

Estimating companies' rate of return on capital employed

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INTRODUCTION

The rate of return on capital employed provides a measure of the profitability of a business in relation to its assets or funds employed. There are a number of different measures of the rate of return depending upon the definition of profits and capital employed, but the definition of the numerator and denominator must be consistent. Therefore once the definition of profits has been decided the appropriate definition of capital employed largely follows from it. This article explores from the point of view of economic analysis various ways of assessing for companies in aggregate their profits and their rate of return on capital employed in a particular year both before and after tax. Different methods of assessing this return are appropriate to meet different circumstances, and what is appropriate for economic analysis may not always be suitable when looking at the position of an individual company. When considering companies in aggregate it is necessary to adopt standard procedures which on average, over a large number of companies, should produce reasonable results. However, when examining an individual company the standard procedure may be inappropriate and the conclusions reached below may not necessarily be suitable for individual companies.

It is necessary to draw a clear distinction between the two main types of rates of return: accounting rates of return and the 'internal' rate of return. This article deals only with accounting rates of return, which are derived from company accounts and which measure the actual return in a particular year on the total capital employed on all the projects then in existence, including both those projects started at various times in the past and those started in the current year. The 'internal' rate of return, on the other hand, measures the return on an individual project based on the net receipts over the whole life of the project and it is the value of this rate of return, based on expected net receipts over the life of the project, which is relevant in deciding whether or not to go ahead with an investment project. It is not possible to estimate 'internal' rates of return from published company accounts; the relationship between accounting and 'internal' rates of return is very complex even for a single project, and they are not equal except under very special conditions.

There are two sources of data from which accounting rates of return can be estimated for United Kingdom companies in aggregate. The National Income and Expenditure Blue Book contains estimates of company sector profits, split between financial companies and industrial and commercial companies, and estimates of

the net capital stock of fixed assets and of the holdings of stocks⁽²⁾. The second source of information is the Department of Industry (DI) analysis of the published accounts of large companies operating mainly in the United Kingdom. This covers both quoted and non-quoted companies in manufacturing, distribution, construction, transport and certain other services. The analysis is published annually in the Business Monitor Series *M3, Company Finance*, and is broken down by twenty three broad industry groups for quoted companies and five broad industry groups for non-quoted companies. The Business Monitor already contains one rate of return of net income to net assets at book values. The accountancy staff of the Monopolies and Mergers Commission use these data to estimate certain rates of return which they publish from time to time.

A number of rates of return estimated from these two sets of data are given in Tables 1 and 2 (Appendix I), taking account as far as possible of the problems of definition discussed below. The Department of Industry intends to publish updated versions of these series in future years. In general it is not possible to compare satisfactorily the levels of the different types of rates of return shown in Table 1 for any one year because of differences in their definitions. Also, the main principle adopted in deciding how to deal with the various problems of handling these data for each series has been to produce a series comparable over time because the interest in rates of return is mainly in changes and trends rather than in the levels at any one time. A second and equally important principle adopted in compiling these rates of return has been to use a procedure which is practicable given the information available. A further factor has been the desirability of making as little adjustment as possible to the latest figures, adjustments being concentrated on making the earlier figures comparable with the latest ones; the latest figures are then more readily usable and are more likely to be comparable with figures based on the same data when used in other contexts.

THE ASSESSMENT OF PROFITS OR INCOME

Profits can be measured in a number of ways to cover different types of income. In company accounts the presentation varies, but it is possible to identify separately, either from the profit and loss account directly or indirectly or from the notes to the accounts, the profits arising from trading activities before deducting depreciation and tax or interest charges, investment income (including income from trade investments), and interest

(1) The author would like to acknowledge the considerable assistance received in the preparation of this article from colleagues throughout the Government Service.

(2) For details of the sources used for these estimates see *National Accounts Statistics: Sources and Methods* (HMSO 1968).

and other revenue income. From these profits there may be deducted interest payments, depreciation, and tax. In the national accounts, as opposed to most company accounts themselves, an estimate is made of stock appreciation and this may also be deducted in certain circumstances.

Gross trading profits

The gross trading profit is the income arising from the trading activities of a company before deducting depreciation and takes no account of income from investments and other forms of income. When considering the profitability of industry in total or of individual industries it is appropriate to restrict the coverage of income in this way. In terms of the data in company accounts gross trading profits can be defined as the income from trading after charging directors' fees and emoluments, superannuation payments, compensation for loss of office, etc., and net of any extraordinary expenditure associated with trading such as on reorganisation or closure, but before charging depreciation and interest. It is possible that all extraordinary items, and not just those associated with trading, should be charged against profits. However this point is not of any great importance for rates of return, as these 'non-trading' extraordinary items are small relative to aggregate company profits. The national income accounts distinguish gross trading profit as defined above arising only from activity in the United Kingdom. Companies in their consolidated accounts cover all activities including those by their overseas subsidiaries and branches, but this is not a major disadvantage for the DI analysis as it is restricted to companies operating mainly in the United Kingdom.

Gross income

Gross income consists of gross trading profits *plus* investment income and the share of associated companies' pre-tax profits, *plus* interest received and other revenue income. Total income from all sources needs to be taken into account if the overall financial position of companies is being examined.

Deduction of interest

Profits and income as defined above so far take no account of the source of the capital employed in the business. If profits are to be assessed in relation to only the long-term capital employed, the interest payable on short-term loans needs to be deducted, although the distinction between long-term and short-term capital is not always clear cut. In the Business Monitor, *M3, Company Finance*, gross income is defined as total income after deducting interest on short-term loans, including bank overdrafts. The accountancy staff of the Monopolies and Mergers Commission, however, in their rates of return measure profitability in relation to total capital employed including short-term loans and do not deduct bank or other short-term loan interest from profits.

Deduction of depreciation

From each of the two measures of profits so far discussed a charge may be deducted for the use of capital assets. Such a charge may be deducted in order to allow for the wearing out by use and obsolescence of fixed assets but, since the cost of using these assets cannot be measured directly, an element of arbitrariness is involved in making this deduction. In the past the charge for depreciation

appearing in company accounts, at least for plant and machinery, was often based on the declining balance method at rates also used for calculating tax allowances. More and more companies are now using in their published accounts only the straight line basis for calculating depreciation allowances on all classes of fixed assets, having regard solely to expected life and obsolescence. The progressive advent of high initial tax allowances, investment grants and recently the first year tax allowance of 100 per cent, have contributed towards this change in practice. The change has been made gradually and affects slightly the comparisons over time of profits after depreciation as derived from company accounts by lowering slightly the figure for later years compared with earlier ones.

The major disadvantage of deducting the depreciation charge shown in company accounts is that they are based on the book value of assets which is usually lower than the current replacement cost or market value, although higher than the true historic cost if the assets have been revalued since the date of purchase. For economic analysis, a depreciation charge related to the current price of assets is preferred. It is possible to estimate for companies a depreciation charge at current prices in respect of buildings, plant and vehicles based on the replacement cost of these fixed assets, though the information given in company accounts does not enable very precise estimates to be made. (Land is not, of course, subject to depreciation.) Assumptions have to be made about the age structure of assets (in the case of plant and machinery, by reference to annual additions and annual depreciation charges) and appropriate price indices applied; the estimation of the current value of buildings is the most difficult. The accountancy staff of the Monopolies and Mergers Commission have made estimates of depreciation in this way in respect of buildings, plant and vehicles for the large manufacturing companies covered by the DI analysis of company accounts.

The national accounts incorporate estimates for all companies of depreciation at current prices, called capital consumption, and of the net capital stock of fixed assets other than land at current replacement costs (Tables 59 and 65 of the latest National Income and Expenditure Blue Book). The Central Statistical Office (CSO) have recently compiled for use in calculating rates of return, new series of capital consumption and net capital stock at both current replacement and historic costs for industrial and commercial companies and financial companies separately. These new series are set out for the first time in Appendix II. All these estimates of capital consumption and net capital stock are based mainly on the 'perpetual inventory' method by using the estimates of past purchases of fixed assets, combined with assumptions about their length of life. The estimates, and in particular those of capital stock, are recognised to be subject to a wide margin of error, as the assumptions on the length of life of assets are very approximate and little allowance is made for technological change. No attempt has been made to use these figures to estimate depreciation at current prices for the large companies in the DI analysis; it is thought that they would not provide the basis for an estimate any better than that already calculated by the accountancy staff of the Monopolies and Mergers Commission.

