assets.

Capital gearing and income gearing

A company's trading assets are financed by debt, and by equity (the residual). Capital gearing is the ratio of net debt to trading assets; trading assets may be measured at historic cost or replacement cost. Thus, capital gearing measures the extent to which a company is financed by sources other than equity, and the extent of external claims on its assets.

A second gearing measure, income gearing, looks at the proportion of cash flow accounted for by interest payments. (More precisely, it expresses interest payments, including those on preference shares, as a proportion of gross trading profits *plus* other income *less* tax payments, stock appreciation, and profits due abroad.)

Income and allocation of income

The total income of industrial and commercial companies comprises total gross trading profits (including stock appreciation), rent and non-trading income, and income from abroad. This total is allocated between dividends, profits due abroad, interest, current transfers, taxes paid on income, and undistributed income (including additions to tax reserves).

Capital account

Undistributed income, together with investment grants and other capital transfers, comprise the receipts side of the capital account. On the expenditure side is gross domestic investment, stockbuilding at current prices, and payment of taxes on capital. The difference between receipts and expenditure is the financial surplus/deficit.

Net borrowing requirement

The net borrowing requirement differs from the financial deficit by allowing for the impact on companies' financial position of unremitted profits (net) and certain other financial flows such as net identified trade and other credit and accruals adjustments; the two measures also differ by the amount of unidentified transactions.

have represented a broadly constant proportion of capital at replacement cost but, reflecting falling profitability, an increasing proportion of real pre-tax profits.) Third, it is possible that the estimates of the capital stock of companies in the national accounts have been increasingly overstated because the widespread installation of labour-saving and energy-saving technology in recent years may have been accompanied by accelerated scrapping of outmoded capital; if so, it is a further reason why profitability might be higher than the estimates suggest.

The modest recovery in profitability in the second half of 1981 occurred without any strong recovery in aggregate demand or output; non-North Sea output in the second half of the year was still 6% below the average level in 1979, with manufacturing output having fallen more than twice as much. But despite weak demand, profits have benefited from improvements in productivity over the last year, and slower growth of wages. Manufacturing output prices have tended to rise faster than unit labour costs, which rose very little last year—in the fourth quarter they were only $2\frac{1}{2}$% higher than in the fourth quarter of 1980, when, by contrast, they were 23% higher than in 1979. With sterling's effective exchange rate falling by 10% over the year, there was a gain (of 6%) in labour competitiveness during 1981. Although this was small in relation to the substantial losses incurred in recent years, it may have allowed companies to widen profit margins.

Improved profitability and a moderation in the growth of unit labour costs are reflected in the share of total income (net of stock appreciation and capital consumption at replacement cost) accounted for by non-North Sea industrial and commercial companies (ICCs). Although this share fell in 1981 to a record low of just over 4% (shares of over 10% were common in the 1960s and early 1970s), it improved between the two halves of 1981 (from $3\frac{1}{2}$% to 5%).

The post-tax real rate of return[1] fell to a record low of $3\frac{3}{4}$%, a little less even than in 1975. However, a new stock relief scheme was introduced in 1981 (see the appendix) and the post-tax real rates calculated for this new scheme are about one percentage point higher, in both 1980 and 1981, than under the old scheme. This is because the book values of stocks fell in 1980 and 1981; under the old scheme, this rendered firms liable to tax ('clawback').

The new scheme permits firms to claim relief only for increases in the *price* of stocks; changes in stock volume and falls in the all-stocks price index have no effect on tax liability. As the all-stocks index rose throughout 1980 and 1981 (by around 9% each year), stock relief is positive for these years and post-tax profits consequently higher than they would have been under the old scheme. The change to the stock relief scheme therefore implies a worsening of the government's rate of return on its 'stake' in non-North Sea ICCs' trading assets in these years; the difference between the pre-tax and the post-tax rate of return, which was positive until the early 1970s and fell back later with the extension of capital allowances and the introduction of the first stock relief scheme in 1974, has been negative in four out of the last five years (Chart 1).

