

Capital Gains Taxation and Effective Rates of Return

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Capital gains on shares have been taxed in Sweden throughout the twentieth century even though the first formal rules were not passed until 1910. Until the mid-sixties the rules for taxation of capital gains on shares was rather generous in Sweden. In 1966, however, the rules were made more severe and the tax was made perpetual. This aggravation coincided with an acceleration of inflation rates. In 1976 there was a further increase in tax rates. As a consequence, the cost of capital has been increased and structured in such ways as to make it quite expensive for companies to issue new shares. Inflation on the other hand has made debt financing relatively less expensive.

The purpose of this paper is first to present a background to the existing rules on capital gains taxation of shares in Sweden. This is done in section 1. In section 2 we make an estimate of how tax rules have affected the rate of return on shares. In this section we also show how the law enacted in 1976 comes out in comparison with the law from 1966. A rather unexpected result is that the after tax returns are higher than if the tax from 1966 still had been in force.

In section 3 we discuss the consequences of the present tax system for the cost of capital. It is shown that an increase in the inflation rate with one percentage point requires an increase in the rate of return on equity with almost three points to keep shareholders' real rate of return unchanged. One way to counter this increase would be to introduce a system for capital gains taxation in which only real capital gains were taxed.

In section 3 we also summarize existing proposals for inflation accounting and taxation of real profits in some countries.

In conclusion an example is given in which we show how a tax on real capital gains only would affect the rate of return on shareholders' capital.

1. TAXATION OF CAPITAL GAINS ON SHARES,
A REVIEW

Explicit rules about taxation of capital gains on shares in Sweden are first to be found in a law from 1910. In this law, a distinction was made between "speculation gains" liable to taxation and other capital gains. Whether the purchase was to be considered a result of speculation or not was determined by the individual's intent when buying the shares. If the motive was to make a profit, speculation was presumed, which meant that the capital gain was taxable. Experts soon realized, however, that it would hardly be possible to make the shareholders reveal their true motives and therefore speculation was given a more operational

definition--as a sale within five years from the purchase. The whole profit from such a short-term transaction was to be included in taxable income.

Another reason for taxation was the presumption that short-term capital gains were used for consumption. Gains on long-term investments could, on the other hand, to a larger extent be supposed to be reinvested. Therefore, there was no need, as had been suggested by someone, to make a difference between gains that had been reinvested and other gains.¹ The problem was, however, that the five year interval during which capital gains were subject to full taxation tended to lock in investments producing an erratic pricing behavior in the stock market.

In the 1949 Committee report on capital gains taxation it was recommended that the tax on speculative gains should be kept. But the calculation of taxable gains was changed in order to reduce the "locking-in effect". Therefore the tax rate was reduced from 100 per cent of the capital gain to 75 per cent if the holding period was between two and three years, from 75 to 50 per cent if the holding period was between three and four years, to 25 per cent for the fifth year and to 0 per cent after five years. This method was also assumed to give the person, subject to taxation, compensation for inflation. Capital gains due only to the falling value of the Swedish crown should not be taxed according to the Royal Commission. It was, however, considered practically impossible to

¹ See "Betänkande angående beskattning av realisationsvinster m m", SOU 1949:9, p.39.

reflate the purchase price in order to neutralize the effects of inflation. A gradual decrease in tax rates would therefore reduce the effects considered unfair in the old capital gains taxation system.

Between 1945 and 1964 the rate of return on shares was high in Sweden (cf Fig.1B, p.364). The real rate of return before taxes (dividends included) amounted to an average of 7-8 per cent per year. The 1965 Committee that investigated capital gains on shares, believed that the system for taxation of capital gains had contributed considerably to this high return, partly through increasing the demand (because of the exemption from taxes after five years) and partly through reducing supply (because of the unwillingness on the part of owners to sell from short-term possessions).¹ Against the background of this experience the committee suggested measures to a) moderate the price increases on shares and to b) increase mobility on

¹ It should be noted that none of these arguments is persuasive. First, there is nothing that contradicts that the rise in prices of shares was caused by e.g. high profits in the industry. Secondly, it is not all that evident that taxation of gains on shares would lower the yearly rise in prices even if the price level initially would fall. Thirdly, the taxation is relatively favorable only when compared to bank savings. If the committee's hypothesis should be right one would expect a relatively higher rise in share prices in companies with a low pay-out ratio, something that has not been shown. Fourthly, even if supply would be reduced because all taxpayers preferred to keep their shares for at least five years, there is no reason to expect that after the initial holding period the propensity to sell would be materially affected.

the share market. The method chosen to reach these goals was to introduce in 1966 a perpetual taxation of capital gains on shares. If the selling took place more than five years after the acquisition, 10 per cent of the proceeds of the sale was to be included in taxable income, provided that the rise in prices could be supposed to be at least 5 per cent. For shares that had been owned less than five years the old rules were kept.¹

The question of taxing only real capital gains was also discussed. The committee refrained, however, from proposing an amendment of the law, arguing that the problem concerned all capital gains, not only gains on shares.² It was, however, pointed out (as was also done by the previous committee) that this did not imply that the whole gain on long-term holdings should be taxed. In practice, the committee had accepted the idea that shareholders should be allowed some compensation for inflation.