Some adjustments to depreciation as shown in company accounts should also be made for the treatment of government capital grants, the most important of which is for investment grants. Companies have adopted two different accounting procedures for dealing with these grants; some deduct grants from the cost of fixed assets and show the net cost in their balance sheet and depreciate only the net cost while others create a grant reserve, a certain amount of which is credited to the profit and loss account each year and thus effectively deducted from the depreciation charge although shown separate from it. In the DI analysis depreciation is taken as the amount shown in companies' accounts and, to ensure comparability of treatment for all companies, needs to be adjusted to put all fixed assets and thus depreciation on a gross of capital grants basis. For the rates of return given in Tables 1 and 2, those compiled by the accountancy staff of the Monopolies and Mergers Commission do make some adjustment for investment grants, but no such adjustment has been made for the other rates of return based on the DI analysis given in Table 1. It is hoped in due course to make some approximate adjustment for investment grants using information compiled from government records of total investment grant payment; company accounts contain insufficient information to enable a direct estimate to be made as between 10 and 20 per cent of the companies in the DI analysis do not record separately the investment grants they have deducted from fixed assets. No such estimate however can be made for building grants from either administrative records or company accounts but these are small relative to investment grants and this deficiency is relatively unimportant. Regional development grants under the Industry Act 1972 also come into this category, but present no difficulties as they are normally accounted for in company accounts by creating a development grant reserve, a certain amount of which is credited to the profit and loss account each year. In the DI analysis fixed assets and depreciation are recorded gross of these grants and the amounts credited to the profit and loss account are excluded from the calculations of income and depreciation. In the national accounts the estimates of capital stock, and therefore of capital consumption, are based on the value of assets, gross of any capital grants received.

Deduction of stock appreciation

In the national accounts an adjustment called stock appreciation is made to allow for the difference between company profits as derived in commercial accounts, and profits, as derived when the opening and closing stocks are valued at the average prices of the period. This adjustment is made because it is considered that the appreciation in the value of stocks held by a business does not arise from economic activity in that period. Companies in their own accounts strike profits after valuing opening and closing stocks at the lower of cost or market value and generally assume that stocks are used on a 'first in first out' basis. In consequence, the valuation of opening and closing stocks may reflect different levels of prices, and profits may include an element which arises from these price changes and so do not reflect only the current prices of purchases and sales in the period. The deduction of stock appreciation is equivalent to a form of replacement cost accounting,

being one of the charges necessary to maintain in physical terms the assets used in the business. Companies do not necessarily have to provide from profits the money needed to finance the higher cost of stocks arising from price increases. Higher values of stocks may be financed by more borrowing and the only extra cost which then has to be met out of profits is the interest charges on the additional borrowing. Stock appreciation, however, regardless of how it is financed, represents an additional amount of money a company has got to find to maintain the physical volume of its stocks. Stock appreciation arises because of price changes and it is not compatible to adjust gross profits for depreciation at historic prices and stock appreciation at current prices. For this reason in calculating the rates of return in Tables 1 and 2 stock appreciation has only been deducted when deducting depreciation at current prices, as when estimating net profits on a replacement cost basis.

The national accounts include an estimate of stock appreciation for the company sector, but unfortunately there is insufficient information available in company accounts to make a direct estimate of stock appreciation. It is, however, possible to make use of the national account estimates to derive approximate estimates of stock appreciation for the companies in the DI analysis of company accounts and this has been done in order to arrive at the estimates for manufacturing industry in Tables 1 and 2. These estimates are very approximate as the changes in stocks reported by the companies in the DI analysis do not always correspond closely with those estimated for all companies in the national accounts. However the figures in Tables 1 and 2 give an indication of the increasing importance of stock appreciation; in the early 1960's stock appreciation for manufacturing industry in total was about $\frac{1}{2}$ per cent of net trading assets at replacement costs, while by about 1970 with the faster increase in prices it had risen to around 2 per cent.

Shareholders' income

The income available before tax for distribution to the shareholders and for retention, is total income *less* depreciation and all interest payments. When considering the economy as a whole this is not a good measure of profitability or the efficiency of total capital as this is dependent among other things on a company's gearing, that is, the ratio of long and short-term loans to the shareholders' interest. However this measure is important from the point of view of the owners or potential purchasers of risk capital, or when considering the viability of a company.

Deduction of tax

From the point of view of a company, it is the profit after deducting tax as well as depreciation and interest which is available for retention and the payment of dividends. There are a number of problems in assessing these profits on a comparable basis over time because post-tax profits reflect changes in the system of taxation, tax rates, the composition of income, and the allowances for investment as well as changes in the performance of the company. Moreover, since tax is levied on total income net of interest charges, post-tax profits cannot be derived accurately in relation to trading activities alone or in relation to income before deduction of interest charges.

A number of changes have been made to the system of company taxation over the last twenty years. Company profits earned in their financial years up to 1964/65 were subject to income tax and profits tax. Taxable profits in both cases were after allowing for the statutory capital allowances but, with respect to the income tax charge, no deduction was allowed for annual interest payments and certain other annual payments. Companies were, however, required to deduct income tax from all distributions of dividends, interest and other annual payments, but were not required to account to the Inland Revenue for this tax. The system was changed by the 1965 Finance Act with the introduction of corporation tax to replace income and profits tax for company profits. In arriving at taxable profits for corporation tax, deductions are allowed for capital allowances, annual interest payments and certain other annual payments. The 1965 Finance Act also introduced capital gains tax; for companies any such gains are included in profits on which corporation tax is paid. In addition, for 1966/67 and subsequent years companies had to deduct and account to the Inland Revenue for income tax deducted from any distributions of dividends and other annual payments they made.

A further change was made in the 1972 Finance Act with the introduction of the Imputation System of corporation tax. Under this system when a company makes a dividend payment no income tax is deducted but the company is required to pay to the Inland Revenue an advance payment of corporation tax (ACT) in respect of all dividends distributed after 5 April 1973. The rate of ACT is expressed as a proportion of the dividends net of ACT. The UK recipient of dividends is entitled to a tax credit which is added to the dividends for the purpose of determining his taxable income, but which can be set against his own tax liability. The amount of ACT paid by the company in any accounting period is then set against its subsequent payment of corporation tax on the income earned in that period, subject to certain limitations on the size of the relief that can be claimed.

Under both the corporation tax and income and profits tax systems there have been various rules for dealing with trading losses, income tax deducted at source from dividends and interest received, ACT and tax credits, double taxation relief on overseas profits, and for the group treatment of holding and subsidiary companies. Details of the changes made in company taxation can be obtained from the publications listed in Appendix III; the various rates of income tax, profits tax, and corporation tax since 1950 are also given there. For the purposes of this article, the main changes which affect the continuity of company taxation over the last two decades are the treatment of dividends and of capital expenditure, both of which are discussed below.

Estimate of tax charge on accruals or payments basis

It is necessary first though to consider whether the tax charge to be deducted should be on an accruals basis or a payments basis. The tax charge recorded in company accounts is not necessarily directly related to profits earned during that period because it is affected by the various provisions for losses which can be set against previous or future years' profits, the provisions for the treatment of income tax deducted at source from investment income received, or a tax credit attached to such

income, as well as by the various statutory capital allowances which depend on capital expenditure rather than profits earned during the year. In addition there is a delay of between nine months to nearly two years, depending largely on the company's accounting date, before the bulk of the company's tax charge is paid to the Inland Revenue. If tax payments were deducted rather than the accruals it would have the advantage of excluding the amount which is actually paid by the company during the year. However, if this method were used, it would be appropriate to adjust sales and thus profits to a cash flow basis rather than the present accruals basis. Such an adjustment would be possible using company accounts data but the figures would cease to provide a measure of profitability from any one year's activities. Also the accruals basis is more consistent with the derivation of profits as published in company accounts. For these reasons the accruals basis has been used in Table 1.

Dividends

Prior to 6 April 1966 companies made their dividend payments net of income tax and recorded these payments net of income tax in their accounts. With the introduction of corporation tax companies continued to pay dividends net of income tax but now had to account to the Inland Revenue for the amount of income tax deducted, and in their accounts companies showed dividends gross of income tax. With the introduction of ACT for dividends paid after 5 April 1973 income tax is no longer charged on dividends and following this change companies are again recording dividends net of tax in their accounts. Thus prior to 1966 dividends were recorded net of income tax, after 1966 gross of tax, and for dividends paid after 5 April 1973 'net of tax'. To secure approximate comparability over time in profits after tax, it is necessary to adopt a similar treatment of tax on dividends throughout. This can be done either by adjusting the dividend figures for 1966 to 1972 to a net of tax basis or by adjusting the pre-1966 and post-1972 figures of dividends to a gross of tax basis, and adding or subtracting respectively the estimated tax in respect of dividends to or from the current tax charge on company profits. Under the latter method post-tax profits are higher because the tax on dividends is deemed to fall on the shareholder instead of being deducted as part of company taxation. Exact comparability cannot be achieved by either method as the adjustments are inevitably approximate and this is a drawback in the assessment of changes in post-tax profits. The former method, however, has the advantage of requiring no adjustment to the latest figures and so it has been used in compiling the figures in Table 1. In adopting this method, attention has not been paid to the choice between regarding the shareholder as an integral part of the company (pointing to the inclusion of tax on dividends with the tax on the company) as opposed to regarding him as being separate from the company in which he has invested (pointing to the exclusion of the tax on dividends from the tax on the company). The choice between these two approaches is more important when the position of companies and shareholders are being compared with the position of other members of the community and less important when interest is centred, as here, on changes over time. In the national accounts the figures of dividends are also

being shown net of tax from the second quarter of 1973 but the earlier figures are gross of tax and are not being adjusted to a comparable basis; for all years, however, separate figures are given for the whole company sector of the total of tax including the tax on distributions made by companies.