Measures of profitability describe rates of return for the industrial and commercial company sector,[2] and assume that the improved stock relief is fully offset against taxable profits. But, as tax concessions grow and pre-tax profitability falls, an increasing number of firms do not pay corporation tax and therefore accumulate unused tax reliefs and allowances. These were estimated, in the Green Paper on Corporation Tax (HM Stationery Office, Cmnd. 8456, January 1982), to amount to some £30 billion, and have been increasing recently by some £5 billion a year; about one third of the total is attributable to unused stock relief, and most of the remainder to capital allowances. Thus the Bank measure tends to overstate actual post-tax profitability (because tax payments made by companies are higher than the notional tax liabilities in the Bank measure, which assumes that tax allowances can be fully utilised: equally, the Bank measure probably overstates the impact of the new stock relief scheme). On the other hand, by assuming that tax allowances are fully utilised, the Bank measure of profitability of trading assets is independent of the ownership structure of industry.

The cost of capital rose to $8\frac{1}{2}$% in 1981, from $5\frac{1}{2}$% the previous year (Chart 2). There were two reasons for the rise. The short-run favourable impact on post-tax profits of moving to the new stock relief scheme (as explained above) was not reflected in raised financial valuations—perhaps because markets had never believed that clawback of stock relief would be allowed to be fully effective, or because the market also took account of the loss of relief on future stockbuilding (in volume terms). Second, the rise in real interest rates on company debt in 1981 may have depressed the financial valuation of companies.

Valuation ratio ('q')

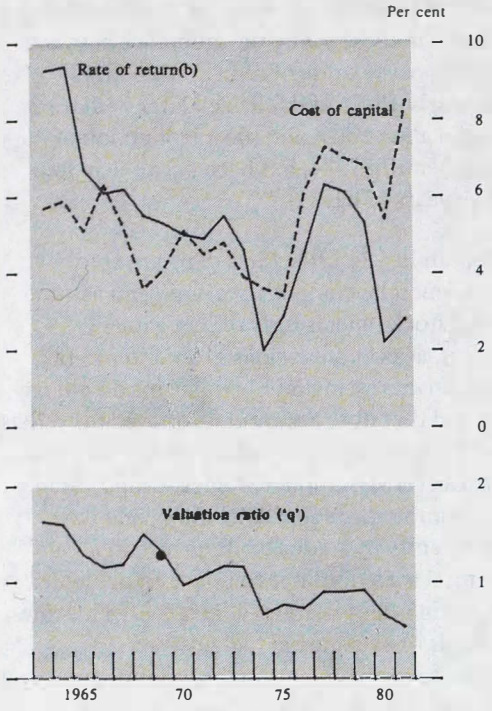
In principle, the relationship between the profitability of an extra unit of capital (the rate of return), and the cost of financing the extra unit (the cost of capital), would be expected to be an important influence on the decision to invest. This influence may be represented by the valuation ratio ('q'), the ratio of the average forward-looking rate of return on existing trading assets to the cost of capital (both expressed in post-tax real terms for all industrial and commercial companies).[3]

(1) Backward-looking. The backward-looking measure of the post-tax real rate of return is the preferred indicator of the realised level of post-tax profitability as it takes account of the system of capital allowances in force when units of the capital stock were installed. The forward-looking measure, on the other hand, is calculated by reference to the current system of investment incentives and is therefore an indicator of the incentive to invest. In contrast with the backward-looking measure, the forward-looking rate of return rose slightly in 1981.

(2) Excluding North Sea activity.

(3) For a discussion of the econometric evidence on the influence of 'q' on industrial investment in the United Kingdom, see *Investment, profitability and the valuation ratio* by N H Jenkinson, Bank of England Discussion Paper No 17.

Chart 2
Rate of return, cost of capital and valuation ratio ('q')[a]



(a) The rate of return covers industrial and commercial companies excluding their North Sea activity, but the cost of capital and the valuation ratio ('q') are for all industrial and commercial companies.
(b) Forward-looking post-tax real rate of return on trading assets.

