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Have Profits in Industry really Declined?

Our study of profitability in the Swedish industry during the post-war period in the previous issue of S-E-Banken's Quarterly Review was motivated by the fact that we found a lack of consistency in the treatment of primarily the effects of inflation on profitability and solidity. We suspected that the picture of a long-term decline in profitability in industry conjured up in a number of reports — Long-Term Surveys, The Capital Market Commission Report, studies of the Swedish Industrial Institute for Economic and Social Research and The Royal Swedish Industrial Institute for Economic and Social Research and Royal Swedish Academy of Engineering Sciences — was inaccurate or at least exaggerated. The conclusion of our analysis was that there are no grounds for talking of a long-term decline in profitability in industry during the post-war period.

In other words, we modify the widely-held belief that profitability has declined over the long-term — nothing more and nothing less. We do not come to the conclusion that profitability has risen, as will be seen from our article, e.g., on page 54, 3rd paragraph: "The only reasonable assessment based on this data is that no long-term trend for profitability exists — neither rising nor falling".

There are grounds for emphasising this since, strangely enough, we are supposed to have maintained that there is a tendency for profitability to rise according to Lars Bertmar's article: "Profit Measurement — A Chaotic Picture". This is not borne out by the data. The uncertainty of the estimate of the coefficient of the trend line is far too large to permit an interpretation of either rising or falling profitability.

Our article deals with a large part of the post-war period, namely the years 1951—1976. Bertmar covers the sub-period 1966—1976 and his article is based on classified material available only to rese-

archers attached to EFI (the Economic Research Institute of the Stockholm School of Economics). Bertmar considers that he has shown that profitability for this period has fallen. He puts forward a number of points which are supposed to indicate that we have overestimated profitability, where, primarily due to his access to detailed data, he can provide a "truer" picture of development for the decade 1966—1976. We shall take up the most important points in Bertmar's article later, but, first of all, we wish to make a general comment.

Pronouncements about levels of profitability should not be made on the basis of our data or on Bertmar's. The chain of calculations contains far too many uncertain approximations, short-cuts and estimates for statements of levels to be meaningful. On the other hand, if a consistent method of calculation is used for a longer period of time, an idea of the trend can be obtained. This has been our aim and, therefore, we have studied a relatively long period — 1951—1976 — applying the same method.

Let us now consider the sub-period 1966—1976. A mere glance at Chart 1 in Bertmar's article will be sufficient to indicate that a trend of profitability can scarcely be determined. For this the oscillations of the curves are far too violent in relation to their possible slope.

If the uncertainty in the estimates for 1966—1976, which are shown in Table 1, is taken into account, neither Bertmar's nor our trend line differs significantly from zero. Furthermore, a 95 % confidence interval around Bertmar's estimate of the slope of the trend line only just includes our estimate. Thus, the significant interval of both point estimates has a considerable distance — about 50 % — in common. The fact that Bertmar's results hardly differ significantly form ours should be borne in mind when sophisticated empirical estimates are then discussed.

As mentioned above, Bertmar puts forward a number of points which, considered together, are supposed to indicate that we have overestimated

the development of profitability. He points out, for example, our treatment of the issues of taxation and capital gains and our estimate of economic depreciation in addition to the poorer quality, generally-speaking, of our data. However, Bertmar does not appear to realise that the separate assessments of the development of profitability — we ignore for the moment the fact that the estimates of the time trends, shown in Table 1, do not differ significantly form zero — in actual fact relate entirely to the question of how the taxation of corporate net profits should be treated in the calculation. This will be seen at once from Table 1, which indicates the trend for the period 1966—1976 of profitability on equity capital before tax. According to Bertmar's data, the return on capital before tax has actually increased at the rate of 4 percentage points per decade, compared with 2.8 percentage points according to our data. However, none of the coefficient estimates can be shown to differ significantly from zero.

As is well-known, the Swedish system of taxation of corporate profits provides good opportunities for companies to write off capital investment at a faster rate than is motivated on economic grounds. The implication is that tax payments are postponed.

Table 1. Trend of profitability on equity capital 1966—1977 according to Bertmar (LB) and Bergström-Södersten (B/S)

Equation	Trend coefficient	+ - value
LB after tax	−0.154	−0.639
B/S after tax	0.367	1.164
LB before tax	0.398	0.783
B/S before tax	0.261	0.917

In connection with an investment appraisal, the value of deferring corporate tax payments can be easily and clearly quantified in terms of, e.g., an increased internal rate of return or increased capital value of an investment project. For measurements

of profitability of the type discussed in this article, however, how the right to defer the corporation income should be taken into account is more a matter of judgement.

In his calculations, Lars Bertmar notes that the deferral of tax payments in a formal sense can be interpreted to mean an interest-free loan from the government to the company. Following Swedish terminology this loan is called a "tax credit". For a single investment project, the wholly repaid by means of increased tax payments after the fiscal depreciation period has expired. Since the tax credit is free of interest, the annual capital (interest) cost will be lower than in a situation where no tax deferral is possible, and the investor will have to resort to regular borrowing at prevailing market interest rates. Bertmar implicitly assumes that the tax credits have reduced the industrial companys' (average) interest cost. The companys' net profits are thereby indicated after deduction of estimated tax at a nominal rate of tax (approx. 55 %), and furthermore, equity capital is defined exclusive of tax credits, i.e. after the deduction of the deferred corporate tax.