The possibility to exempt gains reinvested in shares from taxation was also discussed within the committee. No specific reasons against such a principle were given. It was, however, pointed out that the United States had refrained from giving tax exemption when income from selling securities

¹ According to the committee's suggestion, the model rule of 10 per cent was only a help rule. The main proposition instead was that 30 per cent of the gains should be taxed.

² See SOU 1965:72, p. 211. As a question of detail it can be noted that in 1967 a real taxation of real estate was introduced.

was reinvested, and that they probably had good reasons for doing so!¹

Concerning the right to deduct capital losses, the rule since 1910 had been that the taxpayer had a right to deduct losses calculated in the same way as taxable capital gains provided the losses could be offset against gains during the same year. According to the method introduced in 1966 short-term losses could never be offset against gains from shares held for more than five years.

Already in 1970, a new committee was set up to investigate taxation of capital gains. A wish to coordinate the rules concerning taxation of capital gains on shares with the rules for real estate was clearly displayed and better methods were asked for to increase mobility in the stock market.

On the first question the committee argued that there were many possibilities to reach coordination. Some basic principles were set down. Taxation should be

- a) eternal;
- b) based on the real gain;
- d) based on the whole gain during a short initial period.

From these starting points the capital gains taxation on shares now in force was introduced on April 1, 1976, implying that

¹ See SOU 1965:72, p. 238. In some cases, United States' tax law allows exemption when reinvestment is made in, for example, real estate.

- 1) on short-term holdings (less than two years) the whole realized gain be included in taxable income;
- 2) on long-term holdings, 40 per cent of the realized gains are included in taxable income;
- 3) losses be calculated in the same way as gains. Losses may, however, be offset against gains within a six-year period;
- 4) two help rules for calculating taxable gains should apply a) 20 per cent of the proceeds of the sale can be taken up as taxable income; b) for shares bought before January 1, 1971, one may choose 2/3 of the price valid on December 31, 1975 as an alternative to the actual purchase price. Adjustment must, however, be made for stock issues after that date.

Concluding Remarks

Present rules for taxing capital gains on shares were outdated even before they came into force. The taxation of gains on shares is now more severe than for almost any other kind of investment. The reason is high inflation in combination with a taxation of nominal gains. Tax rules furthermore are rather complex. To be sure, there is one help rule given that facilitates the calculation of taxable income. As is shown in the next section this rule is rarely to the advantage of the taxpayer.

2. TOTAL RETURN OF SHARES BEFORE AND AFTER TAX

In this section estimates are presented of the total rate of return for a population consisting of almost all (118) shares quoted on the Swedish Stock Exchange at the beginning of 1965. Total returns can be estimated for any full 12-month period starting from the 1st of January, 1965. In this text results are published for the 14-year period from 1965 to 1978 and for the 10-year period from 1969 to 1978. In order to see how the rate of return is affected by the capital gains taxation, a division is made between dividends and capital gains. We also assume that all capital gains are realized at the end of the holding period. Depending on the marginal tax rate, after tax returns are shown to vary between 3 and 5 per cent compared with a before tax return of around 6.5 per cent. If the tax rules enacted in 1966 still had been in force, the after tax return had been marginally lower. It is also shown that for most shares it is unprofitable to use the simplest rule for calculating the taxable capital gain, i.e. the rule according to which 20 per cent of the selling price is included in taxable income.¹

¹ Estimates of the total return on Swedish quoted shares for the last 25 years are published yearly by Svenska Handelsbanken (Common stock total return 1954-1978, Svenska Handelsbanken, 1979). These estimates, however, do not inter alia allow for the effects of taxes.

Internal Rate of Return

Total return before tax is computed as an internal rate of return (IRR).¹

It should be noted that IRR is not computed on a per share basis but for each company as an entity. This facilitates the weighting process when computing IRR for the stock market as a whole. On the other hand, a correction must be made for contributions to the firm made by other than the original investors. One typical example would be when one company buys another company and pays with a new issue of shares.

Brokerage fees are not included. In Sweden these would amount to around 0.6 per cent on each transaction. This means that they are much smaller than for instance in the U.S.

¹ Through the formula

$$V_0 = \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \sum_{t=1}^n \frac{O_t}{(1+r)^t} + \frac{V_n}{(1+r)^n} - \sum_{t=1}^n \frac{N_t}{(1+r)^t}$$

where

r = the internal annual rate of return compounding annually

V₀ = the initial investment computed as the total number of shares times the share price

V_n = ending value of investment

D_t = dividend at time t

O_t = other distributions (not taxable income) at time t and finally

N_t = new issues at time t.

Taxes

Surprisingly little data are available on the distribution of shares among different categories of owners. According to some sources the part owned by physical shareholders have, however, diminished during the seventies to around 50 per cent. The other 50 per cent are owned by various institutions among which the central pension fund is the fastest growing.

Pension funds as well as other charitable institutions own somewhere around 15 to 25 per cent of all shares. These owners do not pay taxes on their capital income. Consequently, the rate of return on shares before tax (Table 1) is representative of income received by these institutions. Other institutional shareholders do pay taxes, although in some cases, at reduced rates.

