PROFITS AND RATES OF RETURN

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CONTENTS

INTRODUCTION

There is widespread concern about a secular decline in profits and rates of return. The second oil price shock heightened perceptions that rapid inflation in the 1970s had been associated with a declining share of profits in value added. The main purpose of this paper is to assess the extent of this decline, with due allowance for measurement problems. Its second purpose is to assess the statistical significance of observed trends.

Profits are generally seen as a driving force in market economies. When they are low, it is feared that enterprise and innovation will falter and the rate of investment decline, leading to sluggish growth in output and capacity. The links between profits and economic performance are complicated and difficult to establish empirically. This is because both economic and accounting definitions of profit cover heterogeneous phenomena and are calculated as a residual.

The conceptual and measurement issues involved in analysing the evolution of that residual are important. These issues are addressed in Section I where the concept of the operating surplus and other profit concepts are introduced. The main focus of the paper is on profit shares and profit rates as a measure of the aggregate real return to productive activity in the economy. However, profits are also considered from the point of view of the firm, which requires financial returns, inflation and tax issues to be taken into account.

Section II presents the empirical evidence on the main question addressed: whether there has been a secular decline in profit shares and rates of return. This is done at three levels of aggregation: the total business sector, industry and transport, and manufacturing. In most countries and most sectors, since the 1960s, there appears to have been such a decline, most pronounced in the manufacturing sector. Rates of return have declined more than profit shares, which identifies capital productivity as a key explanatory factor. Some evidence is also presented on the pressures on profitability as perceived by firms, particularly in the 1970s. In a final part of this section, prospects for profit shares and rates of return in the short term are briefly explored.

I. WHAT ARE PROFITS AND WHY DO THEY MATTER?

Different definitions of profit exist together with different techniques of measurement; the appropriate measure depends on the questions being addressed. The following section sets out conceptual and measurement problems and examines complications introduced by inflation.

CONCEPTUAL AND MEASUREMENT PROBLEMS

A. Profits in theory and recorded profits

Profits can be looked at from the level of the firm, sector, or economy; gross or net; pre- or post-tax; before or after the deduction of factor payments; ex ante or ex post; as profits in relation to production or, more broadly, as the surplus of total current receipts over current payments. This paper attempts to indicate the measures appropriate for different purposes. An observation at the outset is that the profitability of production in an economy may differ markedly from the profit conditions which firms perceive and to which they respond.

The role of profits is conceptually clearest at the level of the firm, the basic decision-taking unit for economic activity. However, gross profits of the firm – revenue minus wages and costs of other intermediate inputs – cover a number of conceptually different items. They include an equilibrium return to factors employed: interest costs, a return to enterprise or management, and in some cases the labour income of the self-employed. These are usually termed "normal profits". Any surplus over and above this represents rents or "super-normal profits" which can derive from monopoly or from the quasi-rents of semi-fixed factors like capital stock. In long-run competitive equilibrium these super-normal profits would be competed away, leaving only the return necessary to keep factors in place. However, the degree of competition varies in practice and there are continual interruptions to the process from the introduction and diffusion of new technology and other shocks. Observed data therefore reflect a series of adjustment paths in which the level of profits at any time is a function of the stage of disequilibrium, and the division of the total between normal and super-normal profits cannot be identified.

From the point of view of the firm, the relevant concept of profit for undertaking new activities is future or expected after-tax profits, after normal costs (including capital costs) have been deducted, allowing for a risk premium. Hence *ex ante* super-normal profits after tax are the concept appropriate to the investment

decision. However, they are not directly observed; nor are expected future costs, or the risk premium. While theoretically clear, the role of *ex ante* marginal profits and associated costs and risks is thus not easily amenable to testing or to incorporation in econometric models. On the other hand, something concerning expected profitability can be inferred from the valuation ratio, i.e. the ratio of market value of a firm to the replacement cost of physical assets. This is discussed in Section II.D.

The adjustment of *ex ante* profits for taxes also presents formidable problems. The structure of corporate taxes, subsidies and concessions in most countries varies according to the type of asset used in production, and the sector, region or means of financing production and investment. Aggregate tax receipts are subject to variable delays with respect to the profits being taxed, so current corporate tax payments rarely reflect current or even recent profits on a consistent basis. However, the current burden is relevant for cash flow (see Section II.D).

Further difficulties occur because economies are not in steady state growth and specific account should be taken of timing in assessing profitability. In a dynamic context, super-normal profits represent the present value of the future income stream to the firm, when discounted at a rate which is equivalent to the cost of capital. Alternatively, the internal rate of return is that discount rate at which the present value of future net income is zero. The difference between this rate and the rate at which financial capital is obtained is a measure of super-normal profits available. In principle, activities will be undertaken and new investment made to the point where the internal rate of return on the marginal project equals the cost of financial capital plus an allowance for a risk premium. Even if expectations are fulfilled, *so* **exante** and **ex post** profits are equal, it is not simple and may be impossible to infer internal rates of return from ratios of measured profits to capital employed.

For these reasons recorded profits **ex post** are rather remote from the concept most relevant to the firm in making investment decisions. However, they are important for several reasons. In the absence of observed measures of **exante** profits, current profits may be taken as a guide to expected future returns. They may also act as a cushion should expectations be falsified, making it more likely that high-risk investment will occur. Furthermore, if the firm has a range of plants and equipment yielding different returns, current profits will be essential in determining the economic viability of individual plants. This consideration is relevant for current employment as distinct from the employment generated by new investment. Finally, profits **ex** post are important as a source of finance. In principle, if capital markets functioned perfectly, this aspect would be irrelevant. In practice, markets lack the necessary information to be perfect and retained earnings are an important source of finance. Internal funds may also be cheaper to the firm and their use may reduce the risk of a **loss** of control to creditors. However, even with internal finance, the interest rate is important as a measure of opportunity cost.

Thus, although *ex ante* super-normal profits after-tax may be crucial, observed *ex post* profits also have economic significance for decisions on economic activity and investment.

B. Profits and price changes

When price changes are taken into account, a distinction emerges between operating and revaluation surpluses, or operating profits and holding gains. The operating surplus is precisely defined in national accounts as the profit generated through the production of goods and services. It is the part of the value added which is created by transforming inputs into outputs of goods and services.

A holding gain, on the other hand, is the profit which accrues by holding a good from one period to another without subjecting it to any kind of transformation. It depends simply on changes in prices, especially on the change in the price of the good which is held relative to the changes in the prices of other goods and services.

Thus, the two kinds of profit are quite different in principle, the one reflecting the outcome of productive activity while the other reflects the outcome of doing nothing. In practice, they are hard to separate. As production processes require stocks of durable and non-durable goods, the production decision also involves a decision to hold stocks.

The profits figures analysed in this report are mainly aggregate data derived from national accounts. They are, in fact, operating surpluses — the residuals in *production* accounts as distinct from more general profit and loss accounts which include other receipts or charges not linked to processes of production[1].

C. Rates of return to companies

In this paper profit rates are generally measured as operating surpluses unadjusted for depreciation divided by a measure of gross capital stock at current or replacement cost. It was argued above that expected super-normal operating profits were most relevant to investment decisions but that actual *ex post* profits were important for several reasons. Some of these reasons also entail that overall profitability rather than the profitability of production alone is important, for example in providing finance to companies. Price changes and changes in net worth do have economic effects — quite apart from the problems of measurement they create.

Real holding gains have been of considerable significance in the 1970s. Inflation and especially changes in the rate of inflation appear to have been responsible for changes in the actual as well as the measured behaviour of profits and rates of return through the associated response of interest rates and the

revaluation of assets and liabilities. This would not show up in national accounts even for the whole economy, but such effects redistribute income between sectors of the economy, for example between financial and non-financial enterprises. This can have further repercussions on activity.

The aggregate impact of inflation and relative price changes will have different effects on firms depending on their capital intensity, the balance between fixed and working capital, their gearing, the term structure of their debt, the extent of tax deductibility of borrowing costs and profits, and the importance of permitted inventory valuation adjustments. For instance, firms with a large debt burden gain relatively from the devaluation of liabilities under higher inflation. On the other hand, measurement of the depreciation of the capital stock at historic cost and of stock appreciation with conventional accounting methods overstates profits for tax purposes, leading to a higher real tax burden. To take these effects into **account,** including possible redistributions of profit income between risk-takers and pure savers, one approach is to look at total business income relative to total net assets, or, in other words, the rate of return on equity. This is done in Section II.D.

Firms no doubt take account of total profits including holding gains. Their view must also be influenced by historic cost accounting, which is generally used in commercial accounting, and which tends to obscure the realised rate of return to productive activity. In investment appraisal, firms will abstract from a general inflation that does not alter relative prices, but historic cost rates of return are presumably widely used in assessing past performance. They may therefore influence a range of business decisions via the perceived credit-worthiness of a firm and the terms on which it obtains finance. Historic cost profits also serve as a basis for tax liability.

Rates of return at historic cost are obtained by dividing profits by the value of the capital assets employed also valued at historic cost. However, cumulating the values of capital equipment of differing vintages purchased at different price levels offends basic principles because there is no fixed unit of measurement. The values which are summed are not commensurate with each other. (This objection applies equally, of course, to the calculation of profits at historic cost.) This might not matter if rates of return at historic cost bore a stable relationship to those at current cost. But the relationship will only tend to be stable when the rate of inflation remains constant. When inflation accelerates, the proportion of historic cost profits which is attributable to nominal holding gains will tend to rise sharply. This is certainly borne out by the U.K. data: the decline in profitability in U.K. industry in the middle and late 1970s was completely obscured by the historic cost profit data (see Section II.D.).

II.   WHAT HAS HAPPENED TO PROFITS AND RATES OF RETURN?

This part presents data for profit shares and rates of return across sectors in a number of countries.
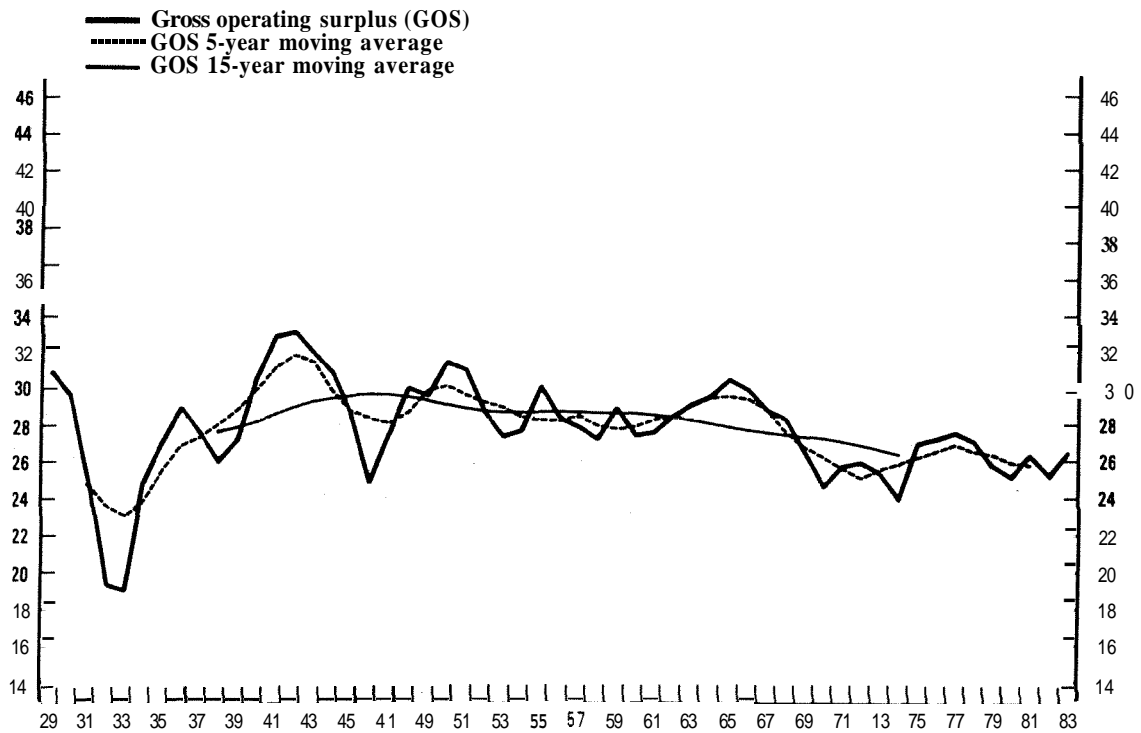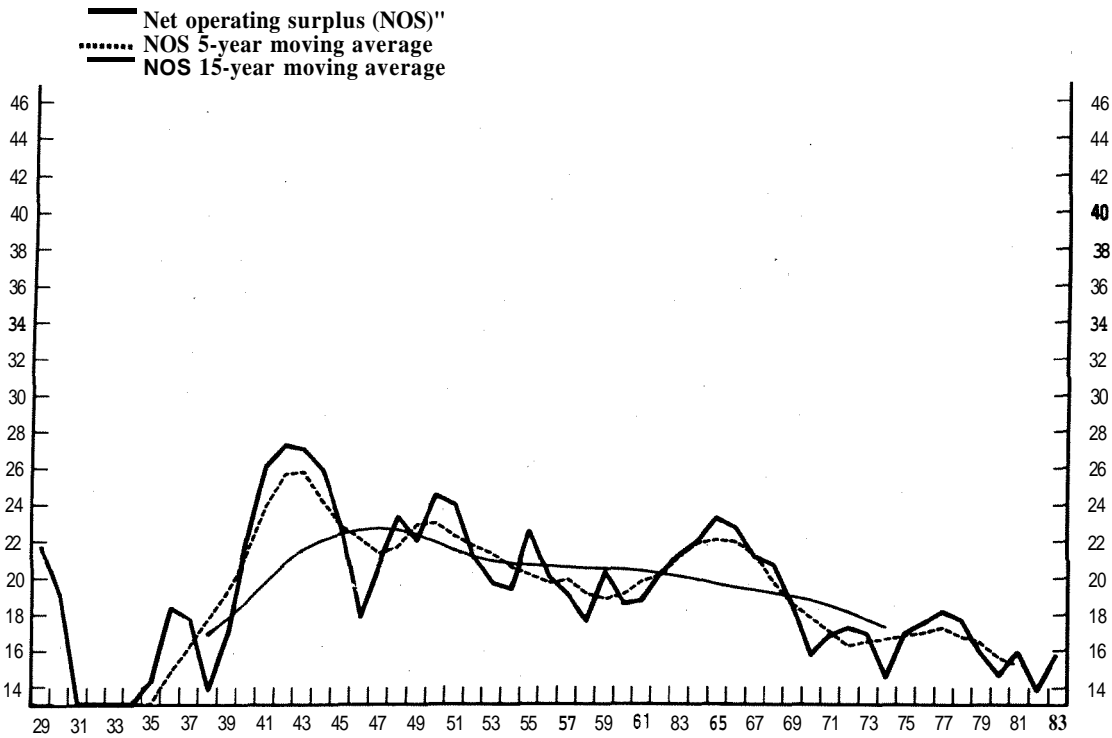
A.   Trend and cycle: the longer run