After remaining above unity throughout the 1960s and early 1970s, albeit declining, 'q' fell sharply in 1974, but recovered up to 1979 (Chart 2). In 1980 'q' fell back to below its 1974 level, and fell further in 1981 when the cost of capital rose by more than the forward-looking rate of return.

In the light of the very weak inducement to invest represented by estimates of 'q' for 1980 and 1981, the relative buoyancy of private sector investment in these years may seem surprising. The average rate of return on existing assets has probably become an increasingly poor guide to the expected profitability of new investment, as changes in technology and the relative costs of energy and labour have widened the disparity between returns on the existing capital stock and those on new capital assets. In addition, if, as argued above, the capital stock is being increasingly overestimated, then estimates of 'q' will be biased downwards.

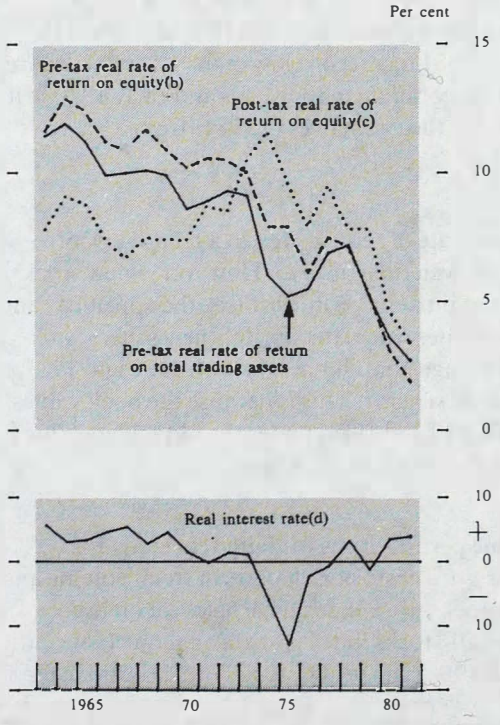
Returns to equity interest

The pre-tax real rate of return to the equity interest was higher than the return on trading assets over the 1970s because the cost of borrowed funds was more than offset by the erosion through inflation of the real value of net corporate debt. The extent to which the real return to the equity interest was higher reflected capital gearing, and real *ex post* interest rates relative to profitability on trading assets. If real interest rates rise, the rate of return on equity will tend to fall relative to that on trading assets. In 1980 and 1981, when capital gearing remained low, the sharp rise in real interest rates to a level above the real return on trading assets (as inflation fell more rapidly than nominal interest rates) caused the pre-tax equity rate of return to fall below that earned on trading assets for non-North Sea ICCs. In contrast, during the latter part of the 1960s, when positive real interest rates were common (Chart 3), the pre-tax return to equity was nevertheless above that on trading assets, because profitability on trading assets still exceeded the real interest rate.

The post-tax real equity rate of return is derived from the pre-tax rate by deducting tax accruals on the equity stake from pre-tax equity profits, and by subtracting deferred tax from the denominator. The relationship between the pre-tax and post-tax real equity rates of return has been similar to that between pre-tax and post-tax measures of real profitability on trading assets: the post-tax rate has risen above the pre-tax rate in recent years with the extension of tax allowances (but the statistical problems associated with companies' inability to use tax allowances to the full also apply to post-tax equity rates).

In 1980 and 1981, the pre-tax rate of return on trading assets was above the pre-tax return on equity, but below the post-tax return on equity (Chart 3). This indicates that the gain to the equity stake in companies derived from interest and stock relief, and capital allowances, has exceeded the loss arising because real interest rates on company debt were higher than profitability on trading assets.