In this study our main interest is to show the effects of taxes on the rate of return obtained by a typical household. For the household two kinds of taxes are of interest. First of all dividends have to be reduced with the marginal tax rate. For an average, physical shareholder in Sweden, these would amount to something like 70-80 per cent.

We have then ignored the fact that the first 800 Swedish kronor (1600 Skr for a married couple) of interest and dividend income is not taxable income.

Table 1. Total nominal rate of return on all shares before tax. Per cent

	1965-1978	1969-1978
Total return	6.5	6.7
<u>thereof</u>		
capital gain	3.0	3.0
Change in consumer price index	7.0	8.1

Table 2. Total return on all shares after tax 1965-1978. Present tax rules

Marginal tax rate, %	50	60	70	80	90
Total return	4.7	4.3	3.9	3.5	3.1
<u>thereof</u>					
capital gain	2.8	2.8	2.8	2.7	2.7
Effective tax rate, % (total after-tax return/total before-tax return)	28	34	40	46	52

Table 3. Total return on all shares after tax 1965-1978
Taxes calculated according to the law enacted in 1966

Marginal tax rate, %	50	60	70	80	90
Total return	4.5	4.1	3.7	3.3	2.8
<u>thereof</u>					
capital gain	2.7	2.6	2.6	2.5	2.5
Effective tax rate, %	31	37	43	49	57

Table 4. Total return on all shares after tax 1969-1978
Present tax rules

Marginal tax rate, %	50	60	70	80	90
Total return	4.7	4.3	3.9	3.5	3.0
<u>thereof</u>					
capital gain	2.8	2.8	2.7	2.7	2.7
Effective tax rate, %	30	36	42	48	55

Table 5. Total return on all shares after tax 1969-1978
Taxes calculated according to the law
enacted in 1966

Marginal tax rate, %	50	60	70	80	90
Total return	4.5	4.1	3.6	3.1	2.7
<u>thereof</u>					
capital gain	2.6	2.5	2.5	2.4	2.3
Effective tax rate, %	33	39	46	54	60

Table 6. Number of cases where different tax rules were
used to calculate the capital gains tax
according to 1976 law
Per cent

	1965-1978	1969-1978
Main rule (40% of the capital gain is taxable income)	57	56
Help rule I (20% of selling price is taxable income)	14	12
Help rule II (2/3 of the price on the last day of 1975 is taken instead of actual purchasing cost when calculating capital gain)	47	50
Total	118	118

The capital gains tax is somewhat more complicated to estimate. The holding period was assumed to be 1965-1978 or 1969-1979 (see above). We have thus made the assumption that all shares bought in early 1965 or 1969 were sold in late 1978. As the holding period then is more than two years profits on such a sale would have been taxed according to the rules for long-term possessions. As will be remembered these rules give the taxpayer the possibility to choose between three alternatives in order to arrive at the taxable income. For each of the 118 shares taxpayers are assumed to choose the alternative which maximizes the total return after tax.

The purpose of these assumptions is not to describe the actual behavior of the stockmarket. In practice most portfolios are held for a longer period and sales are often made only to offset other capital gains/losses in order to minimize overall capital gains taxes. It would have been of great interest to show the actual tax paid on capital gains from shares. This is, however, not possible. No information is available on capital gains on shares from the tax assessments which are made yearly to determine taxable income. As a general proposition one can, however, conclude that if actual holding periods exceed the 10 to 14 years we have assumed in our calculations, capital gains taxes are exaggerated and vice versa.¹

¹ For a study that discusses actual holding periods and effective capital gains taxes for shares; see Bailey, M., "Capital Gains and Income Taxation" in Harberger, A.C. and Bailey, M., (1969), The Taxation of Income from Capital, The Brookings Institution, Washington.

Total return on all shares was 6.5 per cent before tax between 1965 and 1978 (see Table 1). The corresponding figure for the last ten years, 1969-1978, was slightly higher, or 6.7 per cent. The capital gain for both periods was 3.0 per cent, which means that dividends have increased somewhat in importance. For both periods the total rate of return is considerably lower than the rate of change in consumer prices, which amount to 7.0 and 8.1 per cent respectively. In Tables 2-5 total return for the two holding periods is given on an after-tax base. Tables 2 and 4 are based on the tax rules enacted in 1976 while Tables 3 and 5 illustrate what the total return would have been, had the rules enacted in 1966 still been in force.

By comparing Tables 2 to 3 and 4 to 5 we see the difference between the present tax rules and the rules introduced in 1966. When looking at the total return, the difference is rather small. This is so because dividends are taxed in the same way in both cases. The tax on capital gains is, however, almost twice as high according to the old rules. It is interesting to note that despite the increase in tax rates in 1978 the tax burden has been reduced. This seemingly contradictory result is due to the introduction of "loss carry-forward" in 1976, i.e. the right to offset losses against gains within a six-year period.

Another way to illustrate the difference between the different tax rules is to compare the effective tax rate. This rate is calculated as the total after-tax return divided by the total before

tax return. The effective tax rate lies between 28 and 52 per cent for 1965-1978 using the present rules. With the old tax rules the effective tax rate is 3-5 points higher.

It is also possible to calculate the effective tax rate on capital gains only. In Table 2, for example, we can see that the tax rate varies between approximately 7 to 10 per cent. This is due to both the long holding period and to the possibility to use different rules for calculating the capital gains tax for different shares.