Before inferring anything about the long-run behaviour and determinants of profits and rates of return, purely cyclical effects should be eliminated. Both profits and rates of return can be expected to vary over the business cycle. Lower capacity utilisation reduces profits more than the wage bill as numbers employed and/or real labour costs typically adjust with a *lag;* conversely, on the upswing profits tend to recover more rapidly than wages and other labour costs as real output increases more rapidly than numbers employed or hours worked, raising labour productivity. Later in the recovery, this effect is eroded as employment expands, particularly if wages increase faster than prices. This characteristic can be seen from the identity whereby the labour share in national income is equal to real hourly compensation divided by the productivity of labour. The profit share of value added will be affected to the extent that real labour costs lead or lag productivity changes in the cycle. This effect is reinforced by other fixed or semi-fixed elements in costs.

Other factors of course may lead to periods of prolonged secular shifts in functional income distribution, as discussed in Section *III.* For example, if increasing union power, indexation, or trade barriers render wage setting increasingly inflexible to market forces, this can lead to shifts in income distribution. Factors such as the speed and nature of technical change and the accumulation of capital will also affect underlying real output and productivity trends. Institutional and technical factors should presumably be termed secular and an attempt to isolate them requires an extensive run of historical data, especially if cyclical swings are pronounced.

The problem with this classification is that there may be more than one cycle. Longer cyclical swings may last a decade or more. Hence, "cyclical" factors in some sense will be indistinguishable from the measured trend. Profit developments since 1973, for instance, may represent a prolonged cyclical drop in profitability or a secular decline. To illuminate this issue and provide perspective, data were obtained for four countries over as long a sample period as possible. Actual profit shares for these countries are graphed from prior to the First World War or the 1920s in Chart 1. Rates of return data cannot be provided due to the absence of useful capital stock data before the Second World War. The data are smoothed first with a five-year moving average to remove short-run cycles and then further smoothed with a fifteen-year average to identify longer-term trends. In some cases, there is a distinct appearance of *longer-run* secular trends but results differ depending on

CHART 1

PROFIT SHARES: UNITED STATES
NON-FINANCIAL PRIVATE SECTOR
(percentage of value added)

—— Net operating surplus (NOS)"
•••••••• NOS 5-year moving average
—— NOS 15-year moving average

—— Gross operating surplus (GOS)
•••••••• GOS 5-year moving average
—— GOS 15-year moving average

* From 1931 to 1934. the figures are 10 90, -1 73, -2 45, 9 63

Norway

Net operating surplus (NOS)
NOS 5-year moving average
NOS 15-year moving average

135
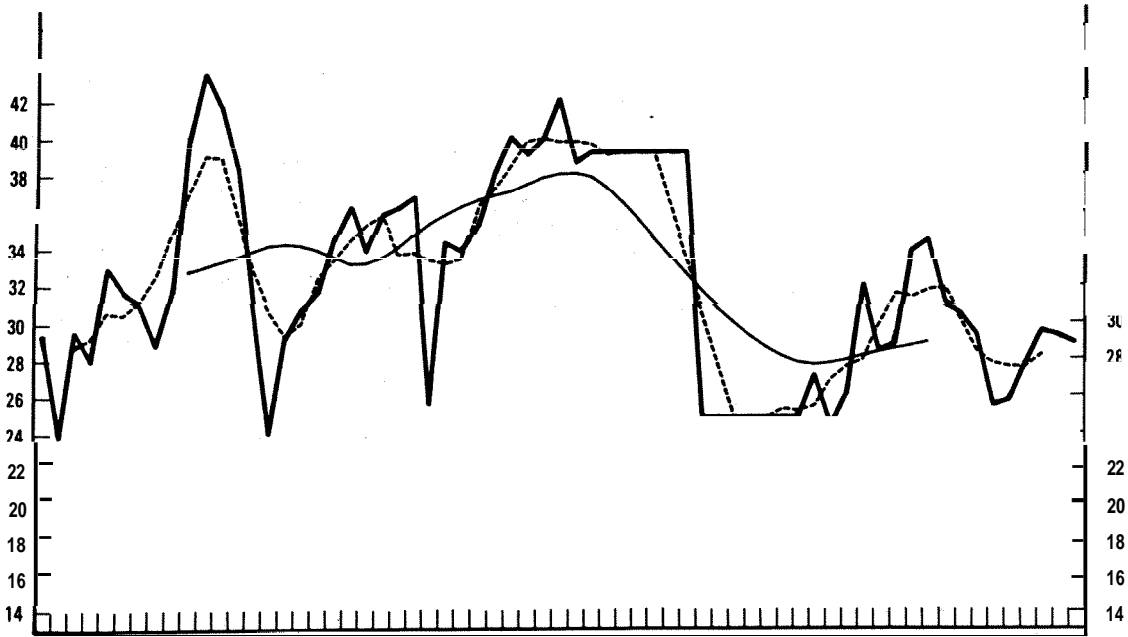
CHART 1 (cont)
PROFIT SHARES: UNITED KINGDOM
(percentage of value added)

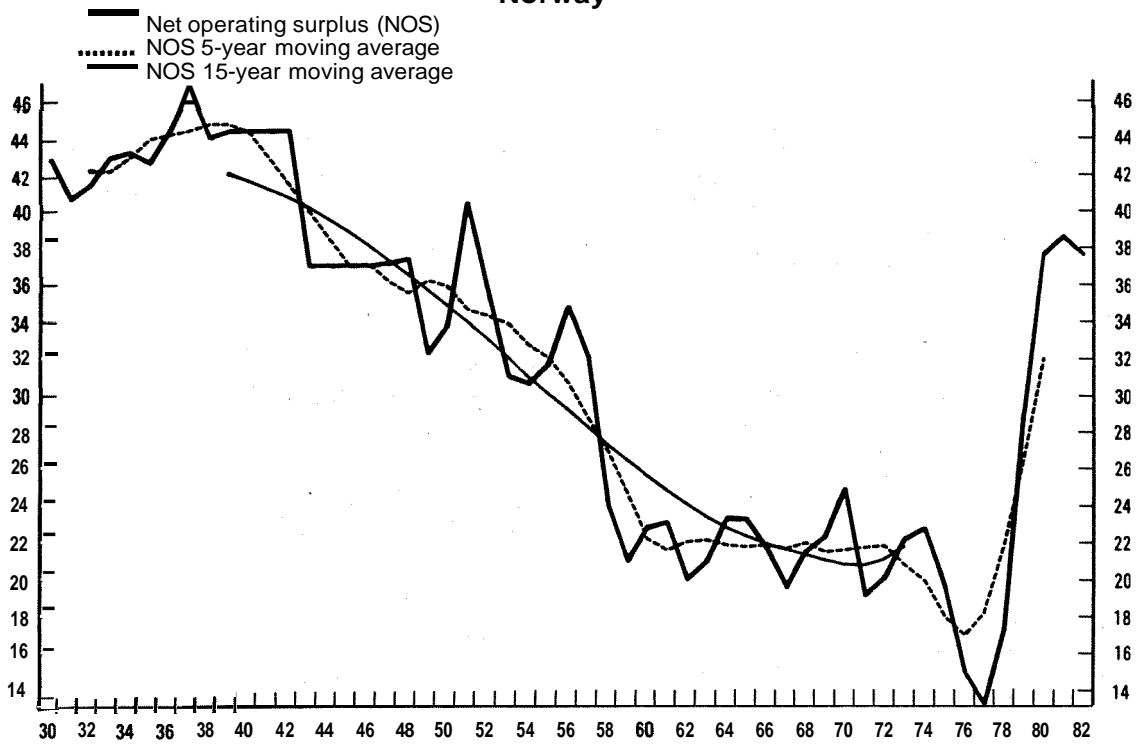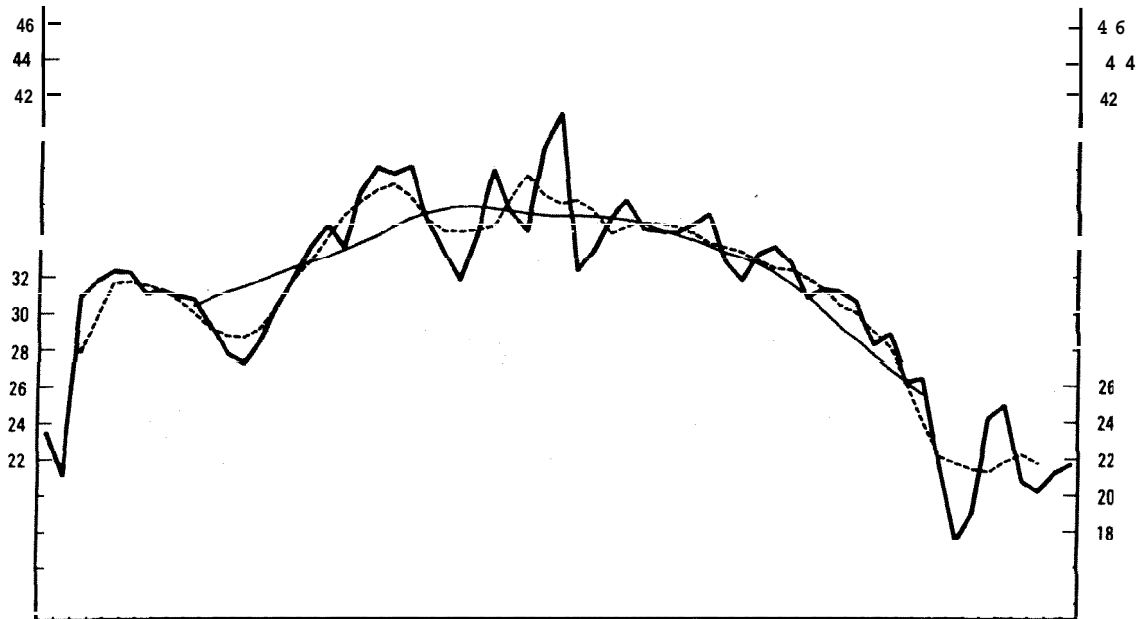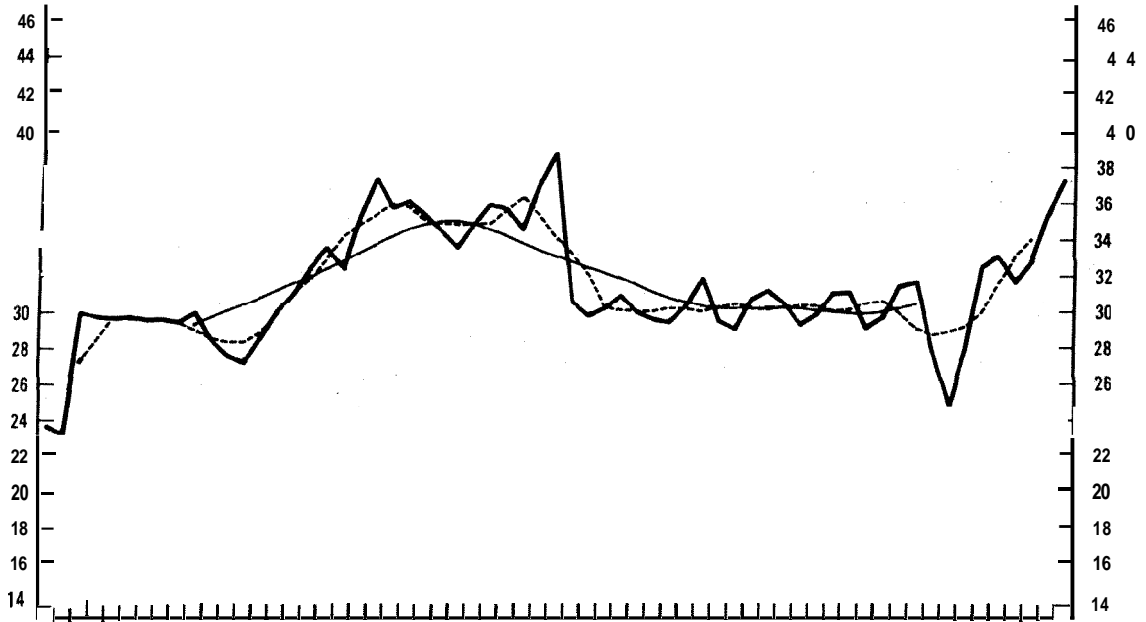which sector is examined. Indeed, overall trends are owing partly to sectoral shifts in output. The main impression of these data is that there is very limited support for long-run factor share stability as indicated by a doubly smoothed fifteen-year moving average. Some fifteen-year moving averages display persistent trends and, as well, swings of a very prolonged nature around this trend. For example, in Norway, the long-term decline in profit shares has been considerable but following a spectacular recovery in **1977,** gross profit shares (in industry, transport and communications) in **1981** to **1982** were at about the same level as in **1946** to **1947,** though well below the **1930s.** Substantial sectoral shifts seem to be responsible with, in particular, the coming on-stream of North Sea oil largely accounting for the resurgence of profits since **1977.** In Japan, net profit shares in industry and transport in the late **1960s** were similar to those ruling in **1906** to **1909** but with wide swings in long-run trends in the interim. For the United Kingdom different sector coverage gives radically different impressions concerning trends in profit shares, particularly in the 1**970s.** For industry, transport and communications gross profit shares in **1982** were markedly higher than during the great depression, with fairly marked long-run swings and a pronounced recovery in the late **1970s** related to the emergence of North Sea oil. By contrast, the manufacturing sector, with North Sea oil excluded, yields the opposite impression, particularly in the **1970s.** Finally, a comparison of long-term trends for U.S. gross and net profit shares of non-financial corporations suggests by far the greatest degree of stability, apart from a sharp drop from **1932** to **1933** when net profit shares were actually negative. However, the long-run trend appears to indicate a gradual downward drift over time.