Capital allowances

Instead of allowing commercial depreciation as a cost against taxation, statutory capital allowances are set by the Government. These have changed and increased in size over the last two decades. During the 1950's and first half of the 1960's the system alternated between investment allowances and initial allowances, or some combination of the two, with the balance of total expenditure after deducting initial allowances but not investment allowances being written off on a declining balance basis at various rates allowable for taxation. Then in January 1966 investment grants were introduced for certain assets (mainly plant and machinery) replacing the initial and investment allowances. These grants were replaced in October 1970 by a system of high first year allowances followed in April 1972 by 100 per cent first year allowances. The writing down allowances on the balance of expenditure after deducting initial, first year allowances or investment grants have also increased since the early 1960's. In addition since 1963 larger allowances and grants have been given for certain capital expenditure in development areas.

Prior to 1962 the capital allowances were fairly closely related to the expected life of assets, and companies tended to adopt similar rates of depreciation in their own accounts. They also tended to use the declining balance method for calculating depreciation as for the calculation of investment allowances. As the various capital allowances have increased since 1962 they have ceased to bear any relationship to the expected life of the asset and at the same time, companies have gradually changed over to using straight line depreciation based on the expected life of the asset when compiling their accounts. Thus since the early 1960's the amount of tax payable on profits has borne less and less relationship to the profit after depreciation appearing in the profit and loss account. Also gradually more and more companies, but not all, have started charging deferred taxation in their accounts to cover the difference between reported and taxable profits.

Two points arise from these changes in capital allowances. The first relates to investment grants. These grants replaced investment and initial allowances and only the balance of net expenditure after deducting the grants qualified for writing down allowances. Thus although handled by a separate government department they were effectively part of the tax relief on fixed investment and as such they have been deducted from the tax charge in arriving at post-tax profits in Table 1. The value of grants receivable as opposed to received has been used because it is consistent with the accruals basis used for the estimation of profits and taxation, and because it is the basis on which companies usually record these grants in their accounts. There are certain problems in estimating investment grants receivable by the companies in the DI analysis of company accounts (see above), and the post-tax figures in Table 1 take account of only those investment grants separately distinguished in companies'

accounts whether recorded as a deduction from fixed assets or as a transfer to an investment grant reserve. No adjustment has yet been made for those companies, between 10 and 20 per cent of the companies in the DI analysis, which do not record separately the value of the grants they have deducted from the cost of fixed assets. If such an adjustment were made the rates of return would be slightly lower from 1966 onwards.

The treatment of investment grants raises the question of the treatment of other forms of government assistance to industry such as regional aid under the Local Employment Acts 1960—1972, assistance under the Industry Act 1972, etc. Government assistance to industry can be divided into three groups; (i) loans, (ii) grants which may be either current or capital, and (iii) free or reduced price services. All these contribute in some way to higher profits. In company accounts loans from the government will be treated like any other borrowing and no problems of special treatment arise; the loans are not part of income. Current grants include such payments as initial expenses, removal expenses, operational grants, interest relief grants, etc. These, like free or reduced price services are not generally distinguished separately in company accounts, but they all contribute to higher profits and so are automatically reflected in any rates of return on capital employed.

The same is not true of capital grants and here a choice of treatment arises. The principal capital grants, other than investment grants, are building grants under the Local Employment Acts 1960—1972 and regional development grants under the Industry Act 1972. These capital grants are very similar to investment grants and although they do not affect the tax charge are more akin to the taxation allowances on capital expenditure. It therefore seems appropriate to treat them in the same way as investment grants and to take them into account in deriving post-tax profits. Post-tax profits then take account of all government grants, both current and capital. This treatment is consistent with the depreciation charge being related to the total cost of assets, without deducting the receipt of these grants (see above). As mentioned above it is not possible to estimate building grants for the companies in the DI analysis of company accounts; however, these grants are small so this omission is not very important. No such problem exists for regional development grants which are recorded as a transfer to reserves and fully identified in the DI analysis of company accounts and have been treated in the same way as investment grants for Table 1.

The second point is the treatment of the deferred tax charge. Deferred tax is largely a book entry as it represents a reconciliation of tax on profits as shown in company accounts and taxable profits. It is not a tax liability the company has to pay in the immediate future if at all. Thus if the deferred tax allocation in the profit and loss account were treated as part of the tax charge the resulting post-tax profits would not represent the amount available to the company for its own use. Also, not all companies have up to now used deferred taxation accounting and those that have have not all introduced it at once. Therefore, if the deferred taxation allocation is treated as part of retained profits and not as part of the current taxation charge the figures of retained profits are more comparable over time and represent the amount

available to the company. Also, the tax charge then represents the amount due to be received by the tax authorities. This treatment has therefore been adopted for Table 1.

Definition of tax charge to be deducted

To summarise, for Table 1 the tax charge includes any income tax paid to the Inland Revenue on dividends in the period 1965 to 1972; it is net of investment grants and regional development grants shown separate in company accounts; it does not include the deferred tax charge; and is on an accruals basis. It should be noted that the estimation of post-tax profits involves more approximation than pre-tax profits, and more caution is needed in interpreting these figures.

MEASURES OF THE RATE OF RETURN ON CAPITAL

Having considered the most appropriate assessment of company income, the rates of return which can be calculated for them are now considered. As has already been pointed out, the definition of capital employed in the denominator must be consistent with the income in the numerator and once the definition of profits has been decided the appropriate definition of capital employed follows largely from it.

Rates of return normally measure profits against the average of capital employed at the beginning and end of the year and this has been done in Table 1. Profits are earned during the course of the year and, as the value of capital employed can change appreciably over the year, the average of opening and closing capital employed corresponds more closely to the average level of capital employed used throughout the year to generate these profits than would closing capital employed alone. Capital employed can be viewed either as the assets used in the business or as the finance employed in the business. For instance, in the DI analysis of company accounts net assets are, in terms of the assets used, net fixed and intangible assets including goodwill, *plus* current assets and investments, *less* current liabilities. In terms of the finance employed net assets are equal to ordinary and preference capital, *plus* revenue and capital reserves, *plus* the minority interest in subsidiaries, deferred tax reserves, and long-term loans. Where it is necessary to distinguish between the two aspects in the discussion of the principal rates of return below, the former aspect will be referred to as capital employed (assets) and the latter as capital employed (finance).

The value of capital employed given in company accounts is normally based on the book value of assets, which is usually lower than either their current replacement cost or market value. Similarly the conventional book value depreciation charge understates the true value of capital consumed. Thus, rates of return based on book values tend to overstate the rate of return, both because the numerator is too high and the denominator too low. It is possible to make adjustments to the company account data to calculate rates of return on a replacement cost basis as indicated above by revaluing fixed assets and depreciation at current replacement costs. So far this has been done for only one rate of return, the ratio of net trading income to net trading capital employed compiled by the accountancy staff of the Monopolies and

Mergers Commission, but in principle any of the book value ratios described below could be adjusted to a replacement cost basis.

There are other methods of adjusting accounts and rates of return for the effects of price change besides the adjustment of fixed assets and stocks to a replacement cost basis. The Accounting Standards Steering Committee proposed one method in the Provisional Statement of Standard Accounting Practice No. 7, *Accounting for changes in the purchasing power of money*⁽³⁾, which adjusts all the items in the accounts for the current year and previous year, including both monetary and non-monetary items, for changes in the retail prices index. The Government set up a Committee of Enquiry on Company Accounts and Inflation in 1973 to consider the problems of adjusting company accounts for inflation, and depending on the Committee's recommendations it may become possible in future to derive rates of return adjusted for price change directly from published accounts.

Net trading income/net trading assets based on national accounts data

The published national accounts, together with the additional series mentioned earlier, provide a basis for calculating a rate of return at both replacement costs and historic costs. They provide estimates of companies' gross trading profits, capital consumption, the net capital stock of fixed assets, and the holdings of stocks and work in progress, from which a rate of return can be derived for trading income but not for any wider definition of income. The national accounts rate of return at current replacement costs in Table 1 is gross trading profits *plus* rent *less* capital consumption at current replacement costs *less* stock appreciation divided by net capital stock at current replacement costs *plus* the book value holdings of stocks and work in progress. Rent is included with gross trading profits in the numerator because net capital stock relates to all fixed assets including buildings (alternatively approximate correspondence can be obtained by excluding dwellings from the capital stock but this is less satisfactory). Stocks should be revalued at current replacement costs for a rate of return at full replacement costs but these figures revalued in this way are not available. The difference between book values and replacement costs for stocks is, however, not likely to be very large since, on average, stocks are held only for a few months. The comparable rate of return at historic costs, based on the new CSO series for net capital stock and capital consumption at historic costs given in Appendix II, measures gross trading profits *less* capital consumption at historic costs as a percentage of net capital stock at historic costs *plus* the book value of stocks. For the reasons explained above stock appreciation has not been deducted when capital consumption (that is, depreciation) is deducted at historic costs. It is possible by comparing the historic and current replacement cost rates of return to get some indication of the difference the change in valuation makes.