When comparing the different rules which can be used for calculating taxable income according to the present rules, we can see from table 6 that the first help rule is dominated by the main rule and the second help rule. For most taxpayers this is a disadvantage as the first help rule is by far the easiest to use. The main rule, in particular, requires that taxpayers keep records on stock issues, etc., for very long periods of time, which makes it very complicated to use in practice.

Concluding Remarks

The total rate of return on Swedish shares before taxes has been very low for the last 10 to 14 year-period. For an average portfolio the rate of return is lower than the inflation rate and about as high as the normal interest rate on bank deposits.

On an after-tax basis the total return on shares is, however, considerably higher than the interest on bank savings. For a person with marginal income taxes of 70 per cent the return on shares would be around 2.8 per cent as compared with 1.9 per cent on bank savings.

In spite of this it seems likely that the return on shares lies far below expectations. One reason for this is that the tax rules for other investments, including real estate, are far more generous. It can therefore be argued that the present system for taxing capital gains on shares is not neutral. The implications of this and a system for a neutral taxation of capital gains are discussed in the next section.

3. TOTAL RETURN AND TAXES

In this section we show the combined effects of a nominal taxation of share income and inflation on cost of capital. An increase in the inflation rate with one point increases the cost of capital with three points in an example given.

One way to eliminate this distortion would be to tax only real profits. At present a debate is going on in several countries on how a system for real taxation should be designed. As an illustration we present the outline of the British proposal for inflation accounting.

In the final part of this section we will give an example of how share prices could be affected if we had a system for real taxation in Sweden.

How Is Cost of Capital Affected by Taxes?

Between 1965 and 1978, rates of return on equity (after corporate income taxes) for Swedish engineering companies¹ has been around 10 per cent. For the same period, rates of return on shareholders' capital has been 6.5 per cent (see Table 1, p.355). Before 1965 the rate of return on shares was closer to the rate of return on equity. As the return on shares has fallen relative to the return on equity there has also been a significant decline in the ratio between the market value of shares and the book value of equity. This is especially true after 1972 when inflation rates started to increase sharply.

Table 7. Market value of shares and book value of equity for major Swedish engineering companies

	1965	1970	1978
Market value in per cent of book value (historical cost)	100	76	49
ditto (replacement cost valuation)	97	73	41

¹ Industrikonjunkturen, Spring 1979, Federation of Swedish Industries, p. 172. In fact, engineering companies only make up 40 per cent of all shares quoted on the Swedish stock exchange. The engineering industry has been more profitable than most other industries. One reason is that the engineering companies have big foreign subsidiaries with a higher profitability than domestic companies. It is assumed, however, that the level of profitability of the engineering industry is roughly representative for all quoted companies.

For major engineering companies the ratio between market value and book value has fallen to less than 50 percent. The fall is even more pronounced if assets are valued at replacement cost (see Figure 1A).

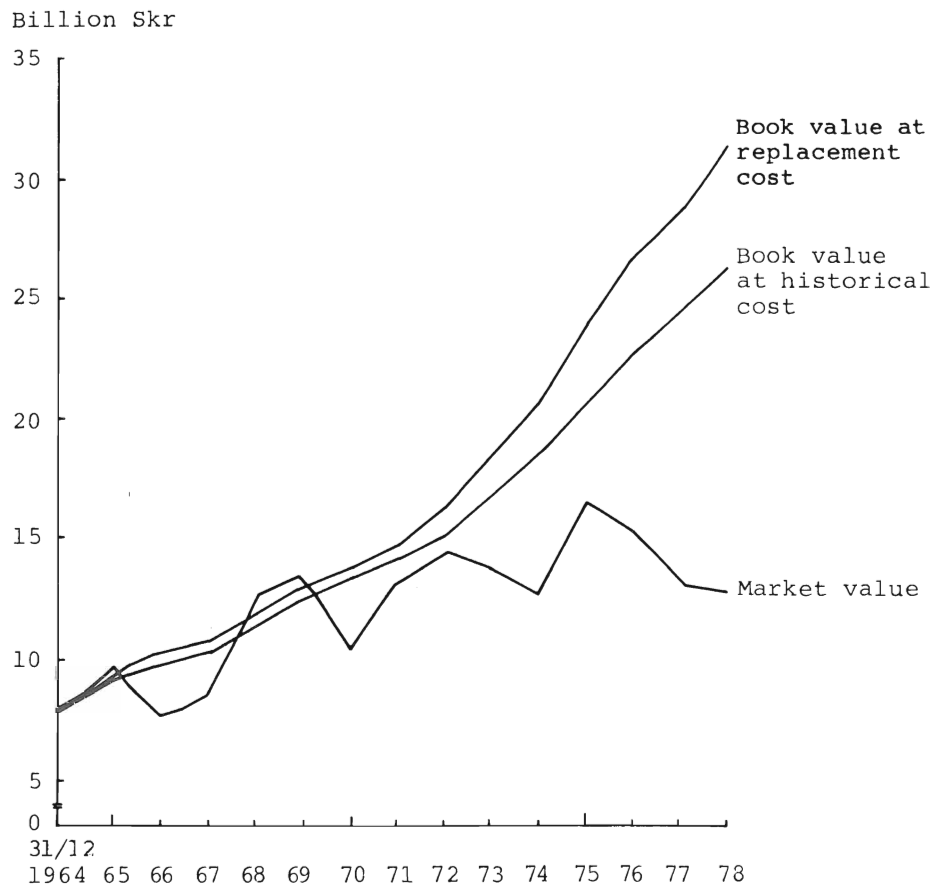
Share prices are influenced by expectations, rumors and other factors, many of which cannot be quantified. Still, in order to explain the big difference between profitability in industry and the yield on shares, for such a long period as 10-15 years, one need to look for more fundamental explanations. One such factor is the tax system, according to which both nominal and real profits are taxed, both in the companies and in the households.