These data imply that clearly separating trend and cycle with the sort of sample period available for most countries is not possible. Data limitations mean that sample periods will at best begin in the mid-1950s and usually the **1960s.** The focus must therefore be on five- or ten-year "trends" which will be sensitive to differing amplitudes of short cycles within the sample period and which may in fact be parts of longer cycles themselves. From a longer perspective the **1960s** were a particularly favourable environment for growth and productivity gains. It is probably a mistake therefore to regard any current "trends" as departures from some "normal" level of profitability. Changes in profit shares, often quite sustained, appear to be the true norm. That is not to say they are always desirable or to be regarded with fatalism.

B.   Compositional problems

i)   *Choice of sectors*

As the previous section suggests the level of sectoral aggregation can greatly influence observed tendencies. In this report rates of return are shown for three

sectors of the economy: *i)* industry, transport and trade, *ii)* industry and transport, and ▇)manufacturing. Several considerations entered into the choice of these sectors. First, it would not be appropriate to calculate rates of return for agriculture and banking since their profits are mainly a return to, respectively, land and financial assets, both of which are excluded from the stock of fixed reproducible assets which constitutes the denominator in the rate of return. Second, rates of return for governments are not included, although their capital stock is large, because it consists mainly of infrastructure on which they earn no operating surplus. However, the corresponding operating surplus is included in the return to other sectors or even factors. For instance, the operating surplus on roads accrues to the transport and other sectors while that on education is part of the return on human capital. No attempt has been made to estimate this effect because of the difficulty of valuing and apportioning the surplus and because of inter-country differences in the boundary between public and private sectors. Third, it also seems best to omit the real estate sector because the return on dwellings is hard to impute. Omission of agriculture, banking, government and real estate defines the first of the sectors mentioned above —*industry, transport and trade* or the total business sector. "Industry" here covers mining and quarrying, manufacturing, electricity, gas and water supply and construction: "transport" includes also storage and communications; and "trade" covers retail and wholesale trade, hotels and restaurants.

While there must obviously be considerable interest in this sector because of its broad coverage, there are at least two problems in interpreting its measured rates of return. A large part of the operating surplus earned in retail and wholesale trade is presumably a return to investment in stocks which, however, are excluded from the denominator of the rate of return. In general, this will mean that measured rates of return are overstated. However, this appears to be a minor problem as there will be no systematic bias in trend unless stock/output ratios have changed over time due to improved inventory management techniques. There is the additional problem that operating surplus for retail trade, hotels and restaurants will, in most countries, include a large element of income from self-employment — a problem that is discussed below. Omission of "trade" leaves the second sector mentioned above, *industry and transport.* Finally, rates of return are shown for *manufacturing,* not only because of its inherent interest as a tradeable goods sector, but also because in most countries the operating surplus of this sector contains an insignificant amount of income from self-employment, so that rates of return for manufacturing are "purer" than for the other sectors shown.

ii) Income from self-employment

In the national accounts the value added of various industry groups is broken down only into compensation of employees and operating surplus, with the latter incltidingall income from self-employment. However, it can be argued that income of

self-employed persons represents a return to the labour services that they provide as well as a return to invested capital, and in some studies attempts are made to divide self-employment income between compensation of employees and operating surplus. The problem is that there are two ways this can be done – by imputing a wage to labour services or by imputing an operating surplus to invested capital. Both are equally plausible, but if both imputations are made simultaneously they rarely sum to the total income of the self-employed. Usually they sum to more than that total, which implies that self-employed persons are prepared to accept less than the market rate for their labour, or their invested capital, or both. In practice, most attempts to apportion self-employment income are based on a wage imputation because data on self-employed are more readily available than capital invested in unincorporated enterprise. But this is a matter of convenience and it is just as plausible to assume that the self-employed earn a below-average wage as it is to assume a below-average return on their investment.

If the purpose is to study labour income or returns to capital in isolation, it may be defensible to divide self-employment income using one or the other of these assumptions. However, in the present study principal interest focuses precisely on the shares of value added appropriated by capital and labour, and the Statistics used to examine this question should not contain prior assumptions with respect to those factor shares. Consequently, no adjustment is made in this study, and operating surplus in the rates of return shown below includes all self-employed income.

One way of avoiding this problem would be to confine the analysis to the corporate sector, but unfortunately only four OECD countries compile capital stock statistics for this sector. As noted above, the manufacturing sector usually includes relatively few self-employed persons, but the other two sectors may include substantial numbers of self-employed. The inclusion of income from self-employment will tend to overstate rates of return because the operating surplus includes some labour income. This will affect both inter-country comparability if self-employment is more common in some countries than in others, and inter-temporal comparisons if the proportion of self-employed persons in the labour force changes from one period to another.

Table 1 provides some indication of the size and direction of the possible distortions. It shows the self-employed as a percentage of the non-agricultural civilian labour force in the fourteen OECD countries covered in this study over the period **1955** to **1982.**

There is obviously considerable variation between countries with regard to the importance of self-employment, and it seems clear that for the two broader sectors – *industry, transport and trade,* and *industry and transport* – the levels of rates of return and profit shares cannot legitimately be compared across all fourteen countries. However, inspection of Table 1 suggests that the fourteen countries can be divided into three relatively homogeneous groups – a high self-employment group, Japan and Italy (20-30 per cent of non-agricultural employment), a low

Table 1. Self-employed persons as a percentage
of non-agricultural civilian employment

	1955-59	1960-64	1965-69	1970-74	1975-79	1980-82
United States	..	11	9	7	7	*8*
Japan	31	26	23	22	21	21
Germany	13	12	11	10	9	9
France	18	16	14	12	11	11
United Kingdom	6	6	6	7	7	**8**
Italy	..	25	25	23	23	23
Canada	9	9	8	7	7	7
Australia	..	..	11	10	12	13
Belgium	18	17	16	15	14	14
Denmark	..	..	14	13	11	11
Finland	..	..	8	*6*	5	5
Netherlands	16	14	13	11	9	9
Noway	11	10	9	9	8	8
Sweden	..	..	8	5	5	5

Source: **OECD,** *Labour Force Statistics.*

self-employment group, Canada, the United States, Finland, Norway, Sweden and the United Kingdom (under 10 per cent), and a middle group consisting of Australia, Belgium, Denmark, France, Germany and the Netherlands (between 10 and 20 per cent). For countries within these groups, profit levels may be reasonably comparable.

As regards changes over time, Table 1 shows that with the exceptions of Australia and the United Kingdom, self-employment shares have been falling throughout the period. The effect of this will be to exaggerate the decline (or understate the increase) in operating surplus as measured in the national accounts because income that was formerly included in operating surplus will now be counted as wages and salaries. However, most of the decline occurred in the period up to 1969. From 1970 onwards, changes in self-employment percentages were generally quite small, and could hardly have had any measurable effect on changes in rates of return or profit shares.

C. Rates of return, profit shares and capital productivity

This section examines gross rates of return and gross profit shares for a selection of OECD countries over the period 1960 to 1982. A later section shows the effect of removing interest and tax payments from gross operating surplus. The gross rate of return is defined as the ratio of the gross operating surplus *(P)* to the

Table 2. Gross rates of return in selected OECD countries

	Total business sector				Industry and transport				Manufacturing			
	1960	1973	1982	Trend	1960	1973	1982	Trend	1960	1973	1982	Trend
United States	16.2	14.5	10.9	−2.1*	..	..	..	..	18.9	18.5	10.6	−2.7*
Japan (1965-81)	..	..	..	..	..	..	..	..	33.3	32.4	20.7	−4.9*
Germany (1960-81)	24.3	17.2	14.5	−2.0*	20.4	14.2	11.0	−2.3*	26.2	16.5	11.7	−3.0*
France (1967-79)	21.7	22.9	19.3	−1.9*	14.4	15.6	12.1	−2.4*	15.6	18.2	13.8	−2.7*
United Kingdom	13.3	11.0	10.1	−1.9*	10.1	8.7	8.8	−1.1*	16.4	9.5	5.5	−5.3*
Italy (1970-80)	..	..	..	..	..	..	..	..	17.7	16.9	19.2	0.1
Canada	13.3	13.6	9.7	−0.8*	10.3	10.8	7.5	−0.8*	15.3	15.3	6.7	−2.0*
Belgium (1970-81)	28.4	27.5	22.9	−1.4*	17.0	17.0	14.6	−1.1*	17.1	17.2	10.7	−4.7*
Finland (1971-79)	10.3a	8.5	7.6	−4.3*	9.6	10.1	9.4	−2.9	13.4	14.3	14.1	−2.8
Norway (1962-77)	..	..	..	..	..	..	..	..	7.7	10.2	7.1	0.8
Sweden (1963-82)	11.8	10.4	8.3	−2.8*	9.9	9.8	7.2	−2.6*	11.8	9.1	5.9	−5.2*

a) 1970.