Chart 3
Rates of return on equity and on total trading assets[a]

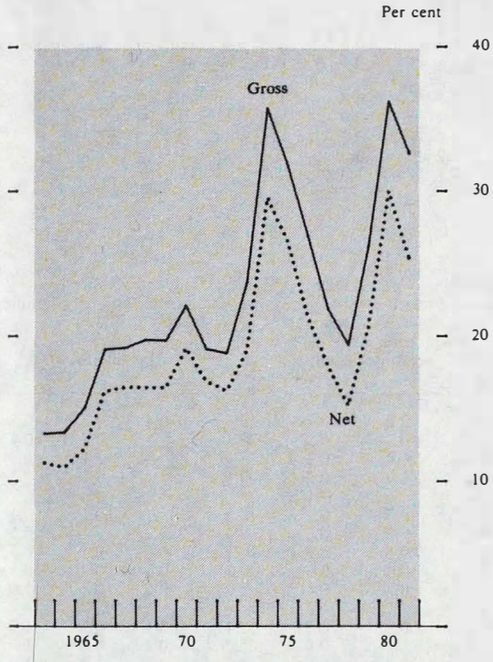


(a) Industrial and commercial companies, excluding their North Sea activity.
(b) Incorporating a 'natural' gearing adjustment.
(c) Backward-looking.
(d) The implied nominal rate of interest on industrial and commercial companies' gross debt, adjusted for changes in the retail price index during the period.

Appropriation of income[1]

Even though the stock of industrial and commercial companies' bank borrowing[2] rose last year by more than 20%, interest payments were slightly lower than in 1980, because nominal interest rates fell (the LCB base rate for example averaged $13\frac{1}{4}$%, compared with $16\frac{1}{4}$% in the previous year). With a small rise in post-tax gross trading profits net of stock appreciation, this resulted in a fall in income gearing from its peak in 1980 (Chart 4; the gap between the gross and the net gearing measure widened because of the substantial accumulation of liquid assets by ICCs in 1981).

Chart 4
Income gearing[a]

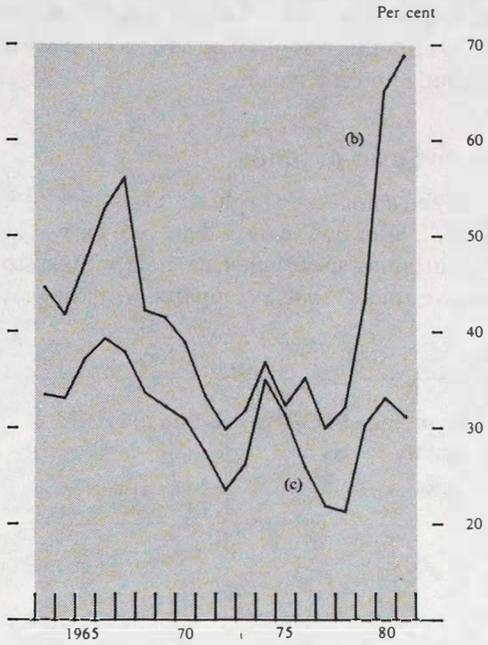


(a) All industrial and commercial companies. Gross income gearing is measured as interest payments (including preference dividends) as a percentage of gross trading profits (net of stock appreciation) and other income, less tax payments and profits due abroad. Net income gearing expresses the interest payments net of interest receipts, and also excludes interest income from the denominator.

Despite the fall in real equity profitability last year, gross dividend payments and total distributions (dividends plus profits remitted abroad) were little changed. As a result, dividends as a proportion of real equity income[3] available for distribution in the United Kingdom rose to an all-time high in 1981 (Chart 5). As a share of (historic cost) distributable income, however, dividends fell back from the peak reached in 1980.

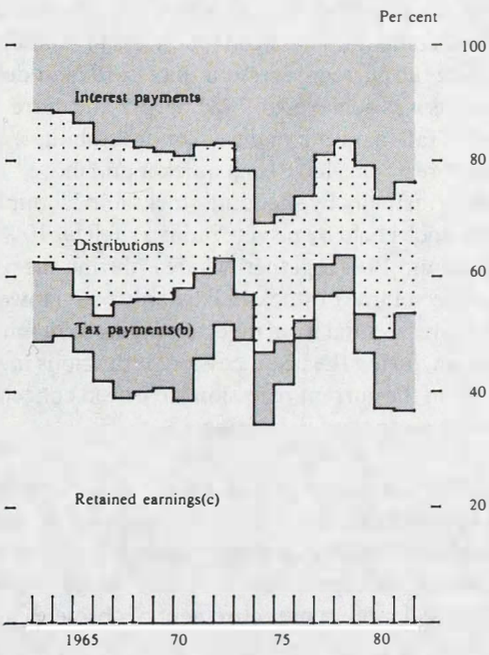
Tax payments rose last year by £2.0 billion, or over 35%, but this was more than accounted for by higher tax payments by North Sea oil companies; petroleum revenue tax and supplementary petroleum duty payments together rose by 120% to £4 billion.