The picture from Figure 1A is largely confirmed by data on all manufacturing firms in Figure 1B, where a sector weighted stock market index represents the market value of all manufacturing firms. We note that the rate of depreciation assumed¹ makes very little difference for the rate of change of the value of net worth, provided initial values have been scaled properly. The "levels" between I and II are very different. What Figure 1B reveals is the strong trend break in the market valuation compared to the replacement valuation that occurred around the middle of the 60's.

To a large extent this must reflect an adjustment in the valuation of discounted future profit capacity in the hands of the individual after tax.

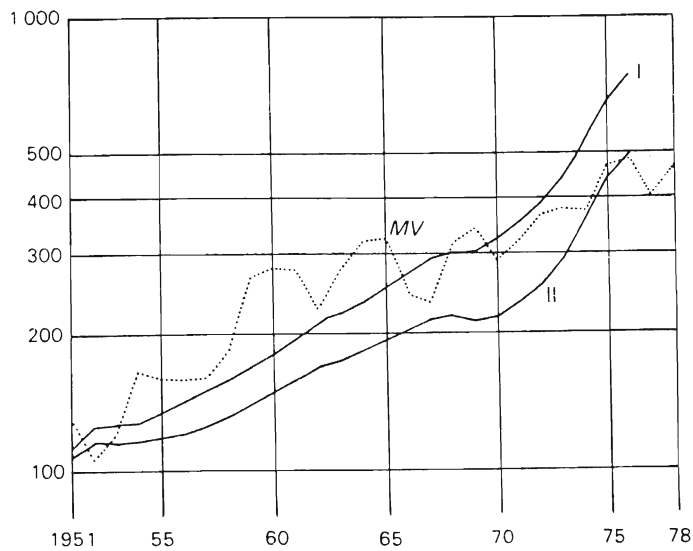
¹ 2.7 and 10 per cent respectively. See note to Figure 1B.

Figure 1A. Market value of shares and book value of equity for major Swedish engineering companies



Source: Estimates made by the Federation of Swedish Industries. Book value of equity at replacement cost has been calculated including actual historical costs. The rate of depreciation is assumed to be 6,7% corresponding to an average for a period of 15 years.

Figure 1B. Net worth in Swedish manufacturing
1951-1978, replacement (I and II) and
market (MV) valuations
Index 1949=100; logarithmic scale



Source: Eliasson, G., Profit Performance in Swedish Industry, Industrikonjunkturen, Autumn 1976, and later updating of data at IUI; also see Eliasson, G., Carlsson, B., Ysander, P.-C. et al., Att välja 80-tal (Choosing the 80's), IUI, Stockholm 1979. Note that the replacement value has been estimated as total assets (cumulated and price adjusted net investments from initial assets 1913) less debt. Curve I assumes 2.7 per cent depreciation on replacement value of physical assets. Curve II assumes 10 percent.

1965, as mentioned, witnessed a sharpening of capital gains tax rules for shares. From then on the progressive income tax scales were gradually raised and the 70's witnessed a politically heated discussion of the "socialization" of industry profits combined with a downward movement of the rate of return to equity. One interesting thing will be to see whether an expected favorable change in capital income and corporate income taxation, an expected improvement in profitability in manufacturing (from present low levels) and a reversed opinion of the acceptability of private ownership and the capitalistic economic system will change the relative development of the curves in Figure 1B again.

The taxation of nominal profits means that the cost of equity capital before taxes will increase by more than the inflation rate if the real rate of return of the shareholders is to be kept constant. To illustrate, let us assume that shareholders expect a real rate of return of 2 per cent, net of all taxes. The marginal income tax is 75 per cent and the company tax is 50 per cent.

The company pays out 8 per cent on equity as dividends. If there is no inflation this will obviously satisfy the shareholders' required rate of return. If the shareholders also expect the company to be able to pay out 8 per cent in the future the market value of shares will equal the book value of equity.

With inflation, dividends in relation to equity will remain at 8 per cent as assumed. Earnings

will have to rise, however, for shareholders to be compensated for inflation by capital gains. If we assume that there is a one-to-one correspondence between retained earnings and capital gains¹ the question is; what is the necessary increase in earnings (cost of equity capital) if shareholders are to be fully compensated for inflation.

The answer is given in Table 8.

The table shows that an increase in the rate of inflation with 10 points increases cost of capital with 28.6 points. Because nominal gains are taxed the company must calculate with an increase in its cost of equity capital with a factor that is almost three times the rate of inflation.