Notes:
1. The total business sector is defined to exclude the government, financial and farm sectors. It is items 2, 3, 4, 5, 6, 7 and 9 of Table 2, OECD *National Accounts.* Industry and Transport is items 2, 3, 4, 5 and 7. Manufacturing is item 3 only.

2. The trends have been fitted for the period 1960-82 or the period indicated in brackets by taking the logarithm of gross operating surplus over the gross capital stock in each sector as a function of time: $\log GOS/GCS = a + bt$. The trend column shows the b coefficient multiplied by a hundred. One asterisk indicates significance at the 5 per cent level. *GOS* and *GCS* are measured at current prices.

3. When data were not available for the whole period the actual dates are shown in the table.

Source: OECD, *National Accounts* and capital stock files.

	Total business sector				Industry and transport				Manufacturing			
	1960	1973	1982	Trend	1960	1973	1982	Trend	1960	1973	1982	Trend
United States	30.8	28.1	27.6	−0.6*	30.3	28.8	30.0	−0.2	25.2	24.7	21.2	−0.8*
Japan	54.0[a]	47.9	38.6	−2.6*	53.1	47.4	42.3	−1.3*	57.6	51.5	42.3	−1.9"
Germany (1960-81)	45.2	38.3	38.0	−0.7*	40.8	32.7	29.8	−1.3*	39.1	31.2	25.6	−1.7*
France (1967-79)	44.3	42.7	39.9	−1.2*	35.8	35.1	32.9	−1.3*	33.5	34.3	30.1	−1.6"
United Kingdom	32.3	31.9	34.7	0.1	31.7	31.5	37.1	0.4	35.3	26.3	21.5	−2.8*
Italy (1970-82)	51.7	49.1	48.3	-0.6	36.7	34.1	38.2	0.8	34.1	32.9	35.3	−1.0
Canada	37.1	37.1	36.0	-0.1	36.3	37.9	37.7	0.2	33.4	32.3	24.7	−0.6*
Belgium (1970-81)	49.7	46.3	41.4	−1.5*	38.4	35.4	32.2	−1.5*	36.3	33.2	20.8	−5.5"
Finland	41.4	33.8	32.5	−1.0*	40.3	36.3	37.5	−0.2	42.4	37.1	34.3	−0.6"
Norway	39.0[b]	35.5	47.1	0.3	36.5	36.6	50.5	1.1*	30.1	31.1	25.5	−0.2
Sweden	31.7'	30.7	30.4	−1.0*	36.0	32.5	32.6	−0.8*	33.9	25.5	23.7	−2.4*

gross stock of fixed reproducible assets (K). In analysing changes in this rate it is helpful to decompose it into the share of gross operating surplus in gross value added (Y), and the ratio of gross value added to the capital stock, i.e. $P/K = P/Y.Y/K$. To simplify the terminology, P/K will be referred to as the rate of return, P/Y as the profit share, and Y/K as capital productivity.

Tables 2 and **3** show as many of these ratios as are available for **industry, transport and trade** (total business sector), **industry and transport,** and **manufacturing.** Absolute values of gross rates of return (Table 2) and gross profit shares (Table 3) are shown for **1960** and the latest dates available. The mid-point, **1973,** corresponds to a cyclical peak before the first oil shock; the last date available typically represents a cyclical trough. A principal purpose of this section is to see whether there has been a statistically significant secular decline in rates of return and profit shares. This has been approached through the fitting of a time trend. Virtually without exception time trends are statistically significant, regardless of sample periods, over the **1960s** to the **1980s.** In Chart **2,** profit shares, rates of return, investment and real interest rates are shown for the manufacturing sector in eleven countries[2].
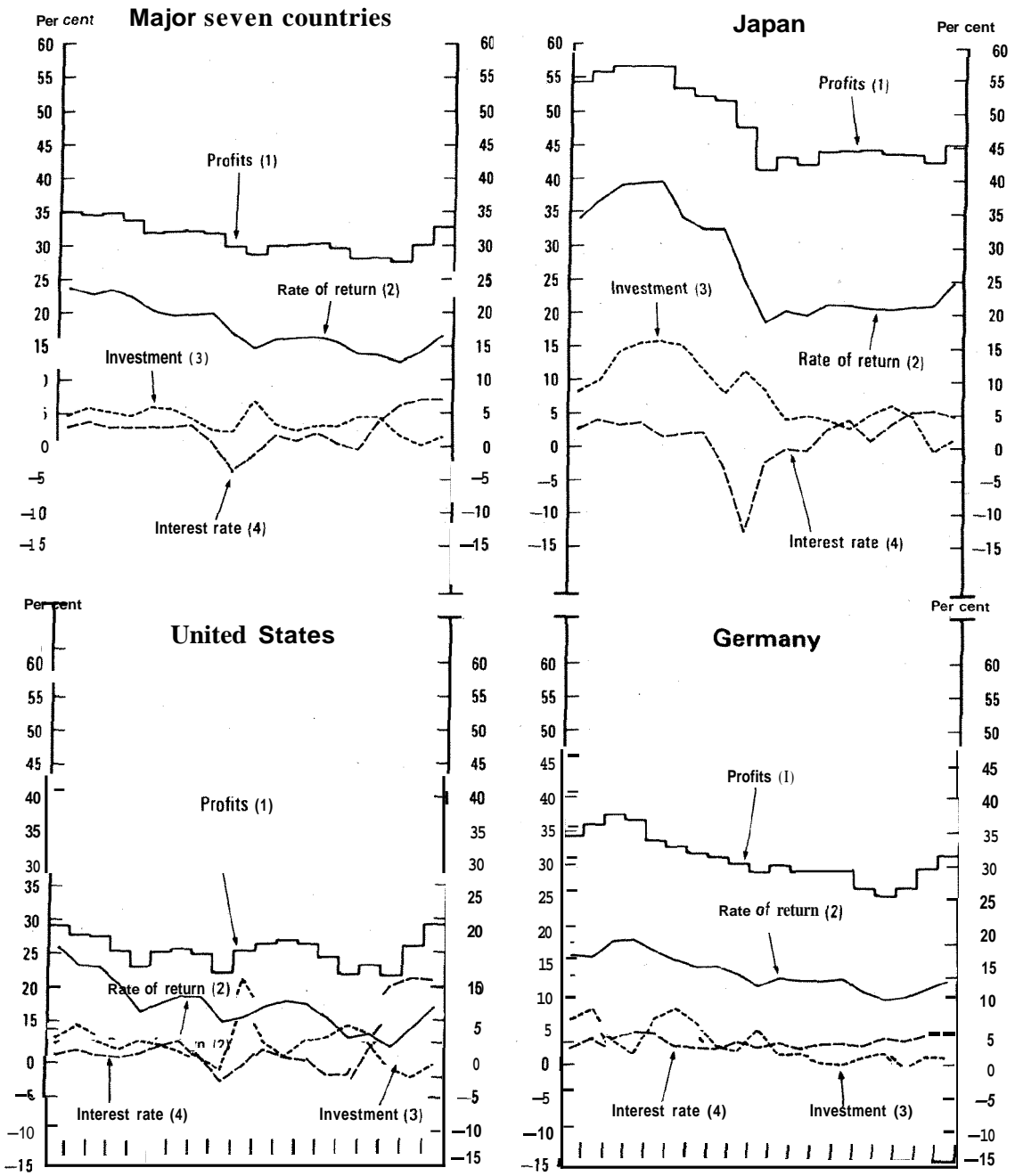
i)   Rates of return

Table 2 and Chart 2 show a widespread trend decline in profit rates for the period as a whole. However, the general negative trend conceals a good deal of variation over the sample period. In the **manufacturing** sector, the decline set in only after **1973** in Japan, France, Belgium and Norway, while in Finland gross rates of return remained broadly constant (but data are available for only the **1970s)**; in Italy they picked up in **1980.**

Trend declines were less marked at higher levels of aggregation, with, in **industry and transport,** only Germany and Canada declining throughout. Falling rates of return set in only after **1973** in France and Belgium. In the **total business** sector the rate of decline on average was just over half that in manufacturing, though there was a smoother pattern throughout the period in most countries for which data are available. The most marked decline was in Germany, where rates of return fell 10 percentage points between **1960** and **1982.** Falling profit rates became apparent in France and Canada only after **1973.**

There are apparently large differences in rates of return among countries. In **manufacturing,** for example, the highest rate of return is between three and four times higher than the lowest. For the broadest sector, **industry, transport and trade,** the spread is smaller but the highest rates are still two or three times higher than the lowest rates. These differences may, in part, be due to the inclusion of self-employment income in operating surplus, which, as noted in Part II.B.*ii)*, will tend to overstate rates of return. In general, countries with high rates of return tend to fall in the "high" and "medium self-employment" categories identified earlier,

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CHART 2

PROFITS, RATE OF RETURN AND INVESTMENT
IN MANUFACTURING

Major seven countries

Per cent

Profits (1)

Rate of return (2)

Investment (3)

Interest rate (4)

Japan

Per cent

Profits (1)

Investment (3)

Rate of return (2)

Interest rate (4)

United States

Per cent

Profits (1)

Rate of return (2)

Interest rate (4)

Investment (3)

Germany

Per cent

Profits (I)

Rate of return (2)

Interest rate (4)

Investment (3)

1. Gross operating surplus as a percentage of gross value added
2. Gross operating surplus as a percenrage of gross *capital stock*
3. Growth of real gross capital stock
4. Long-term government bond yields *less* the rise in consumer prices

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CHART 2 (cont)

PROFITS, RATE OF RETURN AND INVESTMENT
IN MANUFACTURING

1. Gross operating surplus as a percentage of gross value added.
2. Gross operating surplus as a percentage of gross capital stock.
3. Growth of real gross capital stock.
4. Long-term government bond yields *less* the rise in consumer prices

CHART 2 (cont)

PROFITS, RATE OF RETURN AND INVESTMENT
IN MANUFACTURING

Belgium

Norway

Finland

Sweden

1. Gross operating surplus as a percentage of gross value added.
2. Gross operating surplus as a percentage of gross capital stock.
3. Growth of real gross capital stock.
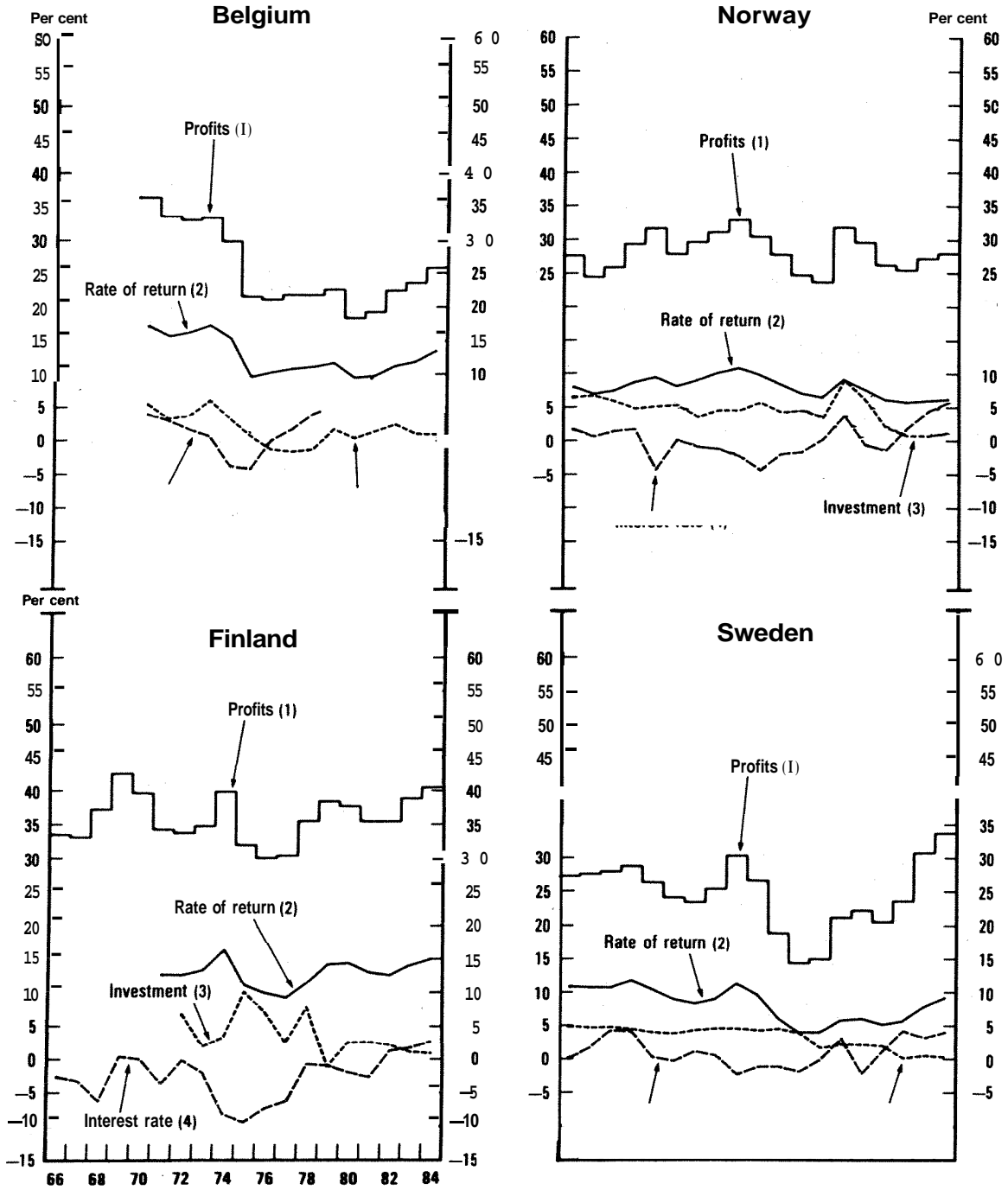4. Long-term government bond yields *less* the rise in consumer prices

