

## Mr Bäckström offers some thoughts on asset prices and their relevance to central banks

Speech given by Mr Urban Bäckström, Governor of the Sveriges Riksbank and Chairman of the Board of Directors and President of the Bank for International Settlements, to the Swedish Shareholders Association and the FöreningsSparbanken on 16 December 1999.

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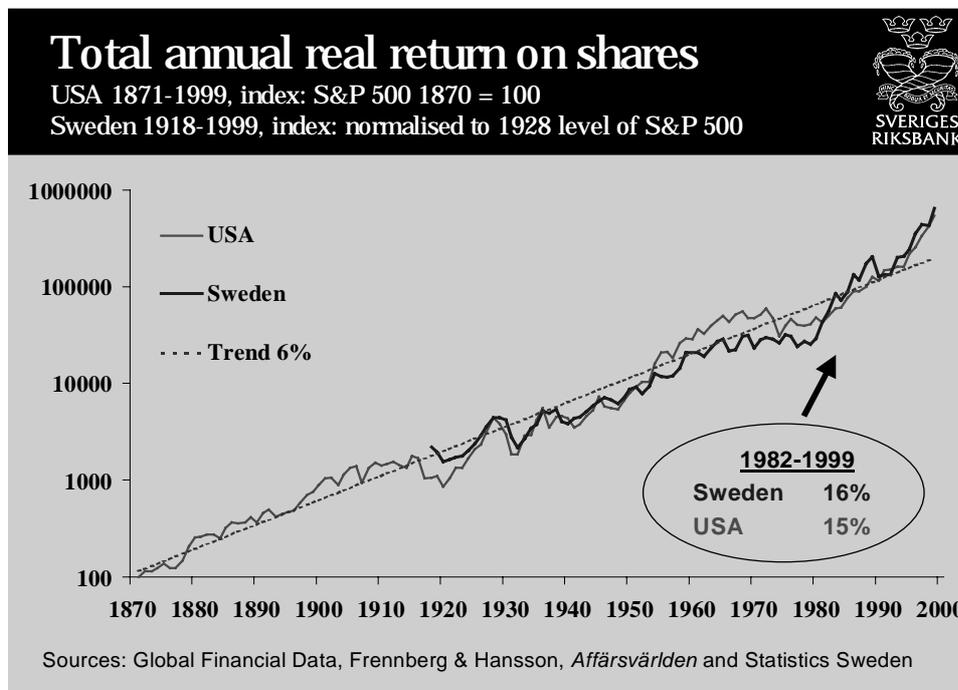
First a word of thanks for the invitation to this meeting. The question I want to consider this evening is why stock market values are so high at present in relation to levels in the past. Are share prices being based on perceptions of the future that are unrealistic? In other words, are they developing a bubble? The mood that may lead to assets being valued in terms of expectations that are not realistic has been described by the Chairman of the US Federal Reserve as “irrational exuberance”.

Could it be the case, on the other hand, that the high prices stem from a perception of some fundamental changes? After all, the future will not necessarily follow the same pattern as the past.

### Steep share price rise

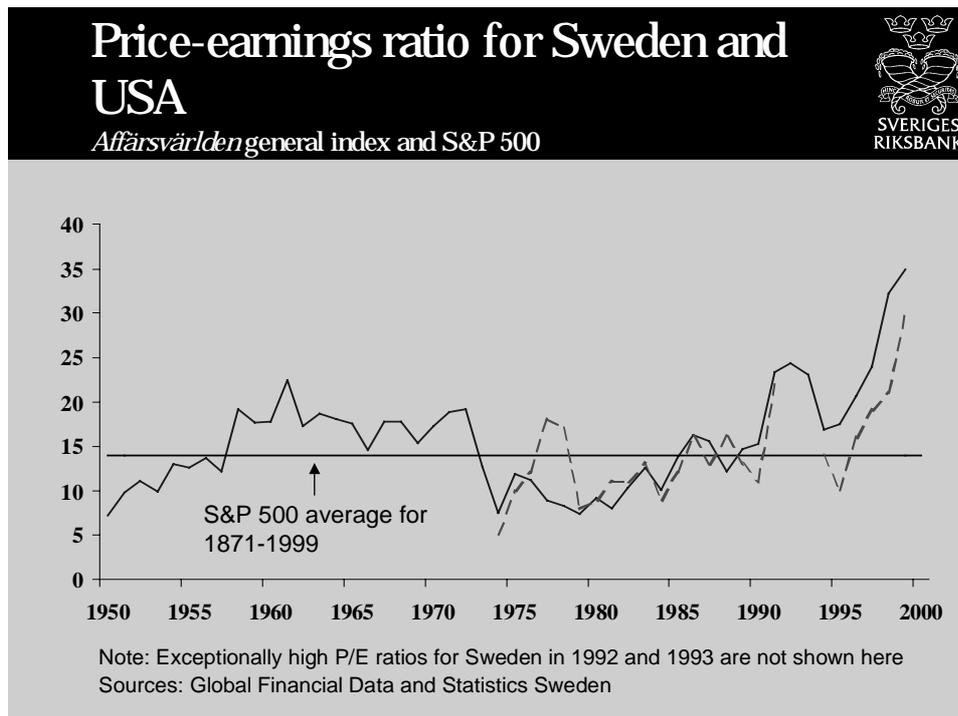
Share prices on the Stockholm Stock Exchange have risen strongly in recent years. In the course of 1999 the average level has moved up more than 50%. This autumn, moreover, the rise has accelerated. So everything points to 1999 being a very prosperous year for those who save in shares.