It must be observed that this result first of all follows from the assumption that the rate of real return required by shareholders' net of tax is constant regardless of the inflation rate. Bergström-Södersten in their paper on p. 233 use another assumption, namely that the market before tax rate of return on equity remains constant in real terms. Hence, the after tax real rate of return received by shareholders will fall as a result of inflation.

The reason for arguing that the required after tax real rate of return is constant is mostly empirical. For Swedish households shares are a minor part of their total portfolio of assets. Presently, yearly savings amount to more than 20 billion

¹ A one-to-one correspondence requires that shareholders expect that future dividends will increase with inflation.

Table 8.

	Rate of inflation(%)		
	0	5	10
1. Required real rate of return (%) ^a	2	2	2
2. Required rate of return before personal income taxes (line 1 / (1-0.75) (%)	8	8	8
3. Capital gain = compensation for inflation (%)	0	5	10
4. Capital gain before capital gains taxes (line 3/(1-0.3) ^b (%)	0	7.1	14.3
5. Nominal cost of capital after corporate taxes (line 2+4) (%)	8	15.1	22.3
6. Cost of capital before corporate taxes (line 5 / (1-0.5) (%) ^c	16	30.2	44.6

^a Eliasson cites a company that actually uses 2 per cent as their target rate of real return. See Business Economic Planning, 1976 op.cit., p.170 ff.

^b $0.4 \times 0.75 = 0.3$

^c Normally, part of the corporate tax is deferred. It is assumed that any deferral of taxes is reflected in lower interest costs. We also assume that unrealized gains on plants and machinery are included in profits. However, these will only account for a smaller part of profits, except when inflation rates are rising rapidly.

Skr. Out of this less than 1 billion are invested in shares. Much more important is savings in real estate, tax-exempt bonds, etc. In most cases it is expected that these investments will yield a positive real rate of return after taxes. Therefore, a rational investor who is considering an investment in shares would have to take these alternatives into account.

Double Taxation of Profits

The increase in cost of capital in relation to inflation is not primarily caused by the double taxation of profits. If holders of debt were to require a real interest of 2 per cent after tax, the cost of debt for a company would have to be 48 per cent if the inflation rate is 10 per cent. In spite of interest costs being deductible when calculating corporate taxes, there is a rise in the cost of borrowed capital with more than 4 points for a rise in the inflation rate with one point if holders of debt are to be given a constant real return.

In inflationary times, shareholders consequently have an advantage in comparison to holders of debt as the former get part of their return as a capital gain.

Nominal Profits Should Not Be Taxed

It is obvious that the present system for taxation in which some, but not all nominal profits are

taxed, creates distortions in a number of ways. When inflation rates are high it is not realistic to expect the corporate sector to be able to increase its profitability so that debt holders and shareholders are given a constant real return. Rather the opposite. High rates of inflation seem to be associated with erratic movements in relative prices that makes it more difficult for firms to maintain normal profit rates (see Eliasson's and Lindberg's paper, p.381). For other investment alternatives this is, however, possible. Investments in real estate have already been mentioned as perhaps the best example. Thus, since 1967 the purchase prices of real estate has increased in line with the increase in the consumer price index. Taxable income is then calculated as the selling price minus the adjusted purchase price.

Capital gains on other assets, stamps, art, jewels, etc., are not taxed at all, in principle at least not after a five-year holding period.

In summary, it can be argued that the tax system discriminates against savings in interest-bearing assets and, to a somewhat smaller degree, against shares. As a consequence, one would expect that the companies should experience difficulties in raising new capital in the private market. This seems also to be the case as is vividly illustrated e.g. from the Swedish discussion on wage-earners' funds. The simplest way in which this discrimination could be avoided would be to eliminate the nominal part of profits from taxation.

Taxation of Real Profits And Interests

In the case of interest it is clearly not sufficient to change the corporate tax system to a real basis. As interest costs are deductible at the company level only personal income taxes are relevant. For these to be neutral and not to influence the decision to lend regardless of the rate of inflation, the nominal part of interest payments have to be eliminated when calculating taxable income.

For income on shares the problem is more complicated. A neutral taxation of income on shares requires that the "inflationary" part of profits be eliminated from both corporate and personal taxable income.

As to the personal income tax this could be achieved in two ways. The simplest method would be to change the present rules for calculating taxable capital gains. The taxpayer for instance could be allowed to index the purchase price, as with real estate so that when selling the shares, only the real capital gain would be taxable.

The other method would be to allow the compensation for inflation to be deducted from dividends. In most cases this would mean that dividends would not be taxed at all. On the other hand, taxable capital gains would be correspondingly higher. As capital gains normally are realized only after several years, this method would result in a larger tax credit than the first method.

To illustrate the difference between the two approaches in granting the shareholders relief from the effects of inflation, we can use a simple example.

Assume that the required real rate of return is 6 per cent. The inflation rate is 8 per cent. The expected rate of return on equity is 14 per cent which means that book value of equity and the market value of shares are equal. The dividend yield is 4 per cent.

Assume furthermore that the expected holding period is 10 years and that the tax on realized capital gains is 30 per cent. The tax on dividend income is 75 per cent. We can then calculate the total effective tax on share income.