while those with low rates of return are those with low proportions of self-employed. Nonetheless these differences are quite large and do not appear to have been eroded with time. Shifts in self-employment also affect sectoral patterns. The movement out of self-employment had been faster in the broader sectors in the 1950s and 1960s. However, as noted in II.B.*ii)* above, this movement stopped in the early 1970s. This makes the faster fall in rates of return in manufacturing in the 1970s even more striking.

Differences in depreciation rates appear to be associated with inter-country variance in rates of return. Countries with above-average depreciation rates also tend to have above-average rates of gross return. Depreciation rates are inversely related to the average service lives of capital assets — the shorter the life, the higher the rate of depreciation. In general, countries with low rates of return — Sweden, Finland and the United Kingdom— are those where fixed assets have (or are assumed to have) relatively long service lives, while in Japan, France and Belgium where rates of return are high, asset service lives are relatively short. It is difficult to say what economic factors this observed association reflects. Issues in capital measurement are discussed in Chan-Lee and Sutch (1985, Annex), and Blades (1983).

Despite somewhat mixed sector and country trends, regression analysis reveals statistically significant negative time trends in almost all cases. The decline after 1973 was general and particularly marked in manufacturing. These results contrast with the view that the trend decline in profit shares and rates of return is largely a European and Japanese phenomenon, as found in earlier empirical work[3].

ii) *Profit shares*

Declining rates of return reflect to some extent the concomitant fall in profit shares (Table 3), which was, however, generally only half as sharp as that in rates of return. In the *total business* sector the decline was most evident in France, Belgium and Finland, and somewhat less so in the United States, Germany and Sweden. No significant trend is present for the United Kingdom and Canada, in either this sector or in *industry and transport.* This probably reflects the importance of energy sectors in these countries. Again, declines are more marked in the *manufacturing* sector, with the United Kingdom, Sweden and Belgium showing the most rapid falls.

Profit shares are affected by self-employment income in the same way as rates of return. Countries with high self-employment shares will tend to have high profit shares, and the decline in the relative importance of self-employment will also exaggerate the decline in profit shares.

a) *Productivity trends*

As movements in profit shares explain only a part of the decline in rates of return, the behaviour of capital productivity must account for the remaining fall.

Since 1973, capital productivity — as measured by the ratio of gross value added to gross capital stock — has fallen in the *total business* sector in all countries for which data are available, the United Kingdom apart. Before that date, the picture was more mixed, with increases recorded in the United States, Canada and France. In Germany, capital productivity has declined almost continuously throughout the period. These trends no doubt reflect the continuing growth of capital/labour ratios despite a marked slowing in output growth after the first oil shock.

Trends in *industry and transport* are broadly similar to those in the *total business* sector, while the deceleration in rates of growth or actual fall in capital productivity is much sharper after 1973 in the *manufacturing* sector than in sectors at a higher level of aggregation. The contrast between periods is also more marked, with a larger number of countries showing gains in capital productivity between 1960 and 1972, yielding to declines thereafter. The reversal in the United Kingdom is particularly marked: from a 4.8 per cent positive growth rate to a decline of 2.6 per cent in the later period.

The continuing very large differences in the level of capital productivity between countries remain somewhat puzzling. In manufacturing, capital productivity ratios in Japan, Germany and the United States were nearly twice as high as those for Norway, Sweden and the United Kingdom. Another striking difference is the gap between Canadian and U.S. capital productivity, despite a similar technological base. However, this gap is entirely accounted for by the shorter service life assumptions in the United States. Hence, while some part of inter-country variances in capital productivity must reflect real differences, a significant part must also reflect differences in capital-stock estimates, stemming from radically different, and finally arbitrary, assumptions about service lives and scrapping. However, trends in rates of return are less likely to be open to misinterpretation than levels,

The data presented in Tables 2 and 3 are subject to cyclical as well as trend influences. To illustrate shifts in trends, a nine-year moving average (to represent average utilisation rates) was fitted. As might be expected, the results show that 1982 to 1983 profit rates were well below trend. However, as can be seen from Chart 2, there was a clear downward trend in profit shares and rates of return even before 1973 in most countries; this phenomenon was not confined to Europe and Japan. Cyclical and special factors thus appear to account for only a part of the depressed profits picture seen in past years.

Overall, it appears that downward movements in capital productivity are the most important factor underlying falling rates of return; though declining profit shares also contribute to this outcome. This conclusion appears robust given the evidence of statistically significant time trends in almost all countries and sectors for which data are available.

b) Labour productivity

Capital productivity is only one aspect of overall productivity trends. To put capital productivity in perspective the growth of employment, capital stock and gross value added is shown in Table 4. Movements in labour, capital and total factor productivity are shown in Table 5.

Labour and capital productivity can move together or in opposite directions depending on whether capacity utilisation or substitution effects dominate. Labour productivity is probably less susceptible to errors of measurement than capital productivity, although numbers employed are not adjusted for changes in hours worked, except in the manufacturing sector where the data permit it. The picture is more uniform over time and across countries and sectors. Comparatively strong rates of increase were evident throughout both periods in all countries (except the United Kingdom where a marginal decline was recorded in the earlier period). Growth is particularly marked in the manufacturing sector. However, a deceleration after 1972 is noticeable in many countries, which becomes more widespread on moving from total business to the manufacturing sector. Rates and levels, on the other hand, generally remain higher in manufacturing.

These tendencies appear to be general. Although there were important differences between North America and Europe, particularly with regard to employment generation, the trend change in labour productivity was common. However, the deceleration in labour productivity occurred from much higher rates of growth in Europe and rates remained positive and significant; the observed growth in labour productivity in the United States in the later period is barely positive in the total business sector. The United States and Canada also showed the lowest growth rates of labour productivity in manufacturing throughout both periods.

The growth of labour productivity through the 1960s appears to be closely associated with continuing growth in real wage and non-wage labour costs. In a situation of constrained labour supply, continual substitution took place. Any decline in profit shares during this period can credibly be ascribed to a rise in the relative cost of labour while substitution possibilities were not great enough to fully compensate. However, there is little sign of an acceleration in labour productivity in the 1960s; if anything the trend showed signs of weakening roughly in line with capital productivity. Later at the end of the 1960s or early in the 1970s the trend of labour productivity growth turned downwards fairly clearly and generally. In the United States the decline seems to date from the late 1960s – roughly the same period as the decline in the profit share – elsewhere it coincided with the first oil-price shock.

Capacity utilisation series running from the 1950s are available only for the United States. There capacity utilisation was indeed higher in the 1960s than the 1950s, but it peaked in 1966 before the profit decline began. Unemployment hit its

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Table 4. Employment, capital stock and real gross value added
Compound, annual growth rates

	Total business						Manufacturing					
	Labour		Capital		Real gross value added		Labour		Capital		Real gross value added	
	I	II	I	II	I	II	I	II	I	II	I	II
United States	2.1	2.1	3.7	3.6	4.1	2.4	1.2	−0.5	2.9	3.5	5.4	1.3
Japan	..	..	..	..	..	..	2.2	−0.4	12.9ᵃ	5.9	13.5ᵃ	6.3
Germany	0.7	−0.4	6.5	3.9ʰ	5.3	2.8ʰ	−0.5	−2.5	7.0	2.2	5.6	1.5
France	..	..	5.5ᵏ	4.8ʰ	7.5ᶜ	4.0ⁱ	0.8	−2.1	5.5	4.4	8.3	2.0
United Kingdom	−0.5ᶜ	−0.9ᵍ	3.2	2.8	1.5	3.3	−1.5	−3.6	3.4	2.0	2.2ᵇ	−0.6
Italy	..	..	..	..	..	..	−0.1	−0.9	4.9ᵉ	2.8	7.0ᵃ	3.5
Canada	3.1ᵇ	2.7ˡ	5.0	5.3ˡ	6.3ᶜ	3.8	1.6	−0.5	4.8	4.0	6.6ᶜ	0.2
Belgium	0.3ᵈ	−1.5	5.5	3.1	5.1ᵈ	2.7	−0.2	−4.3	6.0	0.3	8.4ᵈ	1.4
Finland	2.2	0.4	6.5ᵈ	4.7ⁱ	5.7	2.9	..	..	6.7	3.2	6.8	3.6
Norway	..	..	..	..	..	..	0.4	−1.8	5.6ᵉ	4.9	5.8ᵉ	0.7
Sweden	0.58	−0.1	4.6ᵉ	3.7ʰ	3.8ᶠ	1.7	−1.3	−2.1	4.7ᶠ	3.7	5.3	0.3

a) 1965-72. b) 1966-72. c) 1961-72. d) 1970-72. e) 1962-72. f) 1963-72. g) 1971-72. h) 1972-80. i) 1967-72.
j) 1972-79. k) 1964-72. l) 1972-82.

Notes: I = 1960-1972 or earliest available data.
II = 1972-1981 or latest available date in total business sector: 1972-1982 in manufacturing.

Source: OECD, *National Accounts* and capital stock files.

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Table 5. **Labour, capital and total factor productivity**

Compound annual growth rates

	Total business						Manufacturing					
	Labour		Capital		Total factor		Labour		Capital		Total factor	
	I	II	I	II	I	II	I	II	I	II	I	II
United States	2.0	0.3	0.4	−1.2	1.5	−0.1	4.1	1.8	2.4	−2.2	3.7	0.8
Japan	..	..	..	..	..	..	11.8 *a*	6.7	0.5 *a*	0.4	7.5 *a*	3.7
Germany	4.6	3.2 *h*	−1.1	−1.0 *h*	2.6	1.5 *h*	6.2	4.1	−1.2	−0.7	4.2	2.6
France	..	..	2.2 *i*	−0.9 *j*	..	..	8.3	4.2	2.6	−2.3	6.2	2.2
United Kingdom	2.0 *c*	4.0	−1.6	0.5	1.3 *c*	2.2	−0.5 *b*	3.1	4.8 *b*	−2.6	3.4 *b*	1.6
Italy	..	..	..	..	..	..	5.7 *d*	4.4	−2.4 *d*	0.7	2.9 *d*	3.2
Canada	2.5 *b*	2.9	1.2 *c*	−1.4	1.76	−0.3	4.7 *c*	0.7	1.6 *c*	−3.8	3.8 *c*	−0.6
Belgium	4.7 *d*	4.2	0.0 *d*	-0.5	2.4 *d*	2.1	11.1 *d*	6.0	4.8 *d*	1.1	10.9 *d*	4.6
Finland	4.2	2.6	−0.5 *d*	−2.0 *j*	2.2 *d*	0.9 *j*	..	..	5.0s	0.4		
Norway	..	..	..	..	..	..	5.5 *e*	2.6	0.2 *e*	−4.0	4.5 *e*	0.6
Sweden	3.5 *i*	1.9	−0.7 *f*	−1.6 *h*	2.4 *f*	1.0 *h*	6.7	2.5	0.1 *f*	−3.2	5.3 *f*	0.9

a) 1965-72. *b)* 1966-72. *c)* 1961-72. *d)* 1970-72. *e)* 1962-72. *f)* 1963-72. *g)* 1971-72. *h)* 1972-80. *i)* 1967-72. *j)* 1972-79.