The gross trading profit in the national accounts measures the excess of a company's receipts from the sale of goods and services over its expenditure on wages and

⁽³⁾ Published by the Institute of Chartered Accountants in England and Wales.

salaries and the purchase of goods and services. For financial companies this is negative. The income of such companies is obtained mainly from the excess of interest received over interest paid, but in the national accounts interest payments are treated as transfer payments and excluded from gross trading profits. Financial companies' other receipts from services (for example, bank charges) are generally less than their operating expenses of wages and salaries, office materials, etc. and rent giving a negative gross trading profit. It is therefore desirable to have from the national accounts an estimate of the rate of return relating to only industrial and commercial companies and excluding financial companies. This is now possible using the new series of net capital stock and capital consumption for industrial and commercial companies recently estimated by the CSO and shown in Appendix II. Estimates of the rate of return for industrial and commercial companies are given in Table 1; for the current replacement cost estimate the whole of stock appreciation has been attributed to industrial and commercial companies since that relating to financial companies can be assumed to be negligible.

The advantages of using national accounts data are that

- (a) depreciation and fixed assets are valued at current replacement costs,
- (b) an estimate of stock appreciation is available,
- (c) the figures cover all UK companies,
- (d) the figures relate to profits arising only in the UK and do not include any overseas trading income,
- (e) annual figures are available some six months earlier than the DI analysis of large company accounts, and
- (f) the figures relate to the calendar year rather than to a variety of accounting periods.

The drawbacks are that the estimates of capital employed are incomplete in that they exclude land and also working capital other than stocks. It is possible to make an estimate for the latter by using a ratio of working capital to stocks derived from company accounts but such an estimate is very approximate and would not lead to any improvement in the estimate of the changes in the rate of return.

The biggest drawback is the exclusion of land. It is possible to get some estimate of the approximate order of magnitude of the current replacement cost of land held by the company sector in 1966 from the worksheets compiled by Jack Revell and Alan R. Roe of the Department of Applied Economics, Cambridge, for their article 'National balance sheets and national accounting—a progress report' published in *Economic Trends*, No. 211, May 1971. These figures suggest that if land had been included in the denominator the national accounts rate of return at current replacement costs for the company sector as a whole would have been about $1\frac{1}{2}$ percentage points lower in 1966, that is 7.1 against the 8.6 per cent given in the third column of Table 1. Nor is it possible to update satisfactorily these estimates as no suitable price indices for land are available. All that can be said is that if land was included in the denominator then the level of this rate of return for the company sector as a whole would probably be reduced by around one-sixth.

Rates of return drawn from the national accounts are therefore imperfect and probably less satisfactory than the ratios based on large companies' accounts. They do however serve to confirm the trend shown by the corresponding estimates from accounting data.

Net trading income/trading capital employed on historic cost basis

A rate of return limited to net trading income and net trading assets can also be derived from company accounts. The accountancy staff of the Monopolies and Mergers Commission have used this approach, except that they have adjusted the depreciation charge and the value of fixed assets from the recorded book values to historic costs. Net trading income is gross trading income before tax and interest *less* depreciation at historic costs, while net trading capital employed is defined as net tangible fixed assets (excluding goodwill and intangible assets) at historic costs *plus* net current assets other than investments before deduction of short-term loans and bank overdrafts and loans, future tax, and dividend provisions. Working capital other than stocks is thus included; not all of the working capital which is included relates entirely to trading but it is not possible to identify the non-trading element, although this is thought to be relatively small. The difference between rates of return using assets valued at historic costs as opposed to book values is not particularly large or important. The latter approach values assets at cost when acquired or last revalued, while the former excludes these revaluations. Companies make revaluations from time to time but not in any systematic way and the extent of these varies between companies. The use of historic costs removes these distortions and puts the figures for all companies on a common basis of valuation. However, book values have the advantage of being the figures actually reported in company accounts and to which companies give prominence in their published estimates.

Net trading income/trading capital employed at replacement costs

The accountancy staff of the Monopolies and Mergers Commission also estimate the ratio of net trading income to net trading assets on a replacement cost basis. The definition of this ratio is the same as for the historic cost rate of return except that fixed assets and depreciation are valued at replacement costs. No adjustment is, however, made for stock appreciation. The DI considers, and so do the Commission's accountants, that stock appreciation should be deducted and an approximate estimate made by the DI for these rates of return excluding stock appreciation is given in Tables 1 and 2 (see above). Again for a full replacement cost estimate stocks and work in progress should also be revalued at replacement costs. No adjustment is made at present to the DI company account figures for this, but the difference between book values and replacement costs is likely to be small.

Gross income/gross capital employed on book value basis

Before 1974 the DI published in the *Business Monitor*, *M3*, *Company Finance*, the ratio of gross income consisting of gross trading profit *plus* investment and other non-trading income, *less* short-term interest, but before deducting depreciation, to average gross assets, consisting of fixed and intangible assets at book values including

accumulated depreciation, *plus* goodwill, *plus* investments and current assets, *less* current liabilities (including bank loans and overdrafts, future tax, and dividend provisions).

One argument advanced for using a gross rate of return is that if a machine has constant productivity over its life then the rate of return net of depreciation would show an increase during the life of the asset which may be unrealistic. A gross rate of return is not affected by the arbitrariness of depreciation allowances. Also, a departmental manager in a business will probably look at the gross rate for inter-departmental comparisons. On the other hand, the productivity of machinery is not constant throughout its life and the cost of maintenance increases with its age. Moreover, companies invest funds in fixed assets each year and hold not just one asset but many of different ages; this factor probably tends to remove much of the difference between gross and net rates. As can be seen in Table 1 the gross and net rates of return show very similar movements, and for this reason the publication of the gross rate was dropped from the Business Monitor, *M3*.

Net income/net capital employed on book value basis

The rate of return of net income to net capital employed measures the total profitability after depreciation of a company in relation to its capital employed net of accumulated depreciation. The ratio of net income (gross income *less* depreciation at book values) to average net assets (gross assets at book values *less* accumulated depreciation) is published in the Business Monitor, *M3*. It relates the profits of a business to its total long-term capital irrespective of how this is divided between loan capital and equity.

It can be argued that it is unsatisfactory to limit capital employed (finance) to long-term capital, since bank overdrafts and other short-term loans are in practice often continually renewed, and so in effect provide part of the capital of the business. A possible drawback of bringing short-term loans into the reckoning is their greater variability from year-to-year, providing as they do the marginal requirements for finance. On the other hand, this money is being used in the business and if, for example, bank overdrafts are increased for some years and then paid off with the proceeds of a capital issue, it would seem better to record a gradual growth in capital employed than a sudden increase when the issue was made. Another possible disadvantage is the effect of 'window-dressing' at the year end to reduce apparent short-term borrowing below its average level during the year, with a consequent tendency to overstate the calculated rate of return including short-term loans, although this is not thought to be very important. A third is the difficulty of drawing a clear distinction between the short-term borrowing which is to be regarded as capital employed and trade creditors which are not. If short-term borrowing is to be included in capital employed in the denominator of the rate of return the income in the numerator needs to be gross of the interest paid on it. It is not possible to calculate such a rate directly from past DI summaries of company accounts because short-term interest payments were not separately distinguished before the analysis for 1973. The accountancy staff of the Monopolies and Mergers Commission make an estimate

of short-term interest for their rates of return on total capital employed including short-term loans, but this has not been done for the figures of gross income/gross assets or net income/net assets given in Table 1.

The accountancy staff of the Monopolies and Mergers Commission also include in their definition of capital employed (finance) two other elements which are treated as part of current liabilities in the DI analysis. The first of these is the dividends still to be paid at the end of the year; these consist almost entirely of final dividends which will not be paid until some six months or more after the end of the company's financial year. The second is corporation tax charged on the current year's profits which is not payable for some nine months to nearly two years depending on the company's accounting year. This is referred to below as future tax reserves. (Prior to 1968 the DI analysis of company accounts treated this tax, and formerly income tax, as part of capital employed (finance), but since 1968 all corporation tax payable has been treated as a current liability in the analysis regardless of the date when it is payable.) These two items are included in capital employed by the Commission's staff on the grounds that they are both akin to a long-term liability rather than to a current liability because of the delay in payment. This argument could be extended to trade creditors but trade credit is likely to be shorter and it is necessary to draw the line somewhere.

The accountancy staff of the Monopolies and Mergers Commission also exclude from capital employed both goodwill and intangible assets. Goodwill as recorded in company accounts normally represents the premium paid on the acquisition of subsidiary companies over the net book value of the assets acquired. Some companies treat this as an asset in their accounts while others write it off against reserves in the year of acquisition. Because of the variation in treatment, and the fact that the goodwill recorded in company accounts does not represent the total value of goodwill for the company, greater comparability is achieved by deducting the figures from reserves and thus excluding them from capital employed. Similar considerations apply to intangible assets which are usually research and development costs and again are often written off in the year in which the expenditure is incurred. They should for consistency be treated in the same way as goodwill and deducted from reserves. While this treatment is open to criticisms in that in individual cases the goodwill and intangible assets may represent an asset which it is desirable to include in capital employed, this would make little difference to the rate of return for the companies in the DI analysis as these items are in aggregate relatively small. Table 1 includes an estimate of the gross income/gross assets and net income/net assets ratios adjusted to include dividends outstanding and future tax reserves and to exclude goodwill and intangible assets from capital employed (finance). In total this makes a marginal difference to the level of the ratio, and has very little affect on the trend of the rates of return.