Chart 5
Dividend income ratios[a]



(a) All industrial and commercial companies.
(b) Gross dividends as a percentage of undistributed income plus gross dividend payments. Undistributed income is measured net of stock appreciation and adjusted for capital transfers and for inflation; the inflation adjustment deducts capital consumption at replacement cost and adds a natural gearing gain.
(c) As for (b) but without the inflation adjustment.

Chart 6
The distribution of appropriations[a]



(a) Total appropriations, for all industrial and commercial companies, are equal to gross trading profits (net of stock appreciation) plus rent and non-trading income, plus income from abroad (net of taxes paid abroad).
(b) Payments of advance corporation tax are included in distributions, as are profits remitted abroad.
(c) Net of stock appreciation. This includes profits due abroad but not remitted.

(1) All subsequent measures of financial performance relate to *all* industrial and commercial companies; separate data for their North Sea activity are not available.
(2) Including commercial bills held by the Issue Department of the Bank of England.
(3) With tax measured on a payments rather than an accruals basis.

Retained historic cost earnings[1] recovered somewhat in 1981. However, as a share of total company income, they remained as low as in 1980 (Chart 6). Taxes took a larger share in 1981 but this was offset by a reduced share of dividends and interest payments.

Sources and uses of funds

Companies had a financial surplus of £1¼ billion (½% of GDP) in 1981, after two years of deficits. This was achieved largely by curtailing spending on capital (both on stocks and fixed investment) by 8% compared with the previous year.

Table B
External financing of ICCs in relation to GDP

Per cent of GDP at factor cost(a)

	Net borrowing requirement	Financial deficit (– indicates a surplus)
1970	4.3	1.2
1971	1.6	–1.4
1972	2.5	–2.3
1973	5.1	0.1
1974	8.2	3.6
1975	1.0	–0.6
1976	2.4	–0.2
1977	1.0	–0.4
1978	1.4	–1.4
1979	3.7	1.6
1980	2.9	0.8
1981	2.1	–0.6

(a) Expenditure estimate, except for 1981 when the income estimate is used.

Table B shows that the financial deficit of all industrial and commercial companies has been much less in relation to GDP during the current recession than in 1974; indeed a small surplus was achieved in 1981 despite the more pronounced fall in output and weaker profitability. Companies' reactions have been quicker and more extensive, principally by shedding stocks and labour. The volume of stocks held by private industry fell by 10%, taking 1980 and 1981 together, whereas during the previous recession the volume of stocks fell by only 6%. However, private non-residential fixed investment has been much less affected than during the last recession; reductions in investment in the current recession have been concentrated in the public sector and in housing.

The relative buoyancy of private industrial investment over the past two years has yet to be fully explained. Along with the widespread labour shakeout, it probably reflects progress to a more capital-intensive and energy-efficient technology and more rapid retirement of obsolete capital.

The net borrowing requirement fell again in 1981, but this overstates the improvement in ICCs' financial position because it does not take account of the increase (of up to £1 billion) in the sterling value of foreign currency liabilities net of assets; this reflects the depreciation of sterling, which fell by around one fifth against the US dollar and by nearly 10% in effective terms.