Notes: I = 1960-1972 or earliest available data.
   II = 1972-1981 or latest available date in total business sector; 1972-1982 in manufacturing.

Source: OECD, National Accounts and capital stock files.

record low in 1968. The subsequent decline of labour productivity growth in the 1970s in many countries is influenced by lower levels of capacity utilisation.

c) Total factor productivity

In North America, the combined effect of low growth in labour productivity and falling capital productivity yielded small negative growth in total factor productivity after 1973, at least in the total business sector. In Canada, total factor productivity also fell slightly in the manufacturing sector. The contrast with Europe is striking. Although most European countries showed decelerating growth rates in total factor productivity in the later period, it generally held up relatively well. The United Kingdom provided one exception: the growth rate in the total business sector, due to North Sea oil, rose after 1973.

Because the period 1972-1982 moves from, roughly, a cyclical peak to a cyclical trough, Tables 4 and 5 were recalculated for the periods 1960 to 1975 and 1975 to 1982 (approximately trough to trough). The tenor of the results did not change markedly, although some differences arose[4].

D. Pressures on firms and an alternative measure of profitability

i) Net interest payments and post-tax profits

a) Net interest payments

The figures cited above are the best available indicators of trends in profit shares and rates of return; they use clear and consistent definitions of both variables and provide a reasonably accurate measure of the average return to productive activity. It could be argued, however, that these definitions are poor indicators in that they ignore some influences crucial to firms. In particular, with the marked rise of nominal interest payments and the limited possibilities for changing the firm's structure of finance, it can be argued that the 1970s represented a more stringent time for companies than represented by gross profit figures in National Accounts. For this reason, an attempt has been made to present trends in operating surplus adjusted for net interest payments. Table 6 indicates that, in all cases shown, the faster growth of the net interest burden substantially reduced the growth rates of both gross and net operating surplus as adjusted. These figures are available only for non-financial corporate and quasi-corporate enterprises as a whole, and not for the three sectors discussed earlier, *so* only broad comparisons can be made. Comparable measures of profit share and rates of return in the overall non-financial sector cannot be obtained. Furthermore, this is only a partial adjustment as it does not take into account the offsetting balance sheet improvement obtained by companies from the devaluation of their debt; it should therefore be regarded as indicating pressure on cash flow rather than on overall profitability. A more thorough

Table 6. **Gross and net operating surplus
before and after net interest payments**

Compound annual growth rates over the period 1970-1982, nominal values

	Gross operating surplus	Net[a] operating surplus	Net interest payments	Gross operating surplus after deduction of net interest payments	Net operating surplus after deduction of net interest payments
United States	10.9	9.8	14.6	10.2	7.8
Japan	8.5	7.6	12.5	7.1	4.1
Germany	6.9	5.8	11.7	6.0	3.9
France	11.5	8.4	16.7	9.9	*−0.2*
Italy	18.1	14.5	25.9	14.1	*b*
Austria	11.1	10.7	19.6	9.2	7.6
Finland	14.1	15.0	21.4	11.8	9.3
Switzerland	11.9	9.7	14.8	10.8	1.3

a) **Net operating surplus is gross operating surplus minus depreciation at current cost.**
b) **Compound growth rate cannot be calculated because final figure is negative.**
Source: **OECD,** *National Accounts* **files and Secretariat calculations.**

review, but for fewer countries, is presented below in the section on returns to equity.

b) Post-tax profits

After-tax profits are key for firms but data are difficult to obtain. Difficulties of taking into account the full complexity of the tax structure, the lagged nature of tax payments and offsets, and the occurrence of large tax changes affecting capital and income from capital mean that tax paid in one year cannot be directly related to income earned in that year, and even less to income from a specific investment.

However, corporate tax as a proportion of total tax receipts has fallen steadily in most countries since 1955. This is also the trend shown in direct tax paid as a proportion of gross and net operating surplus in the non-financial corporate sector, although here the exceptions are more striking. However, in the majority of countries, corporate tax burdens appear to have declined since 1955. The decline in **pre-tax** profit shares and rates of return referred to above has probably been cushioned by the tax system. Tax relief appears to have followed a perception that profit shares had been eroded. However, it is not clear whether the continuing decline in profit shares and rates of return was independent of the tax relief, as it may have permitted the adoption of less productive projects and/or a shift to the labour share. In any case, the decline in pre-tax profit was modified and, in some cases, possibly reversed. The high nominal interest rates of recent years are in almost all

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Table 7. Direct taxes and net interest payments as a percentage of gross and net operating surplus in the non-financial corporate sector

		1970-75	1976-81	1982	1983
United States	Direct tax/GOS	19.7	17.8	9.5	11.1
	Direct tax/NOS	33.3	29.8	18.4	19.9
	Tax + int./GOS	33.8	32.9	30.6	28.8
	Tax + int./NOS	57.2	56.8	59.1	51.8
Japan	Direct tax/GOS	15.7	17.3	18.8	17.2
	Direct tax/NOS	25.6	27.7	31.0	30.2
	Tax + int./GOS	46.1	50.7	51.4	51.0
	Tax + int./NOS	75.5	81.4	84.8	86.9
Germany[a]	Direct tax/GOS	7.4	7.9	5.7	..
	Direct tax/NOS	17.5	18.7	13.0	..
	Tax + int./GOS	39.3	39.2	42.4	..
	Tax + int./NOS	92.6	92.7	96.6	..
France	Direct tax/GOS	12.9	14.2	13.8	12.6
	Direct tax/NOS	22.1	30.1	34.9	30.6
	Tax + int./GOS	34.8	38.5	44.6	43.7
	Tax + int./NOS	60.0	82.0	113.1	106.5
Italy	Direct tax/GOS	11.2	14.8	17.7	..
	Direct tax/NOS	25.9	35.3	41.8	..
	Tax + int./GOS	44.7	59.6	66.5	..
	Tax + int./NOS	103.2	142.8	156.5	..
Australia	Direct tax/GOS	21.5	19.8	17.8	13.2
	Direct tax/NOS	30.1	26.5	24.8	17.5
	Tax + int./GOS	42.4	47.7	58.7	49.7
	Tax + int./NOS	59.2	63.9	82.1	65.7
Finland	Direct tax/GOS	9.1	9.2	9.2	8.7
	Direct tax/NOS	19.0	23.0	20.5	17.3
	Tax + int./GOS	30.6	40.0	40.2	35.8
	Tax + int./NOS	63.7	100.0	89.8	71.3
Sweden	Direct tax/GOS	8.3	9.0	8.3	9.6
	Direct tax/NOS	16.8	27.4	19.8	19.3
	Tax + int./GOS	34.4	48.6	44.0	39.2
	Tax + int./NOS	69.3	148.1	104.9	79.3

a) Because of different national accounts conventions, figures for Germany consistent with those for other countries could not be obtained directly. The Secretariat has developed a measure for operating surplus minus an estimate for that of quasi-corporate enterprises so that it corresponds more closely to the income figure on which direct tax is levied. The level is indicative only, but the movements over time should be reliable.

Note: Tax + int. is the sum of direct taxes and net interest payments and GOS(NOS) is gross (net) operating surplus. The averages for 1970-75 and 1976-81 are obtained by dividing the sum of the numerators by the sum of the denominators.

Source: OECD, National Accounts files.

cases tax-deductible for firms recording taxable profits. Calculations for gross and net operating surplus adjusted for both net interest payments and tax payments indicate that growth rates have been modified in the gross case, but remain positive in nominal terms. The figures for net operating surplus after deductions are more varied, with a fall for Japan, and absolute negative results for three countries in the last year or years recorded. Given the stable pattern of dividend payments, this suggests that some firms did not in fact make sufficient provision for depreciation, perhaps because of the use of historic cost accounting, with the consequence that they over-estimated their net operating surplus and distributed real capital. The inclusion of nominal holding gains on inventories in historic cost accounting may also have boosted the amount firms perceived as available for distribution. Alternatively, they may have regarded the drop in profits as temporary. Table 7 shows the level effects of direct taxes, and direct taxes and interest payments together, on both gross and net operating surplus. These data are in National Accounts terms where depreciation is deducted at replacement cost. Only direct taxes are shown as it is not possible to isolate other taxes paid by corporations in National Accounts data.

The difference between rates of return at current and at historic cost is illustrated by data published by the Bank of England (see Table 8). A column

Table 8. Rates of return on capital at current and historic cost; United Kingdom industrial and commercial companies[a]

Percentage

	Current cost	Historic *cost*	Inflation[b]
1965	11.2	15.8	4.7
1966	9.9	14.2	3.6
1967	10.0	13.6	2.6
1968	10.1	14.8	4.7
1969	9.9	14.9	5.4
1970	8.6	14.4	6.4
1971	8.9	15.2	9.4
1972	9.3	16.8	6.8
1973	9.1	19.7	9.2
1974	6.0	20.0	16.0
1975	5.2	18.4	24.2
1976	5.5	20.4	16.5
1977	6.9	21.1	15.8
1978	7.2	21.1	8.3
1979	5.2	20.4	13.3
1980	3.6	15.6	18.0
1981	2.7	13.2	11.9

a) **Excluding North Sea oil activity.**
b) **Percentage changes from previous year in the consumer price index.**
Source: **Bank of England Quarterly Bulletin, June 1982, p. 243.**

showing the rate of inflation has been added to the table. It can be seen that before the rapid acceleration of inflation in the 1970s the historic rate of return tended to be about one-and-a-half times the current rate of return. By the end of the 1970s the historic rate was four or five times higher. The historic rate is generally higher for two reasons. First, profits at historic cost include *nominal* holding gains, whereas current cost profits exclude them. Second, the value of the capital stock in the denominator of the ratio is artificially low because it includes capital goods valued at prices prevailing in earlier years.

Switches in the mix between operating surpluses and nominal holding gains can make the interpretation of historic cost profits *so* difficult that they become almost meaningless. Moreover, because taxes are usually calculated on the basis of profits at historic costs, nominal holding gains are actually taxed even though they are not income. Such taxation is, on average, taxation of capital rather than income. Thus, the balance between taxes on income and on capital will also tend to be shifted whenever the rate of inflation varies significantly. Various **ad hoc** measures have been adopted to lower the average burden of taxation on business, but there is no guarantee that the effective rate which emerges is appropriate to the proportion of profits which actually represents operating surplus.

ii) Rates of return to equity

The figures above give some notion of how interest and taxes impinged on firms. However, a complete statement of enterprise income must take account of net property income arising from financial assets or land, together with net real holding gains on assets of all kinds. Net property income consists of net receipts and payments of interest and rent, plus any dividends received. The rate of return to equity may then be defined as total income divided by the net worth of business, where total income covers income generated by the ownership of assets as well as by the use of assets in production. Total income as defined here cannot be derived from national income accounts, as they are based essentially on actual or imputed transactions and do not include real holding gains.

There are two kinds of real holding gains. Real holding gains or losses on monetary assets or liabilities depend on the general rate of inflation, whereas those on other kinds of assets depend on changes in relative prices and hence are irregular and unpredictable as compared with the real holding losses on monetary assets. Real holding gains or losses on a particular good may vary from period to period, whereas losses incurred by holders of monetary assets are unlikely to be cancelled out subsequently in practice. These characteristics affect the extent to which they can be regarded as current income. The distinction between current and capital items in national accounts is not very precise, and depends essentially on the frequency and predictability of the relevant transactions. It can be argued that real gains or losses on tangible assets in any particular accounting period should be

treated as capital rather than current receipts. Economic agents may regard them as temporary windfalls which may be reversed or cancelled out. On the other hand, real losses on monetary assets occur with predictable regularity. While their size may vary from period to period, so does that of other current receipts such as wages or profits. For these reasons, only real holding gains or losses on monetary assets and liabilities in income are included as income to firms in this report. There is also a practical reason for excluding real gains on non-monetary assets from income. They require detailed price and balance-sheet data, whereas real gains or losses on monetary assets or liabilities can be estimated satisfactorily by applying a single, agreed price index.

It is, however, essential to include gains or losses on monetary assets and liabilities in income as they have a direct impact on national income accounts via their counterpart in interest payments. To the extent that nominal interest payments include a compensation to creditors for expected real holding losses, the actual losses which do occur should be included in income.