A rate of return is shown in the *Times 1,000*, an annual publication by the Times Newspapers Ltd., which gives information extracted from the company accounts of the largest 1,000 UK industrial companies in terms of turnover. This return measures net income at book values before deducting any interest charges or tax as a percentage

of net tangible fixed assets (excluding goodwill and intangible assets), *plus* current assets and investments, *less* current liabilities other than bank loans and overdrafts and future tax (deferred tax *plus* corporation tax payable on 1 January in the next fiscal year). Their treatment of goodwill, intangible assets, and tax is the same as the Monopolies and Mergers Commission staff's, but dividends outstanding are taken as part of current liabilities.

Rate of return on shareholders' interest on book value basis

The rate of return for shareholders, including both preference and ordinary shareholders, can be measured from company accounts as gross income *less* depreciation and all interest charges as a proportion of the average shareholders' interest, namely, ordinary and preference shares *plus* capital, revenue and deferred tax reserves, *plus* dividends outstanding at the end of the year, *plus* minority interests and *less* goodwill and intangible assets. Future tax reserves are not included as part of the shareholders' interest as they are part of the company's liabilities, but deferred tax reserves should be included as they do not have to be paid out in the immediate future, if at all. This rate is given in Table 1. For equity shareholders only, the rate of return can be measured in the same way except that profits are *less* the preference dividend grossed-up at the current rate of corporation tax and capital employed is after deducting the value of the preference shares. The preference dividend is paid out of post-tax profits and it needs to be grossed-up at the current rate of corporation tax in order to put it on a pre-tax basis. This is because the preference dividend is not allowable, as is loan interest, against profits for the assessment of tax. (This adjustment after 5 April 1973 would have to be based on preference dividends net of ACT.)

The return on shareholders' interest is highly dependent among other things on a company's gearing, that is, the ratio of loans to shareholders' interest. If a company's earnings on total capital employed are higher than the rate of interest on borrowings, then the higher is the gearing the higher is the shareholders' return, and *vice versa*. This rate of return is not a good measure of the return to capital overall, although it is important from the point of view of the owners or potential purchasers of risk capital, or when considering the financial viability of the company.

Post-tax rates of return on book value basis

Since tax is levied on total income net of interest charges, the simplest way of estimating post-tax rates of return is to relate post-tax profits to shareholders' interest. Shareholders' interest should be defined in the same way as for the pre-tax return. It is possible to estimate a post-tax rate of return on a book value basis on these lines from the DI analysis of company accounts and this rate is given in Table 1. It is not, however, possible to compile such a rate from the national accounts figures as no estimate is available of the shareholders' interest. If on the other hand it were desired to calculate a net of tax return on the whole of capital employed, including long and short-term loan capital, it would be necessary to make an adjustment to corporation tax, or formerly profits tax, for the tax relief given for interest charges.

This is because tax is assessed on profits after deducting interest payments and varies according to the importance of interest payments.

These post-tax rates are less satisfactory than the pre-tax rates as they involve a greater number of approximations, particularly in the measure of profits, as well as being affected by changes in the system of taxation. Therefore much greater care is needed in handling them, particularly for year-to-year changes. However the longer term comparisons are probably better and provide some indication of the trend. The post-tax rates in Table 1 are based on book values; post-tax estimates at replacement costs are difficult to construct and would be even more difficult to interpret.

CHOICE BETWEEN VARIOUS RATES OF RETURN

There are a number of different rates of return on capital employed which are appropriate for different purposes. There are a number of problems of definition, but once the definition of profits has been decided the appropriate definition of capital employed largely follows from it. For economic analysis and when considering the profitability of individual industries it is best to relate trading income to trading assets, and to exclude non-trading activities. For questions relating to the total availability and use of funds the more appropriate ratio is total income to total assets. It is desirable to relate income to capital employed, including short-term loans, rather than to only long-term capital (net assets) because much short-term capital is renewed each year. There are advantages in using rates based on both gross and net assets but for companies in aggregate the results generally do not differ sufficiently to outweigh the convenience of using only net assets since such net rates are widely used and accepted by outside commentators. For the measure of the return on risk capital the appropriate ratio is of profits before tax to the shareholders' interest. Post-tax rates of return pose a number of problems mainly in the measurement of profits, but the simplest rate is that expressing post-tax profits as a ratio of the shareholders' interest. This is because it is much more difficult to calculate a post-tax return on the whole of capital employed. These post-tax rates of return involve more approximations than pre-tax rates and added caution is needed in interpreting them, particularly in the short-term. Longer term comparisons of post-tax rates of return are probably better and less subject to irregularities. Rates of return after allowing for depreciation on a replacement cost basis (and stock appreciation) are more economically meaningful than those allowing for depreciation at book value, but because the latter are widely used it is necessary also to compile figures on that basis.

Comparison of rates of return

In Appendix I the main rates of return discussed above are set out in Table 1, mainly from 1955, and the definitions are given in Table 3; Table 2 gives some industry detail within manufacturing for the net trading income/net trading assets rate of return at historic and replacement costs for large quoted companies. The main rates of return on trading assets are set out in Charts 1 and 2,

while Chart 3 shows the pre and post-tax rates of return on shareholders' interest at book values.

All the rates of return are subject to cyclical variations, reflecting the cyclical nature of profits and it is therefore important when looking at changes in each of the rates to compare corresponding periods in the cycle. It is the trend of these various rates which is important and which can be compared: in general the levels cannot be compared because of the differences in definition. In particular the two replacement cost estimates (columns (6) and (9) of Table 1) although apparently similar cannot be compared because they are defined differently both in terms of the capital employed which is taken into account and the way in which it is estimated. Hence the generally lower figure for the rate based on company accounts data which relates only to large quoted manufacturing companies cannot be taken as an indication that the rate of return is higher for industrial and commercial companies other than large quoted manufacturing companies. The levels can only be compared when the definitions of the rate and the sources of data are the same as, for example, in Table 2.

All the various historic cost and book value rates of return have very similar cyclical movements and trends. They all declined through the latter half of the 1950's but thereafter remained fairly flat through the 1960's, before picking-up at the beginning of the 1970's. It is difficult to assess the significance of the recent increase given the cyclical variation in the figures. However to some extent this increase is illusory. The rate of return based on book values overstates the rate when prices are rising, and the overstatement is greater, the greater the rise in prices. This is because assets are valued mainly at historic costs and do not fully reflect the rise in prices (see above). Prices started to rise more quickly at the end of the 1960's and so did the book value rates of return.

If account is taken of the current cost of assets and of the need to provide for stock appreciation, then, as illustrated in Charts 1 and 2, the rate of return continues to decline throughout the 1960's and, as far as can be judged, into the 1970's. Table 2 shows that this decline in the rate of return at replacement costs during the 1960's was experienced by all of the main sectors of manufacturing industry although the intensity of the decline varied between industries.

APPENDIX I

Rates of return on capital employed ⁽¹⁾

TABLE 1

Per cent

	Based on national accounts data						Based on Department of Industry analysis of company accounts				
	Net trading income/net capital stock plus book value of stocks						Large quoted companies in manufacturing industry				
	All companies			Industrial and commercial companies			Net trading income/ net trading assets			Gross income/ gross assets ⁽²⁾	
	At historic costs (a)	At current replacement costs		At historic costs (a)	At current replacement costs		At historic costs (d)	At replacement costs			
		Before providing for stock appreciation (b)	After providing for stock appreciation (c)		Before providing for stock appreciation (b)	After providing for stock appreciation (c)		Before providing for stock appreciation (e)	After providing for stock appreciation (f)	(g)	(h)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
1955 ..	..	13.9	13.3	..	..	..	18.9	16.2	..	17.5	17.6
1956 ..	..	12.6	11.8	..	..	..	17.1	14.4	..	16.2	16.4
1957 ..	..	12.1	11.5	..	..	..	16.1	13.2	..	15.6	15.7
1958 ..	..	10.8	10.9	..	..	..	14.8	12.0	..	14.7	14.8
1959 ..	..	11.8	11.4	..	..	..	16.0	13.4	..	15.5	15.6
1960 ..	17.7	12.6	12.3	19.0	13.7	13.4	16.5	14.1	13.6	15.7	15.8
1961 ..	15.4	11.1	10.7	16.6	12.0	11.6	14.2	11.9	11.4	13.9	14.0
1962 ..	14.0	10.1	9.7	15.1	11.0	10.6	12.4	10.3	10.1	12.8	12.9
1963 ..	15.1	11.1	10.6	16.3	12.0	11.5	13.3	11.0	10.5	13.4	13.5
1964 ..	15.5	11.5	10.7	17.0	12.7	11.9	14.6	12.2	11.4	14.4	14.5
1965 ..	14.6	10.8	10.1	16.2	12.0	11.3	13.9	11.3	10.4	13.8	13.9
1966 ..	12.9	9.4	8.6	14.5	10.7	9.9	12.0	9.5	8.8	12.5	12.7
1967 ..	12.6	9.4	9.0	14.2	10.7	10.3	12.0	9.7	9.3	12.5	12.7
1968 ..	13.4	9.9	8.8	15.1	11.3	10.1	13.4	10.8	9.4	13.9	14.1
1969 ..	11.8	8.5	7.2	13.6	10.0	8.6	12.5	9.9	8.2	13.6	13.6
1970 ..	10.7	7.3	5.6	12.6	8.8	6.9	11.5	8.6	6.3	12.6	12.8
1971 ..	11.0	7.1	5.6	12.7	8.4	6.8	12.6	9.2	7.1	13.4	13.6
1972 ..	11.9	7.3	5.7	14.1	9.0	7.1	..	..	..	15.1	15.3
1973 ..	14.0	8.4	5.0	16.4	10.1	6.5	..	..	..	..	..