Table C
Sources and uses of funds[a]

£ billions

Sources

	Internal funds(b)	Bank borrowing (including Issue Department holdings of commercial bills)	Other loans and mortgages	UK capital issues (c)	Overseas investment(d)	Import and other credit received
1963	2.4	0.5	0.1	0.3	0.1	—
1964	2.8	0.8	0.1	0.4	0.1	—
1965	2.7	0.5	0.2	0.4	0.1	—
1966	2.3	0.2	0.1	0.6	0.2	—
1967	2.6	0.3	0.1	0.4	0.2	—
1968	2.9	0.6	0.2	0.5	0.3	—
1969	3.4	0.7	0.2	0.5	0.2	0.1
1970	3.1	1.1	0.3	0.2	0.4	0.1
1971	4.1	0.7	0.2	0.4	0.4	0.2
1972	5.0	3.0	0.2	0.6	0.1	0.4
1973	6.2	4.8	0.4	0.2	0.6	0.6
1974	4.6	4.1	0.4	0.1	1.4	0.7
1975	5.6	0.5	0.5	1.2	1.0	0.3
1976	7.8	2.8	0.1	0.8	1.2	0.9
1977	12.0	2.7	0.3	0.7	1.3	0.5
1978	15.3	2.9	0.4	0.8	0.7	0.5
1979	16.7	4.9	0.7	0.9	0.4	1.6
1980	12.8	7.2	0.3	1.3	1.3	–0.2
1981	15.1	7.1	1.3	1.7	1.0	1.3

Uses

	Gross domestic fixed capital formation	Stock-building	Investment in UK company securities	Direct and other investment overseas	Liquid assets	Other financial assets	Export and other credit given	Unidentified
1963	1.9	0.2	0.2	0.2	0.4	–0.1	0.2	0.5
1964	2.3	0.7	0.4	0.2	0.1	—	0.2	0.4
1965	2.4	0.4	0.4	0.3	—	—	0.1	0.3
1966	2.4	0.2	0.2	0.2	–0.1	—	0.1	0.2
1967	2.4	0.2	0.3	0.2	0.5	—	0.1	0.1
1968	2.6	0.4	0.3	0.2	0.4	0.2	—	0.5
1969	3.0	0.5	0.3	0.3	–0.2	0.5	0.1	0.7
1970	3.4	0.4	0.3	0.3	0.2	–0.2	0.2	0.8
1971	3.5	—	0.3	0.4	1.2	–0.4	0.1	1.0
1972	3.9	–0.1	0.8	0.2	2.4	0.1	0.3	1.7
1973	4.9	1.3	1.0	0.9	2.7	0.1	0.6	1.3
1974	6.0	1.3	0.4	0.8	0.1	0.3	1.0	1.9
1975	6.9	–1.7	0.4	0.3	1.9	0.4	0.4	0.5
1976	8.1	0.4	0.9	0.7	2.0	0.3	1.4	–0.1
1977	9.7	1.7	0.7	0.8	3.1	0.6	0.6	0.2
1978	11.9	0.8	0.8	2.0	2.8	—	1.2	1.2
1979	13.7	2.1	1.1	3.3	0.9	–0.2	2.1	2.2
1980	15.6	–3.6	0.9	2.0	3.8	0.7	0.8	2.4
1981	15.1	–3.9	0.8	3.1	5.6	1.1	2.0	3.7

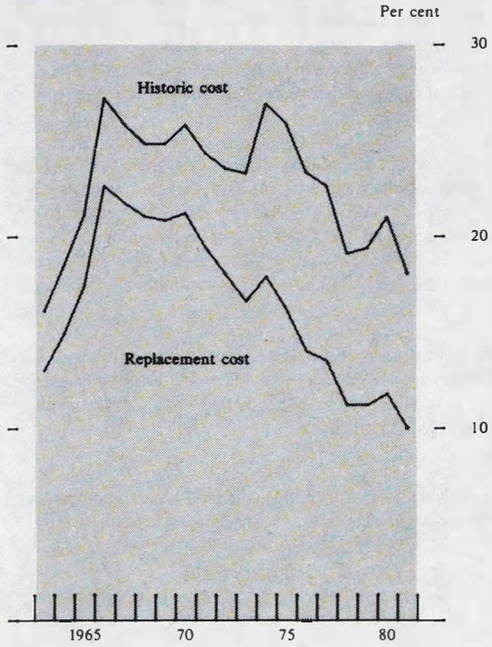
(a) All industrial and commercial companies.
(b) Undistributed income (net of stock appreciation), capital transfers (net receipts) plus additions to tax reserves.
(c) Issues of ordinary shares, debentures and preference shares.
(d) Overseas capital issues, overseas direct investment in securities, and intra-company investment by overseas companies.