Total business income as defined here consists of the operating surplus plus net property income and net real holding gains on monetary assets and liabilities. The relative importance of the three components of business income is illustrated in Table **9.** It is difficult to obtain the data needed for these comparisons and the estimates of holding gains must be treated as tentative. Real holding gains were calculated using consumer price indices and are taken from the joint OECD and EEC report by Hibbert **(1983).**

As non-financial enterprises are normally net debtors, their income, after payment of interest, is usually less than their operating profits. The extent to which enterprises rely on loan capital varies, but on balance the income accruing to shareholders (even before taxes) would be significantly less than original operating profits. In all of the five countries considered, net payments of property income (mainly net interest payments) have indeed constituted a significant charge against operating profits, although in the United Kingdom and the United States they were not quite *so* important as in France, Germany and Japan. However, in all five countries real holding gains on the net debts of enterprises have tended to offset part, or even the whole, of the payments of net property income.

During the bursts of inflation following the first and second oil shocks, real *ex post* interest rates fell. As a consequence, in four of the five countries, real holding gains on net debt equalled, or greatly exceeded, payments of property income in **1974-75** and to a lesser extent in **1979** also, the exception being Germany. In these countries income accruing to shareholders was actually equal to or greater than the profits generated by production during these periods.

In Table 10 estimates of the rate of return on equity are compared with the rate of return on production for the same five countries. The rate of return on equity is calculated as total business income as defined above divided by the real net worth of the business. In Japan and France, the rate of return on equity appears to have been

Table 9. Composition of total business income

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
United States										
Net operating surplus	96	102	101	88	80	97	97	94	92	82
Net property income	−12	−12	−11	−7	−8	−15	−8	−9	−10	−8
Net real holding gain on debt	16	10	10	19	27	18	11	15	19	27
Total business income	100	100	100	100	100	100	100	100	100	100
Japan										
Net operating surplus	127	144	115	89	74	120	150	109	129	100
Net property income	−36	−55	−38	−37	−43	−73	−86	−57	−52	−43
Net real holding gain on debt	9	11	23	58	69	53	36	48	23	43
Total business income	100	100	100	100	100	100	100	100	100	100
Germany										
Net operating surplus	111	112	108	110	112	119	114	116	119	116
Net property income	−16	−18	−18	−21	−24	−27	−22	−23	−22	−21
Net real holding gain on debt	5	6	10	11	13	8	8	7	3	5
Total business income	100	100	100	100	100	100	100	100	100	100
France										
Net operating surplus	..	101	111	103	87	100	96	84	80	76
Net property income	..	−24	−27	−27	−31	−37	−36	−25	−20	−17
Net real holding gain on debt		23	16	24	44	37	40	41	40	41
Total business income	..	100	100	100	100	100	100	100	100	100
United Kingdom										
Net operating surplus	85	81	95	86	59	51	88	79	90	..
Net property income	−13	−14	−16	−14	−23	−29	−38	−19	−15	..
Net real holding gain on debt	28	33	20	29	64	78	49	40	26	..
Total business income	100	100	100	100	100	100	100	100	100	..

lower than that on production, at least during the 1970s, whereas in Germany and the United Kingdom the two rates tended to be similar.

There have been occasions when the two rates of return have been dissimilar. For example, the sharp drop in the rate of return on production in the United Kingdom between 1974 and 1975 was not matched by as sharp a fall in the rate of return on equity. The explanation is that, in 1975, real holding gains on debt in the United Kingdom actually exceeded operating profits. Another example is France where a significant decline in the rate of return on production between 1973 and

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Table 10. Rates of return to equity and rates of return on capital in non-financial corporate sector

Percentages

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
United States										
Rate of return to equity	12.1	12.3	13.7	16.0	3.8	1.5	12.5	13.9	14.3	14.7
Rate of return to capital[a]	15.2	15.4	16.1	15.8	2.8	3.1	14.2	14.9	14.6	13.3
Japan										
Rate of return to equity	14.5	9.9	11.1	12.4	2.1	7.5	6.6	9.2	8.5	9.8
Rate of return to capital	**32.0**	24.8	22.7	19.6	5.2	3.5	14.5	14.4	15.8	14.7
Germany										
Rate of return to equity	22.0	20.6	21.2	20.7	18.9	17.0	19.0	18.3	18.0	18.1
Rate of return to capital[a]	22.0	20.4	19.9	19.4	17.7	16.5	18.2	18.4	18.9	19.2
France										
Rate of return to equity	..	7.3	7.2	7.6	8.0	5.5	4.9	6.7	7.1	7.4
Rate of return to capital	..	14.6	14.7	14.2	12.2	9.4	7.9	9.2	9.3	9.6
United Kingdom										
Rate of return to equity	7.8	8.2	7.3	7.9	7.5	6.5	4.7	7.7	7.2	..
Rate of return to capital[b]	7.8	7.8	8.0	7.8	4.9	3.6	4.3	6.6	6.9	..

a) Net rate of return for *Industry, transport and trade* used as a proxy for the *non-financial corporate sector*.
b) The coverage of these data is not exactly the same as those in Table 9.
Source: Hibbert (1983) and OECD, *National Accounts.*

1979 was not reflected in a corresponding decline in the rate of return on equity for similar reasons.

In general, the relation between rates of return on production and on equity depend on gearing ratios and ex post real interest rates. It appears that many firms increased their gearing in the 1970s to protect returns to shareholders from falling capital productivity. This process was encouraged by the tax-deductibility of interest payments, but resulted in post-war record income-gearing ratios in the late 1970s. In the event, the vulnerability of firms' finance structures to high real interest rates resulted in a higher bankruptcy rate and downgradings of credit ratings from 1979 to 1982. This may explain in part why the recent recovery in profits has been strongly reflected in a restructuring of firms' balance sheets especially in Europe, with a consequent damping effect on investment in physical capital.

Real interest rates fell sharply in 1974-75 in most countries, with large negative rates in some. In these circumstances, the effects of any decline in the rate of return on production on returns to equity are considerably mitigated, as real holding gains on debt rise relative to interest payments. Conversely, when real

interest rates rise, any decline in the rate of return on production will be compounded as interest payments rise relative to real holding gains on debt, reducing the rate of return on equity more than the rate on production (while also reducing cash flow).

iii) *Overall profitability and inflation*

The analysis above suggests that the squeeze on overall profitability has been more marked than that on production during the period of high and rising real interest rates which began in the late 1970s and continues into the **1980s.** (If inflation expectations are higher than current rates of inflation real interest rates may be somewhat lower *ex ante* than those calculated *ex post,* but this does not undermine the general point.)

At the same time, the persistence of historic cost accounting for tax purposes combined with rising inflation during the 1970s tended to squeeze cash flow, depressing after-tax returns and diminishing the role of profits as a financing source. By the end of the decade, company capital structure tended to reflect the growing importance of external compared to internal funds (despite lower dividend pay-out rates)[5] and also a growing proportion of short-term debt in the face of high nominal interest rates, with equity issues stagnant.

It is usually assumed that the balance of equity, borrowing and retained earnings is adjusted by the firm to minimise its total cost of finance, given the tax structure and within constraints imposed by the risks associated with excessive dependence on borrowing and financial market valuations of its equity. That is, the market can be expected to react to higher gearing but not to the extent predicted by the Modigliani-Miller theorem[6] (which holds that share prices will fall as borrowing rises to keep the total cost of finance constant).

The interaction of inflation and the tax structure is likely to vary the desired mix of finance as there will be different marginal effects on dividends, retained earnings and interest payments. However, the scope to vary firms' financing mix was constrained during the 1970s not only by a downward trend in retained earnings, but through the depressive effect of low stock market valuations. This made it difficult to float new issues, a difficulty which was itself related to inflation, though this is not to exclude that the fall in stock markets also reflected real factors. The idea that inflation and the tax structure combine to depress stock market valuations is convincingly argued by Feldstein (1980)[7]. The outcome of this pincer movement on finance was an extensive dependence on external loans, which benefited from the tax deductibility of nominal interest payments. However, higher inflation also made long-term loans more risky so borrowing became more short term.

As well as changing the cost and mix of finance, the effects discussed above influenced the incentive to invest and shortened pay-off periods, in turn affecting the pattern of investment and possibly also the total amount. A broad look at

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investment behaviour suggests that investment growth was sluggish during this period, and that the shares of non-residential investment in GDP declined slightly in the four largest European economies and Japan.

Subsequent declines in inflation eased some at least of these constraints, reviving stock market valuations and enabling companies to lessen their dependence on short-term borrowing by floating new issues. Although real interest rates remained high, their impact on costs was reduced to some extent by the shift to alternative sources of finance. However, they were still influential through their effect on the cost of capital and the relative profitability of investment in physical and financial assets. These considerations are presented next drawing on experience in the United States and the United Kingdom.

iv)   An alternative measure of profitability

As noted earlier, it is difficult to disentangle the concept of profit most appropriate for activity and investment. In principle, expected profitability of production at the margin, relative to the cost of capital, is what is relevant for investment. The cost of capital, including the cost of financial capital from all sources, tax provisions and the present value of expected depreciation allowances, is exceedingly difficult to measure. Real interest rates provide some rough indication and are often used as a proxy for the cost of capital. It is evident from Chart 2 that pure profit rates in the 1980s are much less favourable than those prevailing in the 1960s and early 1970s when ex *post* real interest rates were negative.

An approach to isolating the concept of profit which would function best as a determinant of economic activity is to use market valuations of companies as these reflect expectations of profitability. They would, of course, reflect expectations of all profits not simply operating surpluses. Nonetheless by explicitly considering the demand and supply prices of capital the disequilibrium or "pure profit" element in expected company performance can be approximated.

As noted earlier, the cost of capital will be a weighted average of loans, equity finance and retained earnings which, in imperfect markets, and in the presence of uncertainty and different perceptions of risk and opportunity cost, cannot be represented by a single interest rate. The alternative measure of the cost of financial capital developed in recent years takes the overall rate at which the market discounts a company's future income *(F)* stream when valuing its securities, where future income is earnings post-tax in the form of interest, dividends and retentions. Thus the ratio of future earnings *(F)* to the financial valuation *(V)* gives a measure of the cost of capital taking into account all sources of finance. Future earnings are subject to the measurement problems discussed earlier with reference to ex *ante* profits, which enter the formulation for expected rates of return (future income relative to the capital stock measured at replacement cost).

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However, expected profitability is the ratio of future earnings post-tax *(F)* to the replacement cost of trading assets *(K)*. If this ratio, *F/K,* is taken relative to the overall cost of capital under the alternative measure, *F/V,* the term for future earnings drops out, leaving the ratio of the current financial valuation to the stock of capital, *V/K* [8]. Hence, with this approach, investment is a function of the valuation ratio (also known as Tobin's *q:* see Tobin, 1969). When the valuation ratio exceeds one, it will pay to invest further in physical capital; if less than one, the expected returns are greater to financial than to physical investment. As adjustment is slow, particularly where the real capital stock is concerned, and valuations can move rapidly, marginal *9* can differ substantially from average *9.* Only average *q* is observed and the two measures are equal or similar only under stringent conditions related to pure competition, constant returns to scale etc. [See Hayashi (1982) for a list of conditions determining equality of marginal and average q]. Calculations by Flemming et al. (1976) for the United Kingdom show very similar movements in the average valuation ratio and in investment.
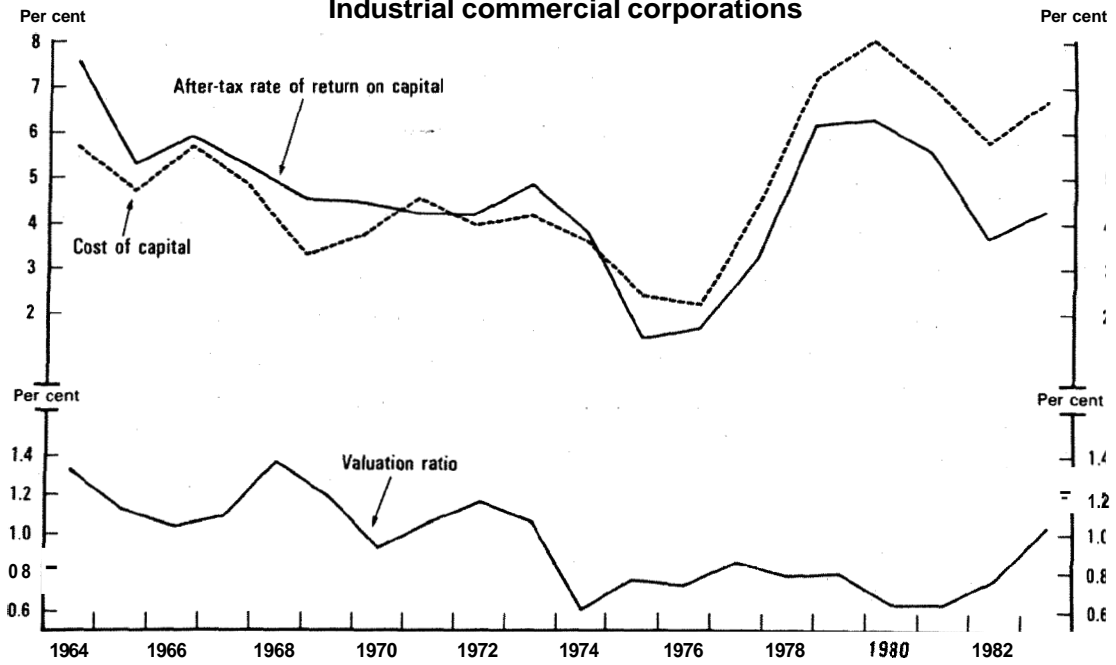
This method has the advantages of by-passing the problem of estimating future earnings and of taking into account the effects of taxation, risk and uncertainty. Inflation is not an explicit argument but affects the relation insofar as it is implicit in the market valuation. For instance, if uncertainty were perceived to be