(1) For definitions see lettered references in Table 3.

(2) Based on book value of depreciation and assets as recorded in company accounts; these have not been adjusted to take account of the treatment of investment grants and building grants.

(3) Net income after tax includes only those investment grants separately distinguished in company accounts.

Net trading income/net trading assets at historic and replacement costs for large quoted manufacturing companies ⁽¹⁾

TABLE 2

Per cent

Year	Industry	Food, drink and tobacco			Chemicals and allied industries			Metal manufacture		
		At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation	At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation	At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation
1960	16.4	13.0	13.2	17.9	15.3	15.3	16.4	13.4	13.3
1961	16.6	13.1	12.7	13.5	11.3	11.4	12.6	10.1	9.8
1962	16.0	12.7	12.4	12.6	10.3	10.6	8.3	6.4	6.4
1963	16.6	13.1	11.7	13.7	11.2	11.2	8.2	6.3	6.4
1964	16.3	12.9	12.2	15.2	12.6	12.5	10.7	8.4	7.2
1965	15.5	12.0	11.0	14.0	11.3	11.3	10.4	7.8	6.9
1966	14.4	11.1	10.0	11.6	8.9	8.9	7.4	5.1	4.5
1967	14.5	11.3	10.7	11.6	9.3	8.6	9.7	7.3	6.4
1968	15.2	11.6	9.9	13.6	10.9	10.6	10.7	8.2	7.2
1969	14.3	10.8	9.4	12.8	10.1	9.9	12.0	9.4	5.1
1970	14.1	10.6	8.7	10.4	7.3	5.6	9.5	6.9	5.2
1971	15.2	11.2	9.4	10.3	7.0	5.6	9.1	6.5	5.8

(1) Ratios (d), (e) and (f) as defined in Table 3.

TABLE 1 (continued)

Rates of return on capital employed (1)

Per cent

Based on Department of Industry analysis of company accounts										
Large quoted companies in manufacturing industry				Large quoted companies in manufacturing, distribution and certain other services						
Net income/ net assets (2)		Net income after all interest charges/ shareholders' interest		Gross income/ gross assets(2)		Net income/ net assets (2)		Net income after all interest charges/ shareholders' interest		
		Before tax (2) (k)	After tax (2) (3) (l)					Before tax (2) (k)	After tax (2) (3) (l)	
(i)	(j)	(k)	(l)	(g)	(h)	(i)	(j)	(k)	(l)	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
17.9	18.1	22.2	11.6	17.4	17.6	17.8	18.0	20.9	10.8	.. 1955
16.4	16.5	20.1	10.0	16.5	16.6	16.6	16.8	19.4	9.6	.. 1956
15.6	15.8	18.7	9.4	15.8	15.9	15.8	16.0	18.2	9.0	.. 1957
14.4	14.5	17.0	9.0	15.0	15.0	14.7	14.8	16.8	8.9	.. 1958
15.4	15.5	18.0	10.3	15.8	15.8	15.7	15.8	17.9	10.3	.. 1959
15.7	15.8	18.3	10.0	15.9	16.0	16.0	16.1	18.5	10.2	.. 1960
13.4	13.6	15.5	8.4	14.3	14.4	13.9	14.1	16.1	8.7	.. 1961
12.1	12.2	13.8	7.5	13.3	13.4	12.7	12.9	14.6	7.9	.. 1962
12.9	13.1	14.8	8.0	13.9	14.0	13.5	13.7	15.5	8.5	.. 1963
14.2	14.4	16.6	9.2	14.9	15.1	14.7	15.0	17.2	9.5	.. 1964
13.4	13.6	15.6	10.1	14.2	14.4	13.9	14.1	16.1	10.4	.. 1965
11.8	12.0	13.7	6.4	13.0	13.1	12.3	12.5	14.3	6.7	.. 1966
11.9	12.2	14.1	7.4	13.0	13.3	12.4	12.8	14.8	7.6	.. 1967
13.7	14.0	16.7	8.7	14.4	14.6	14.2	14.4	17.2	8.8	.. 1968
13.3	13.4	16.0	8.1	14.3	14.4	14.1	14.2	16.4	8.4	.. 1969
12.1	12.3	14.5	7.8	13.5	13.6	13.1	13.2	15.8	8.4	.. 1970
13.1	13.3	15.7	9.1	14.3	14.5	14.0	14.3	17.0	9.6	.. 1971
15.4	15.7	18.9	12.1	16.1	16.4	16.4	16.9	20.4	13.1	.. 1972
										.. 1973

Net trading income/net trading assets at historic and replacement costs for large quoted manufacturing companies (1)

TABLE 2 (continued)

Per cent

Engineering, shipbuilding, vehicles and other metal goods			Textiles, leather and clothing			Other manufacturing industries			Total manufacturing industry			Industry Year
At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation	At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation	At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation	At historic costs	At replace- ment costs before pro- viding for stock ap- preciation	At replace- ment costs after pro- viding for stock ap- preciation	
16.4	14.5	13.6	14.8	12.7	12.1	17.2	14.8	14.0	16.5	14.1	13.6	.. 1960
13.1	11.6	10.5	14.1	12.0	12.1	16.1	13.9	13.8	14.2	11.9	11.4	.. 1961
11.5	10.1	9.4	11.9	10.0	10.0	14.3	12.1	12.2	12.4	10.3	10.1	.. 1962
12.8	11.2	10.8	13.2	11.2	9.6	14.7	12.5	12.3	13.3	11.1	10.5	.. 1963
14.0	12.5	10.9	14.3	12.2	12.6	16.5	14.2	13.5	14.6	12.2	11.4	.. 1964
13.4	11.8	10.0	14.5	12.3	11.7	15.0	12.7	12.2	13.9	11.3	10.4	.. 1965
12.1	10.4	8.7	12.0	9.9	9.9	13.0	10.8	10.3	12.0	9.6	8.8	.. 1966
10.9	9.4	8.6	11.4	9.5	10.0	12.9	10.8	10.6	12.0	9.9	9.3	.. 1967
12.3	10.5	8.5	13.9	11.5	9.8	13.8	11.6	10.4	13.4	10.9	9.4	.. 1968
11.8	9.9	7.0	12.1	9.9	9.2	11.8	9.6	8.2	12.5	9.9	8.2	.. 1969
10.7	8.3	4.9	10.5	8.2	7.3	11.4	8.5	6.8	11.5	8.5	6.3	.. 1970
12.5	9.0	6.2	12.0	8.8	7.0	13.2	9.6	7.7	12.0	9.2	7.1	.. 1971