Effective tax will be $4/14 \cdot 0.75 + 10/14 \cdot 0.30 = 42.9$ per cent. This calculation, however, does not take into account that the capital gains tax will not be payable until after 10 years. The advantage of being able to defer the capital gains tax can be translated into a lower capital gains tax rate. A nominal rate of 30 per cent will thus be equivalent to only 22 per cent if the capital gain is realized after 10 years.¹

¹ The capital on realization after T years per unit of initial investment is $(1+r)^T$, and the net capital after tax, say C_T , is

$$C_T = [(1+r)^T - 1][1-t_g] + 1 = (1-t_g)(1+r)^T + t_g,$$

where r is the expected accrual rate and t_g is the capital gains tax rate at the time of realization. The annual net or tax-free rate of accrual, s , that would generate this value of C_T is

cont.

The effective tax with a nominal taxation will consequently be

$$4/14 \cdot 0.75 + 10/14 \cdot 0.22 = 37.1\%.$$

If shareholders are allowed to deduct a compensation for inflation when calculating the taxable capital gain, taxable capital gains will be reduced from 10 to 2 per cent.

It seems likely that such a reduction will be accompanied by an increase in the capital gains tax rate. Let us assume that all real capital gains will be included in taxable income, e.g. that the tax rate on the real capital gain is 75 per cent. If capital gains are realized only after 10 years this will be equivalent to a tax rate of 65.9 per cent.

We can now compare the effective tax on shareholders' income between the two methods.

Cont.

$$s = \sqrt[T]{C_T - 1}.$$

Finally,

$$g = \frac{r - s}{r} = 1 - \frac{s}{r},$$

where g is the effective capital gains tax rate.

Source: Bailey, op.cit., p.24.

	(1) Adjustment of capital gains only	(2) Adjustment of both dividends and capital gains
1. Dividend income	4	4
2. Deductible compensa- tion for inflation	<u>-</u>	<u>-4</u>
3. Taxable dividend income	4	0
4. Tax on dividends (0.75 • line 3)	3	0
5. Capital gain	10	10
6. Deductible compensa- tion for inflation	<u>-8</u>	<u>-4</u>
7. Taxable capital gain	2	6
8. Tax on capital gain (0.659 • line 7)	1.3	4.0
9. Total tax (line 4 + line 8)	4.3	4.0
10. Total tax in per cent of total before-tax income	30.8	28.6

By allowing compensation for inflation to be deducted from both dividends and capital gains the effective tax rate will be reduced by almost 1/10 in comparison with a deduction from capital gains only.

Corporate Taxation of Real Profits in Different Countries

Many countries have experienced high rates of inflation in the seventies and some also in the sixties. As this inevitably creates distortions in the financial markets, one would expect that these countries had taken the necessary steps to eliminate the disadvantages. One such step is the intro-

duction of a system for real taxation. At present, however, only countries which have experienced hyper-inflation, have introduced consistent systems for real taxation. In other countries, like the U.K. ad hoc measures have been tried; e.g. stock relief and accelerated depreciation. Because of the high rate of inflation, several countries are, nevertheless, discussing how a system for taxing only real corporate profits should be constructed. Among these countries are the U.K., the Netherlands, Finland and Sweden.

A system of real taxation requires a system of real business accounts. We will here discuss one of the proposals that have been put forward for inflation accounting.

Inflation Accounting in the U.K.

In March 1980, SSAP 16 on inflation accounting was adopted by the British accountants.

According to this scheme, operating profits of a company shall be determined as the surplus after allowing for the impact of price changes on the funds needed to maintain operating capacity. Normally this will reduce operating profits. Part of this reduction is, however, reversed as a "gearing adjustment". In short, the gearing adjustment is calculated as the debt ratio (debt to debt + equity) times the reduction in operating profit due to price changes. To illustrate, let us assume that operating profit on a historical cost basis is 100 and the debt-equity ratio is 1. If current cost adjustments amount to 60 the current cost operating profit will be 40. To this figure we

shall add the gearing adjustment to obtain a current cost profit attributable to shareholders. The gearing adjustment will be 50 per cent of $60 = 30$ and current cost profit consequently 70.

Inflation accounting in the U.K. is based on current cost accounting. This means that only specific price changes influence reported earnings. If these are higher than the inflation rate measured by the CPI the tax will of course be lower than if the adjustment was based on the change in the CPI (general price level accounting). Normally, however, the reverse would be true. If prices of industrial goods rise less than the CPI the British method for taking inflation into account when calculating real profits will lead to higher taxes than a system based on the general purchasing power principle.

When comparing SSAP 16 with other models for inflation accounting one has to distinguish between two types of models. The first type, to which SSAP 16 belongs, is finance-oriented, i.e. there is no real profit until the firm has earned enough to maintain its capacity reinvestment net of tax. The second type focuses on the return on shareholders' equity in nominal and/or real terms where the difference is measured by the CPI.

To illustrate the difference between the two types of models one can look at the oil companies in 1979. There was an increase in the price of oil relative to most other prices. Following SSAP 16 this increase in relative prices would not be included in net profits if inventories were financed with equity. In the other type of models this gain would be included.