In our calculations of profitability after tax, profits are, instead, indicated after deduction of companies' actual tax payments. Tax credits are thereby made equivalent to equity capital. This procedure is based on the fact that a company pursuing an investment activity on a regular basis can obtain new tax credits at a faster rate than the amortization of the tax credits from the older parts of the company's capital stock. Thereby, a company's total tax credits do not necessarily have the same temporary nature as in connection with an isolated investment. In the event of continuing expansion the tax credit will, instead, constantly grow. Since the amortization is postponed for an unlimited period, the tax credit is, therefore, in view of the present value of the interest gain — equivalent to equity capital.

We can now note that the effective tax burden on industrial companies — that share of "real"

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profits which has been paid in tax — has, during our entire 25-year period of observation 1951–1976, been less than the nominal rate of tax on profits. In addition, tax pressure has fallen sharply.[1] This development means that companies' aggregate tax credits have steadily risen and that companies have not been compelled to make any (net) amortization of tax credits. In view of this it appears to be fully reasonable for the aggregate of industrial firms to assume that the tax credits have an unlimited life — in other words, to regard tax credits as equivalent to equity capital. This conclusion is not modified by the experiences of the crisis years 1977–1978. For 1977 industrial firms paid, admittedly, a total of approximately SwCr. 1,700 million in profits tax, despite a negative return on capital on the average. The amortization of previously obtained tax credits this involved, corresponded, however, to less than 1/5th of the amount by which tax credits increased in 1974 alone. In addition, the losses in the crisis years have probably given a great many companies opportunities of offsetting utilised untaxed reserves (e.g. stock reserves) against large operating deficits, as a result of which the tax credits were quite simply written off. Bertmar's method of including tax credits as a liability when measuring solidity is particularly difficult to understand in the light of this experience. Solidity is a measure of the risk-taking associated with a company's financing in the form of commitments on future payments. But tax credits involve few commitments for the future since, in practice, they are free both of interest and amortization!

The alternative methods of treating tax issues in connection with measurements of profitability which have been discussed here provide the same results for profitability after tax as long as firms

with steady growth rates and constant profitability are considered and unchanged tax provisions can be assumed.[2] However, as we have seen from Table 1, the methods can, under other circumstances, point in a completely different direction. During the period 1966–1976, which Bertmar has studied, several changes in the taxation of net profits were carried out, which meant improvements for companies. These changes included more favourable depreciation provisions for buildings, special investment relief for investment in machinery and an increasingly more frequent use of the system of investment funds. As a result of these changes, the effective tax burden — that share of "real" profits which was paid in tax — was more than halved from 1966/1969 to 1973/1976, which is directly reflected in our measure of profitability. According to Bertmar's calculations, the ratio between profitability before and after tax means, instead, an increase in tax pressure by no less than 40 % for the corresponding period. This characterization of the tax policy vis-à-vis the Swedish manufacturing industry does not make sense. By adding the over this period rapidly growing tax credits to the current tax payments, the marked changes in the investment incentives resulting from the attempts by the authorities to promote the formation of industrial capital are effectively concealed.

As we mentioned at the beginning of this article, Bertmar's thesis concerning a decline in profitability of capital is fully explained by his treatment of the issue of taxation during the years 1966–1976. Other points mentioned by Bertmar are, thus, of no particular significance for the trend of profitability. In conclusion, we shall quite briefly, therefore, discuss two of Bertmar's other objections, namely our treatment of economic depreciation and stock gains.

Our analysis assumes that economic depreciation corresponds to 3.3 % and 6.7 %, respectively,

of the (depreciated) replacement value of buildings and machinery. In our calculations we have, however, made use of a constant, combined rate of depreciation for the whole period. As Bertmar points out, this may be misleading if changes take place in the distribution of the capital stock between buildings and machinery. A more detailed investigation shows, however, that the increase in the share of industry's investments in machinery which can be noted for our period of observation has had no marked effect on the composition of the capital stock. The combined rate of depreciation has, thereby, remained, practically speaking, unchanged from 1951–1976.

As will have been seen, our calculations of real profitability include real realised capital gains on stocks. Bertmar criticises us for not including the change in unrealised stock gains. In actual fact, the issue involved is whether the stock gains occurring in October—November should be included in the period before or after 31st Decem-

ber. The answer is not so obvious as Bertmar tries to make out. Bertmar's method involves a precision in measuring technique which often may be completely unreasonable considering the quality of the data material. Furthermore, it may be pointed out that our treatment of stock gains follows the recommendation in Bröms-Rundfeld's proposal for a price-adjusted annual report.[3]

Finally, we wish to point out that we regard it as encouraging that, on the basis of our simple investigation, making use of rough aggregates, we arrive at approximately the same results as regards the trend of profitability as those obtained when estimates are based on a wealth of material relating to individual companies. The benefits reaped from EFI's data bank in this respect will probably become more apparent when other problems are tackled, for example, when it is a question of making an assessment of the distribution between the individual firms within the aggregate.

1) See Söderstén, Jan. "Bolagsbeskattningens verkningar" (The Effects of Corporation Taxation) in Normann, Göran & Söderstén, Jan. Skattepolitisk resursstyrning och inkomstutjämning (Tax Policy Control of Resources and Income Equalization). Stockholm 1978.

2) Söderström, Jan. "Profit Taxation and Resource Allocation", Department of Economics, University of Uppsala, 1975.

3) Bröms, Jan, and Rundfelt, Rolf. "Inflation Accounting", The federation of Swedish Industries, Stockholm 1974.