Definition of selected rates of return given in Table 1

TABLE 3

Profits	Capital employed	Published
Based on national income data		
(a) Net trading income at historic costs (gross trading profits <i>plus</i> rent received by these companies <i>less</i> capital consumption at historic costs).	Net capital stock (fixed assets other than land) of these companies at historic costs <i>plus</i> book value of stocks.	
(b) Net trading income at replacement costs before providing for stock appreciation (gross trading profit <i>plus</i> rent received by these companies <i>less</i> capital consumption at replacement costs).	Net capital stock (fixed assets other than land) of these companies at replacement costs <i>plus</i> book value of stocks.	
(c) Net trading income at replacement costs after providing for stock appreciation (gross trading profits <i>plus</i> rent received by these companies <i>less</i> capital consumption at replacement costs and <i>less</i> stock appreciation).	Net capital stocks (fixed assets other than land) of these companies at replacement costs <i>plus</i> book value of stocks.	
Based on company account data from DI analysis of company accounts		
<i>Before tax</i>		
(d) Net trading income before interest at historic costs (gross trading income <i>less</i> depreciation at historic costs).	Net trading assets at historic costs (tangible net fixed assets at historic costs <i>plus</i> net current assets other than investments, bank overdrafts and loans, dividend provisions and corporation tax payable in next fiscal year).	} Monopolies and Mergers Commission
(e) Net trading income before interest at replacement costs (gross trading income <i>less</i> depreciation at replacement costs).	Net trading assets at replacement costs (tangible net fixed assets at replacement costs <i>plus</i> net current assets other than investments, bank overdrafts and loans, dividend provisions and corporation tax payable in next fiscal year).	
(f) Net trading income before interest at replacement costs <i>less</i> stock appreciation.	Net trading assets at replacement costs.	
(g) Gross income <i>less</i> short-term interest.	Gross assets at book values (fixed and intangible assets before deduction of accumulated depreciation <i>plus</i> current assets and investments <i>less</i> current liabilities including bank overdrafts and loans, dividend provisions and after 1967 corporation tax payable in next fiscal year).	Business Monitor, M3, Company Finance up to 1973.
(h) Gross income <i>less</i> short-term interest.	Gross assets at book values (fixed assets before deduction of accumulated depreciation <i>plus</i> current assets and investments <i>less</i> current liabilities including bank overdrafts and loans but excluding dividend provisions and corporation tax payable in next fiscal year).	
(i) Net income (gross income <i>less</i> short-term interest and depreciation at book values).	Gross assets at book values as in (g) <i>less</i> accumulated depreciation.	Business Monitor, M3, Company Finance.
(j) Net income (gross income <i>less</i> short-term interest and depreciation at book values).	Gross assets at book values as in (h) <i>less</i> accumulated depreciation.	
(k) Net income <i>less</i> all interest payments (gross income <i>less</i> all interest payments and depreciation at book values).	Shareholders' interest (ordinary and preference shares <i>plus</i> capital, revenue and deferred tax reserves <i>plus</i> dividends outstanding at the end of the year <i>plus</i> minority interests and <i>less</i> goodwill and intangible assets).	
<i>After tax</i>		
(l) Net income <i>less</i> all interest payments, <i>less</i> company tax charge other than deferred tax, <i>less</i> income tax payable on ordinary and preference dividends, <i>plus</i> investment grants.	Shareholders' interest.	

CHART 1

**Net trading income to net capital stock *plus* book value of stocks
For industrial and commercial companies based on national accounts data**