Despite the fall in the net borrowing requirement, bank indebtedness (and total gross indebtedness) rose in 1981 by more than in either of the previous two years. At the same time, identified liquid assets rose by £6¼ billion, twice as much as in the previous year.[2] Nevertheless, ICCs' capital gearing remained low on either a historic or a replacement cost basis (Chart 7). The fact that companies in aggregate both borrowed and accumulated liquid assets may indicate either that the financial squeeze has been unevenly

(1) Net of stock appreciation and including profits due abroad but not remitted.
(2) These indebtedness and asset stock figures differ from Table C, which shows *flows* and therefore excludes the effects of exchange rate movements.

distributed, or a general tendency to finance increased liquidity by borrowing, perhaps encouraged by a competitive narrowing of spreads between bank lending and deposit rates. (The £2½ billion of tax owed by companies at the end of 1981 as a result of the Civil Service dispute will have affected both lending and gross liquidity.) Overall, ICCs' underlying financial position may not have improved much in 1981.

Chart 7
Capital gearing[a]



(a) All industrial and commercial companies. Net debt as a percentage of trading assets measured at historic cost or replacement cost.

Appendix
The effect of the new stock relief scheme on profitability measures

The 1981 Finance Act introduced a new form of stock relief, applicable to periods of account ending on or after 14 November 1980. Under the old scheme (introduced in 1974) relief was granted on any increase in the *value* of stocks and work in progress in excess of 10% of gross trading profits.[1] If the book value of a company's stocks subsequently fell, it faced a 'clawback' of relief previously given, whether the decline in the value of stocks arose from a fall in the price of stocks or from a reduction in the physical amounts of stocks held.

Under the new scheme, relief is calculated on the basis of the book value of stocks at the start of the period of account, multiplied by the increase in an index of the price of stocks (the 'all-stocks index'). Broadly speaking, therefore, relief is confined to the effect of inflation on the value of stocks. There is no clawback of relief when stock volumes or the all-stocks index fall, except when a business ceases operation or radically reduces its scale of activity.

The numerator and denominator of the post-tax profitability measures have been adapted to the new scheme. For the 'forward-looking' measure, the scheme is treated as having been introduced in 1981 Q1, but for the 'backward-looking' measure in 1980 Q1.

Post-tax profits
Up to and including 1980 (forward-looking) and 1979 (backward-looking) the credit to post-tax profits arising from the stock relief scheme was expressed as:

$$C(\triangle BVST - 0.15GTP)$$

where:

C = the rate of corporation tax;
$BVST$ = the book value of stocks and work in progress;
GTP = the relevant income stream.

Subsequently, the credit arising from the new scheme is expressed as:

$$\frac{C(ASI_t - ASI_{t-1})}{ASI_{t-1}} \quad BVST_{t-1}$$

where:

ASI = the all-stocks price index.

When ASI falls no relief is given, nor is any tax liability incurred.

The post-tax capital base
Under the old stock relief scheme, the deferred tax liability arising from stock relief was subtracted from the capital base on a 'disposal basis', to represent the contingent 'clawback', or the government's equity stake in the value of firms' inventories; hence $C(BVST - TWDVS)$ is deducted from $BVST$ in the capital base, where $TWDVS$ is the tax written-down value of stocks. Under the new scheme, clawback (as noted above) only occurs in exceptional circumstances. Since there is effectively no deferred tax liability, only the term $BVST$ enters the capital base.

(1) Net of short-term interest payments and, later, capital allowances. The percentage was changed to 15% from 1975/76.