If SSAP 16 is a typical example of a finance-oriented inflation accounting model, FAS 33--the American standard for inflation accounting, is an example of the second type. The fact that UK and USA have chosen different models implies a potentially serious complication for global harmonization. At present, most countries seem to prefer the British approach.¹ This is especially true for those countries which look at profits as a nature of "dividend capacity". This is not surprising as debt-equity ratios deteriorate and the problems of raising new equity increase.

Another problem with inflation accounting is that most models are rather difficult to use and to control. This means that tax assessments cannot automatically be based on the real accounts of individual companies. However, the Hofstra report² (a blueprint for a new Dutch system) tries to deal with this problem. According to Hofstra, nominal profits shall be reduced with the decline in general purchasing power of equity during the year. If equity is 1500, the inflation rate as measured by the CPI, 10 per cent and nominal profits 500, the real taxable profit would be $500 - (0.1 \cdot 150) = 350$.³

¹ One particular variant of the type of model has been developed in Sweden, where in 1974 a recommendation based on the framework of Edwards & Bell was published. See Bröms-Rundfelt; Inflationsredovisning, Federation of Swedish Industries, 1974.

² H.J. Hofstra, Inflation Adjustment and the Tax System, A report submitted to the Dutch Minister of Finance in December 1977.

³ Assuming realized holding gains amount to at least 150.

There are two main advantages with this method. First of all it is very simple to understand and to control. This is a sine qua non if also smaller companies are to be included in the tax reform. It is unlikely that a system for inflation accounting like the British can be extended to smaller companies, partnerships, etc.

Secondly, the Hofstra report focuses on the preservation of the purchasing power of equity. For a neutral tax system, e.g. a system which treats all investment alternatives equal regardless of inflation, this is the most natural solution.

Rate of Return on Swedish Shares in a System with Real Taxation

In this final part we will illustrate how an introduction of a system for real taxation affects the rate of return on shares. It is assumed that the rate of return on equity before corporate taxes and inflation is the same as during the period 1965-1978.

In that period the nominal rate of return was 20 per cent before corporate income taxation.

With 50 per cent corporate tax, a 40 per cent pay-out ratio, 75 per cent marginal personal income tax, capital gains equal to retained earnings and the present rules for calculating taxes on capital gains, the real return on shares would be -1.8 per cent assuming an inflation rate of 7 per cent (see Table 9).

Table 9. Rate of return comparisons with present nominal and real corporate income tax systems

	(1)	(2)	(3)
	Present tax system	Nominal corporate tax and real capital gains tax	Real corporate and capital gains tax
Nominal return on equity before tax	20	20	20
Corporate tax (50%)	<u>-10</u>	<u>-10</u>	<u>-6.5</u>
Nominal return on equity after tax	10	10	13.5
(Dividends)	(4)	(4)	(4)
Shareholders' taxes on dividends	-3	-3	-3
(Capital gain)	(6)	(6)	(9.5)
Shareholders' taxes on capital gains ^a	<u>-1.8</u>	<u>+0.3</u>	<u>-0.8</u>
Nominal return on investment after taxes	5.2	7.3	9.7
Inflation	<u>-7.0</u>	<u>-7.0</u>	<u>-7.0</u>
Real return on investment after tax	-1.8	0.3	2.7

^a 40 per cent of the real gains is assumed to be included in taxable income and taxed to 75 per cent. In the first column there is a real loss which is assumed to be deductible from other income.

Between 1965 and 1978 the shareholders' nominal rate of return before taxes has been approximately 6 per cent (see Table 1). This corresponds to a real rate of return after taxes of about -4 per cent. This figure is lower than what could have been expected had retained earnings resulted in capital gains of equal size. The explanation must be that shareholders did not expect that future earnings in industry would be high enough to compete with alternative investments.

It is not possible to project what would have happened to shareholders' return if we had had a system for real taxation. As can be seen from the tables above, real taxation of both corporate profits and capital gains would have resulted in a real rate of return of 2.7 per cent after taxes, under the assumption that retained earnings equal capital gains.

That is an improvement with 4.5 percentage points compared to table 7. With a nominal taxation of corporate profits and a real taxation of capital gains, the improvement would be approximately halved; i.e. that rate of return after tax would have been 0.3 per cent.

Concluding remarks

Around 1900 there was a general consensus that capital gains arising from inflation should not constitute income. Consequently, purely nominal gains should not be taxed. This conclusion has been repeated many times since. Still, as infla-

tion rates have increased, so has the tax on capital gains on shares! One reason for this seemingly contradictory development is the technical problems involved.

In order to get a constant real return on shares it is necessary to introduce both a real corporate tax system and a real capital gains tax. As could be learned from the Hofstra report, it may be possible to construct a rather simple real corporate tax system.

A real capital gains tax may be still easier to design technically. On the other hand it may prove very difficult to get the necessary support from shareholders. They will have to keep very detailed records on every transaction so that nominal gains can be calculated. Bearing in mind the strong criticism that has been put forward against the present rules for calculating taxable capital gains, one can imagine that it might prove even more difficult to implement a system for real taxation. On the other hand it is not likely that the capital gains tax can be abolished altogether, considering the high taxes on earned income. Even though a tax reform is long over-due in Sweden it is far from certain that anything will happen the next few years.