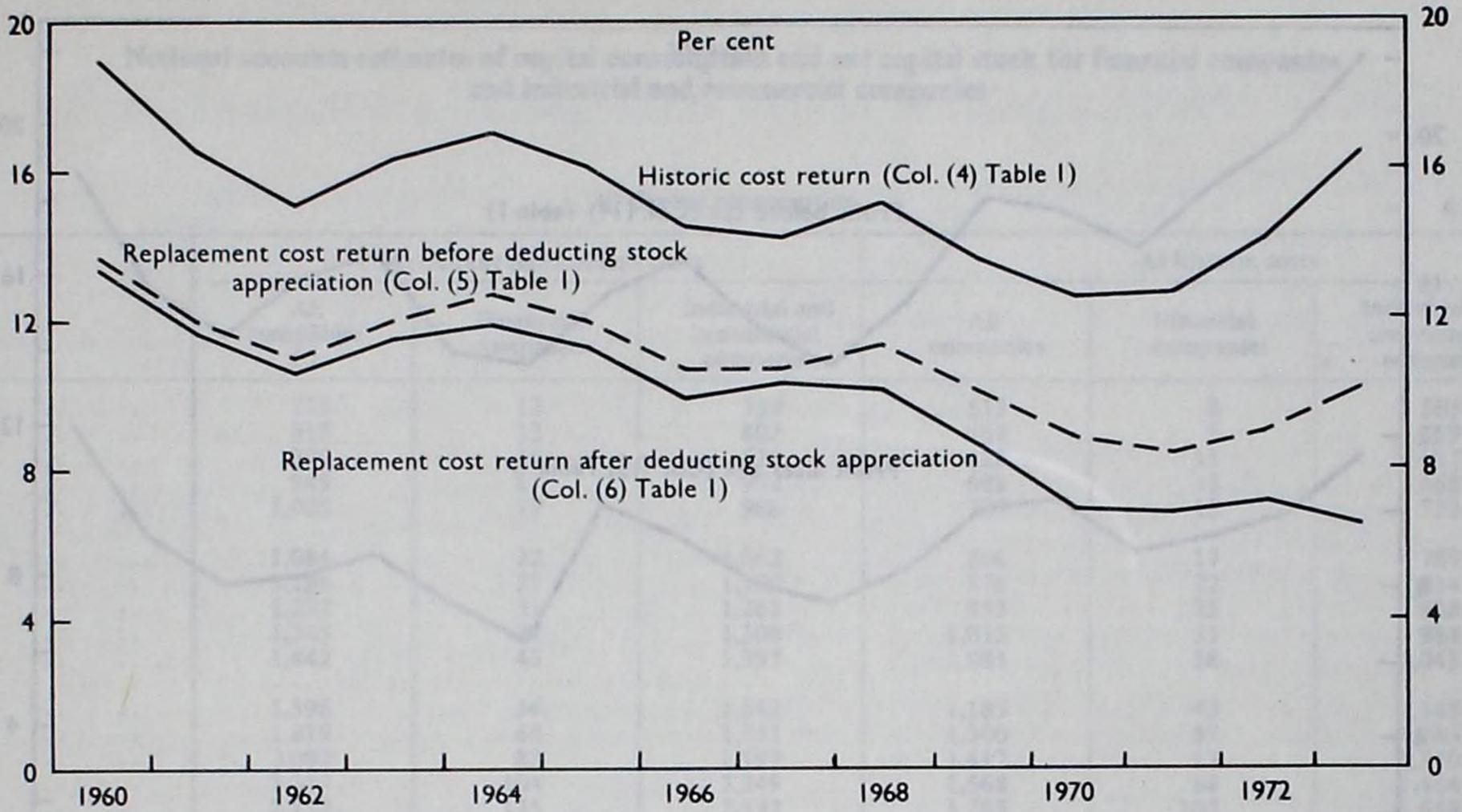


CHART 2

**Net trading income to net trading assets rate of return
For large quoted manufacturing companies**

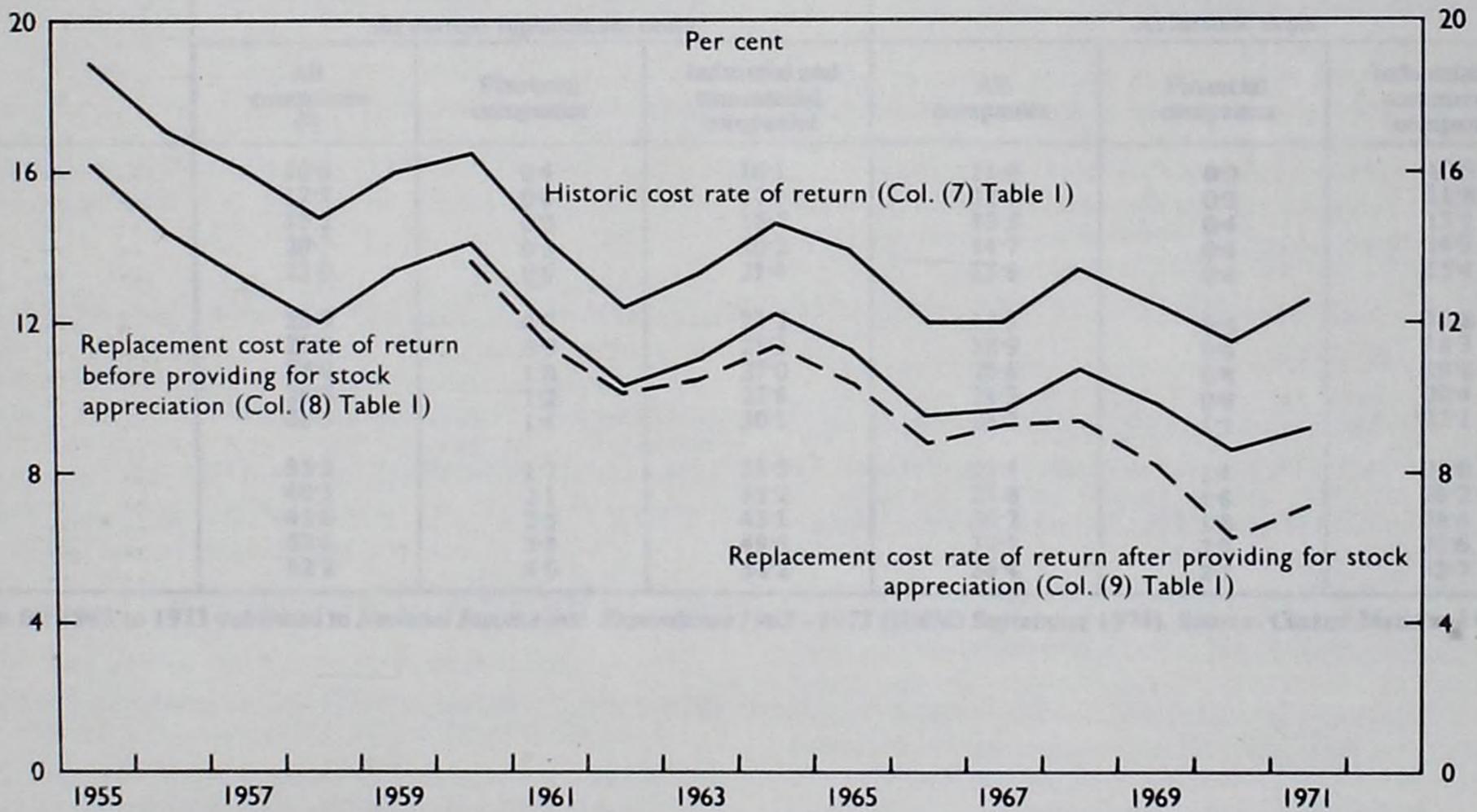
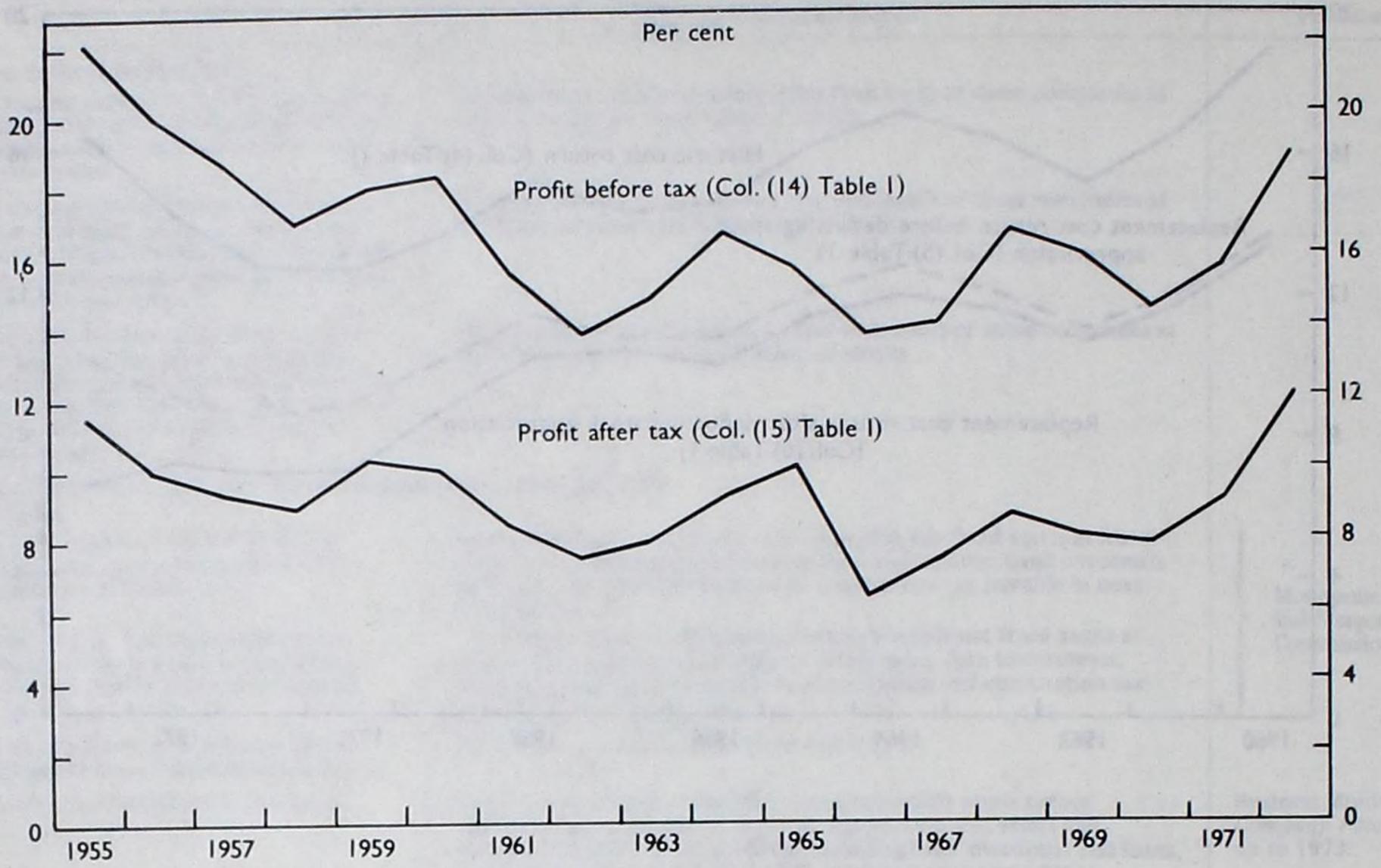


CHART 3

Net income after all interest charges to shareholders' interest
Rates of return for large quoted manufacturing companies



APPENDIX II

National accounts estimates of capital consumption and net capital stock for financial companies and industrial and commercial companies

(i) Capital consumption

£ million

	At current replacement costs			At historic costs		
	All companies (1)	Financial companies	Industrial and commercial companies	All companies	Financial companies	Industrial and commercial companies
1959	771	12	759	513	8	505
1960	815	13	802	568	9	559
1961	890	15	875	628	11	617
1962	949	17	932	681	13	668
1963	1,005	19	986	737	15	722
1964	1,084	22	1,062	806	17	789
1965	1,186	27	1,159	876	22	854
1966	1,292	31	1,261	953	25	928
1967	1,345	37	1,308	1,015	31	984
1968	1,442	45	1,397	1,081	38	1,043
1969	1,596	54	1,542	1,185	45	1,145
1970	1,819	68	1,751	1,300	57	1,243
1971	2,082	83	1,999	1,417	67	1,350
1972	2,353	104	2,249	1,568	84	1,484
1973	2,732	135	2,597	1,765	107	1,658

(ii) Net capital stock of fixed assets (other than land)

£ thousand million

	At current replacement costs			At historic costs		
	All companies (1)	Financial companies	Industrial and commercial companies	All companies	Financial companies	Industrial and commercial companies
1959	16.5	0.4	16.1	11.0	0.2	10.8
1960	17.7	0.4	17.3	12.1	0.3	11.8
1961	19.2	0.5	18.7	13.5	0.4	13.1
1962	20.7	0.5	20.2	14.7	0.4	14.3
1963	22.0	0.6	21.4	15.8	0.4	15.4
1964	23.9	0.7	23.2	17.3	0.5	16.8
1965	26.2	0.9	25.3	18.9	0.6	18.3
1966	28.0	1.0	27.0	20.6	0.8	19.8
1967	28.8	1.2	27.6	21.3	0.9	20.4
1968	31.5	1.4	30.1	23.2	1.1	22.1
1969	35.2	1.7	33.5	25.4	1.4	24.0
1970	40.3	2.1	38.2	27.8	1.6	26.2
1971	45.6	2.5	43.1	30.2	1.8	28.4
1972	52.6	3.1	49.5	32.9	2.3	30.6
1973	62.2	4.0	58.2	36.4	2.7	33.7

(1) Figures for 1963 to 1973 published in *National Income and Expenditure 1963-1973* (HMSO September 1974). Source: Central Statistical Office

APPENDIX III

PART A: Rates of tax (per cent)

Income tax (standard rate)

	1950/51	1951/52 to 1952/53	1953/54 to 1954/55	1955/56 to 1958/59	1959/60 to 1964/65	1965/66 to 1970/71	1971/72 to 1972/73	1973/74
	45	47.5	45	42.5	38.75	41.25	38.75	30 ⁽¹⁾

(1) Unified basic rate.

Profits tax

Accounting period (or portion thereof) between

	1 Oct 1949 and 31 Dec 1950	1 Jan 1951 and 31 Dec 1951	1 Jan 1952 and 31 Oct 1955	1 Nov 1955 and 31 March 1956	1 April 1956 and 31 March 1958	1 April 1958 and 31 March 1960	1 April 1960 and 31 March 1961	1 April 1961 and 5 April 1966
Profits distributed	30	50	22½	27½	30	} 10	12½	15
Profits not distributed	10	10	2½	2½	3			

Corporation tax

Year of profit

	1965/66 to 1966/67	1967/68	1968/69	1969/70	1970/71 to 1972/73	1973/74
Rate of corporation tax	40	42½	45	42½	40	52 ⁽²⁾

(2) Rate under the Imputation System.

PART B: Certain publications giving more details of the system of company taxation

- (a) *National Accounts Statistics: Sources and Methods*, published by HMSO (1968). Pages 211 to 213 give a summary of the system of company taxation; page 388 gives details of Inland Revenue depreciation allowances.
- (b) *Inland Revenue Statistics 1973*, published by HMSO. Pages 157 to 160 give a brief description of company taxation.
- (c) *Report of the Commissioners of Her Majesty's Inland Revenue*, published by HMSO :
 - 112th Report for the year ending March 1969. Pages 72 to 97 give more detail on taxes.
 - 100th Report for the year ending March 1957. Pages 3 to 22 give details of the taxes charged in the mid-1950's.
 - 96th Report for the year ending March 1953. Page 35 gives details of the excess profits levy in force from 1 January 1952 to 31 December 1953.
- (d) *Corporation Tax*. A booklet issued by The Board of Inland Revenue in February 1966 gives detailed information on corporation tax.
- (e) *Corporation Tax*. A booklet issued by The Board of Inland Revenue in December 1972 gives details of changes resulting from the introduction of the Imputation System.