CHART 3

PROFITS AND COST OF CAPITAL
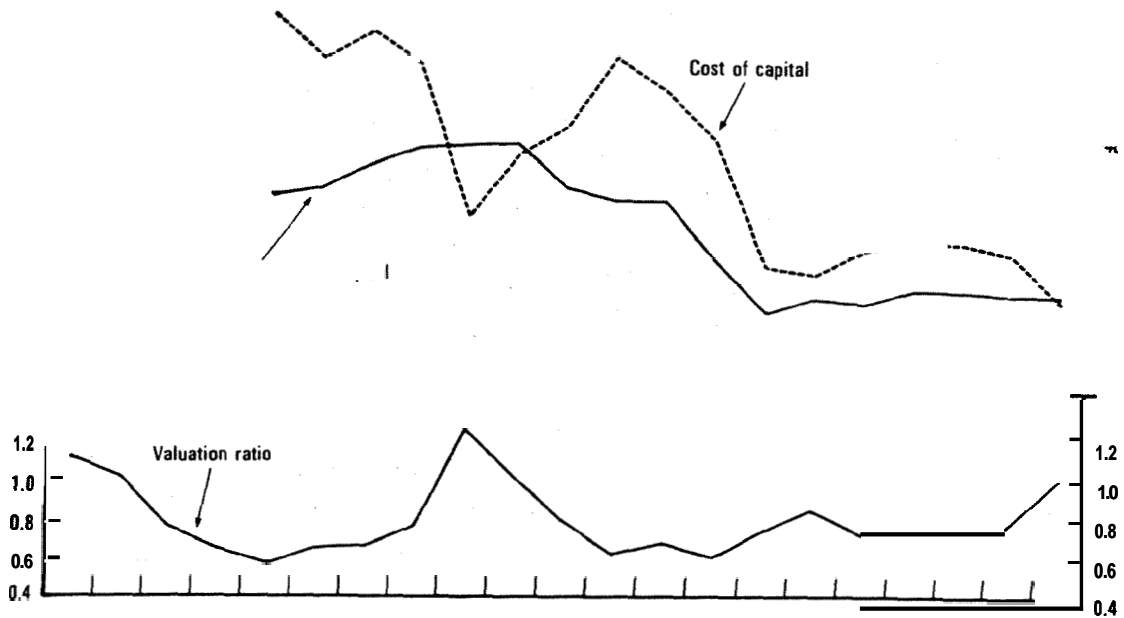### United States
Non-financial corporations
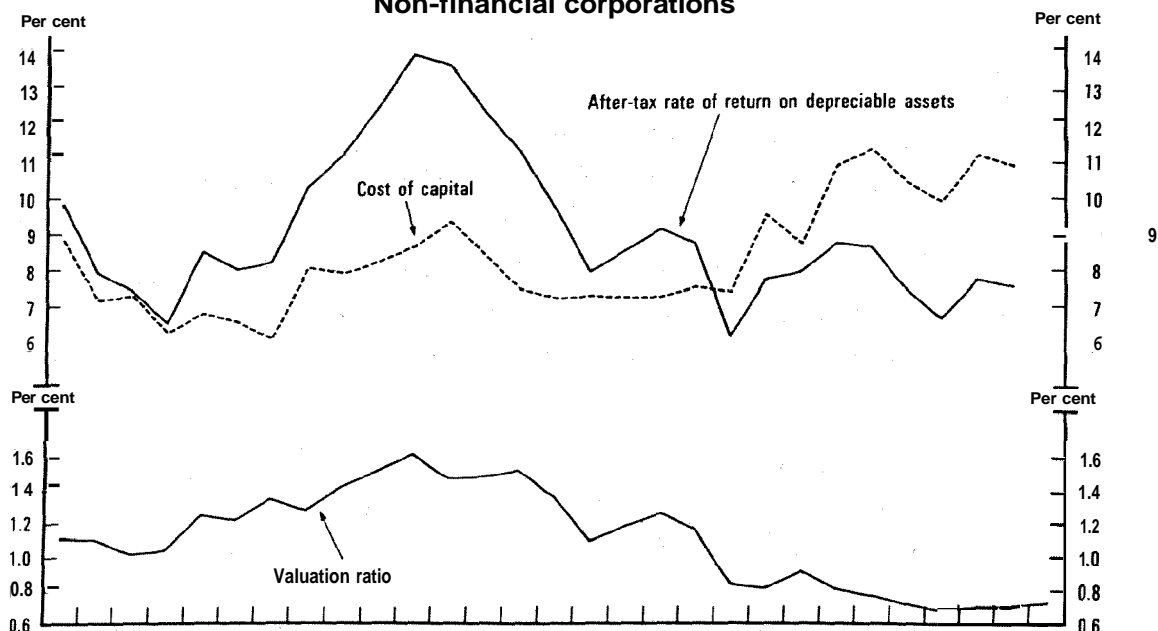
Source: Council of Economic Advisers and OECD estimates

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CHART 3 (cont.)

PROFITS AND COST OF CAPITAL
United Kingdom
Industrial commercial corporations

Per cent

Per cent

Per cent

Per cent

After-tax rate of return on capital

Cost of capital

Valuation ratio

1964   1966   1968   1970   1972   1974   1976   1978   1980   1982

Source: Bank of England and OECD estimates

Japan
Manufacturing sector

Cost of capital

Valuation ratio

Source: Honma. Mayashi er *al.* (1984), and OECD estimates

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greater, possibly because of higher and more variable inflation rates, this would result in a higher yield being required to cover the increased risk premium. Other things being equal, the market valuation would fall, depressing investment. This argument is suggestive for the 1970s. Problems in estimating the stock of capital at replacement cost remain, and the data collection required to calculate the financial valuations is formidable. It has been attempted for a few countries, depicted in Chart 3. The chart shows both parts of the ratio — the post-tax rate of return (realised not expected) and the cost of capital — as well as the valuation ratio itself. From this it can be seen that the valuation ratio fell below 1 in the United Kingdom in 1974 when there was a substantial fall in profitability well before the strong rise in the cost of capital which began in the later 1970s. The valuation ratio also fell below 1 in the United States in 1974 [see Brainard *et al.,* (1980)] , while in Japan it fell from a 1969 peak. (The rate of return is shown pre-tax for Japan.)

E.   Towards a secular recovery in profits?

It is not yet clear whether there has been any reversal of long-term trends. By end- 1984 rates of return were still **well** below those prevailing in the early 1970s and even further below those of the 1960s, although profit shares were closer to earlier levels. The recovery in rates of return is particularly marked in the United States, Canada, Japan and Germany. But even there, realised rates in 1983 are close to the fitted trend which continues to be negative on the basis of a nine-year moving average. A reversal of this trend appears to be emerging in Japan, Belgium, Italy and Sweden. In general, rates of return appear to have fallen **more** sharply than profit shares in cyclical downswings such as 1975 and 1982 because capital productivity is more cyclically volatile than labour productivity; conversely, the recoveries in rates of return in 1976 and 1983 appear to be more robust than those in profit shares. How long this situation may continue is difficult to say, given uncertain estimates of capacity utilisation and the effective capital stock. At the same time, real interest rates remain high, *so* that the recovery in "pure" profit rates remains subdued.

SUMMARY AND CONCLUSIONS

There was a widespread decline in profit rates over the period 1960 to 1982 and in a number of countries profit shares also fell. In the 1970s, these phenomena became general and were accompanied by **low** rates of economic growth and

capacity utilisation. The concerted move of OECD countries to tighten policies after the second oil shock in order to reduce inflation, and the **1981** to **1982** recession immediately in the wake of the 1979 downturn, prompted a further and precipitous drop in profits and rates of return – in some countries reaching post-war lows. Since then the current economic expansion, some thirty months after the late 1982 cyclical trough, has seen a sharp recovery in profits. Unlike earlier recoveries, however, the dispersion in profit performance among companies and sectors appears more marked and risk premia may remain high. Individual firms continue to face difficulties. It may be that recent post-war high discount rates and implicit capital costs are now declining, as financial market expectations adjust to an era of moderate growth and low inflation.

A distinction should be made between equilibrium (factor return) and disequilibrium (rent) elements of profits. As economies are normally in disequilibrium, the ex *ante/ex* post distinction is important and there is a substantial **if** fluctuating rent component over and above the factor return. The composite nature of profits means they cannot be assigned a single-valued economic significance and any interpretation of their behaviour must take this into account.

Further compositional issues arise with respect to inflation and its changes, which affect the net worth of firms through the associated response of interest rates, the revaluation of assets and liabilities, and the interaction of these effects with the tax system. Such effects obscure the links between profits reported in company accounts and the economic concept of profits reported in national accounts, which in any case differ because corporate profits include property income. The relation between returns to equity and returns to physical assets may vary considerably over time. A measure of profitability which captures these various factors as well as the return on physical capital is the valuation ratio. It measures the rate of return on reproducible assets relative to the supply cost of capital, thus reflecting the market's evaluation of the overall earning capacity of the firm. Nevertheless, the National Accounts concept of profitability remains important as a measure of productive efficiency and it enables capital productivity to be identified as the key factor underlying the decline in profit rates.

The best available statistical information confirms a significant recovery in rates of return whether based on returns to equity or to physical capital stock. However, the recovery is as yet incomplete if levels in the early **1970s** and especially the mid-**1960s** are taken as points of reference. On the other hand, profit shares, which are an important measure of cash flow, have generally recovered to pre-1972 levels. Corporate tax payments have declined in most countries both as a proportion of the total tax take and in relation to operating surplus. It is not clear to what extent this has in turn permitted a decline in required rates of return and/or a shift to the labour share. Stock markets and consequently valuation ratios have also recovered sharply in major OECD countries, implying that the worst of the profit squeeze is behind us, at least in aggregate.

NOTES

1   See T.P Hill (1979), Chapters 4 and 5, for a detailed explanation of the operating surplus as defined in the United Nations *System* of *National Accounts.* The operating surplus is 'the relevant concept for assessing the profitability of production. Its calculation at micro and macro level is further discussed in Chan-Lee and Sutch (1985), Annex I.

2.   Developments in broader sectors are somewhat different. See Chan-Lee and Sutch (1985).

3.   See Feldstein and Summers (1977); Nordhaus (1974).

4.   The growth rate of labour productivity in the total business sector was generally higher in the period 1975-82 than in 1972-82, as would be expected, but, in contrast, rates were lower in manufacturing in a number of countries when the period was curtailed. The fall in capital productivity in the total business sector moderated in a number of countries (and reversed in Germany) when the shorter period was considered; but in manufacturing this effect was less evident, with France, Canada, Norway and Sweden actually recording sharper falls. Growth rates of total factor productivity improved in all countries in the total business sector; this was generally true of manufacturing also, although rates for the United States and Canada did not change while that of France fell slightly when the calculation was made for 1975-82.

5.   See Flemming *et al.* (1976).

6.   See Modigliani, F., and Miller, M. (1958).

7.   Feldstein (1980) shows how the interaction of the tax structure and inflation expectations can reduce equilibrium share prices, taking into account both institutional and household holders of financial assets, and the range of different tax rates affecting each. A permanent increase in the expected rate of inflation reduces the demand for shares because the real net yield after tax on equities falls while, under reasonable assumptions about the tax and financial variables involved, that on alternative investments does not.

8.   Expected profitability $= F/K$ and the cost of capital $= F/V$. The ratio of expected profitability to the cost of capital $= V/K$, i.e. the valuation ratio.

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