As a matter of fact, since 1982 the total real return on shares (the inflation-adjusted price level including reinvested dividends) has risen in Sweden at an average annual rate of around 16%. That is around two and a half times more than the trend rate since 1918. After 1982 the total real return in the United States has also been appreciably above the trend rate since 1871 (Fig. 1).<sup>1</sup>

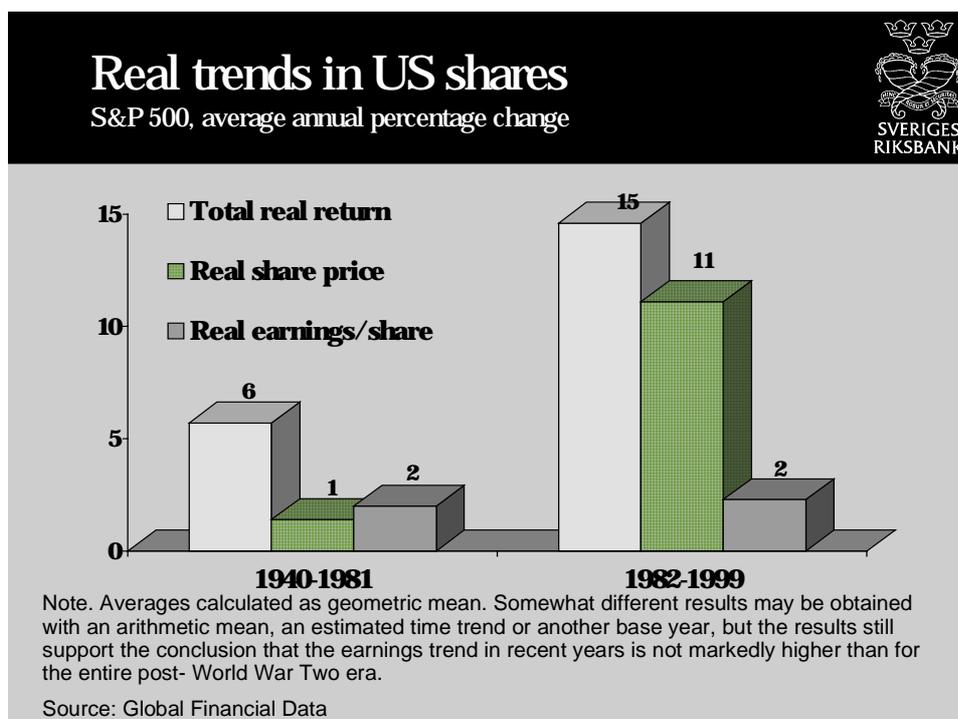


<sup>1</sup> Note that the chosen initial year has consequences for the trend rate of return; the path shown in the figure should therefore be seen as an approximation.

The price-earnings ratio for the Stockholm Exchange is currently around 30 according to Affärsvärlden. This means that the price of an average share portfolio is equivalent to around thirty times the annual earnings. The ratio in the United States is even higher, around 35 (Fig. 2).



Although long series for the Stockholm Exchange's P/E ratio are hard to find, it is hardly controversial to say that the present level is well above the historical average. The deviation of share prices from the fundamental conditions that have applied historically is even clearer after a look at the path of

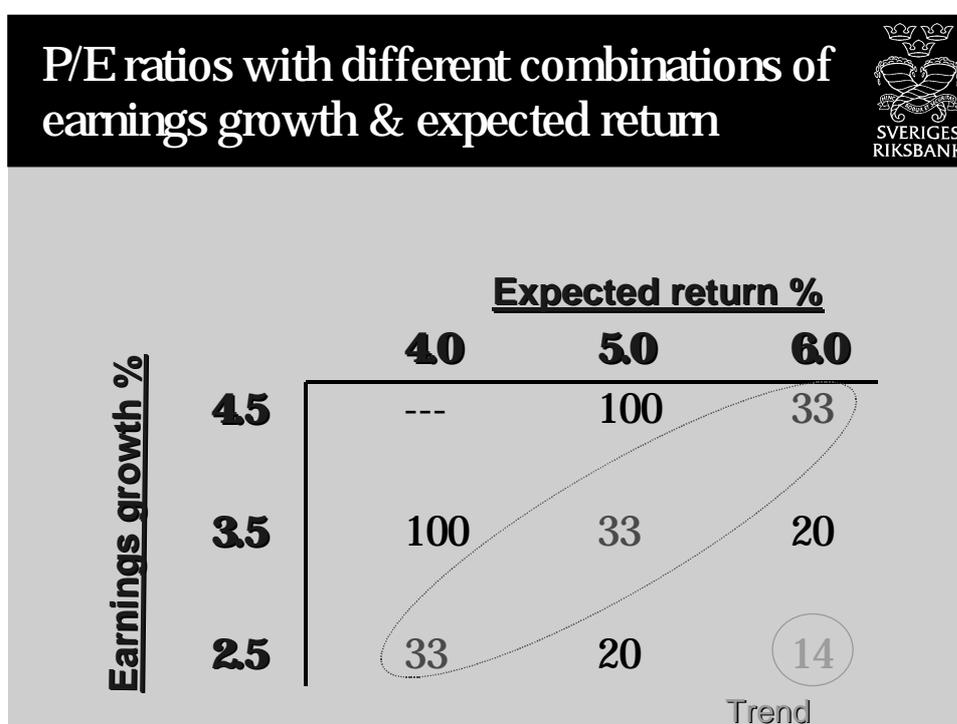


earnings. In the United States the real earnings trend since 1940 has been virtually constant between 2% and 3%, while - as I just mentioned - the real return on shares shows a trend break after 1982 (Fig. 3).<sup>2</sup>

### Are present share prices fundamentally justifiable?

I shall now use a simple model to examine whether the present level of share prices can be justified in fundamental terms.<sup>3</sup> Simplifying somewhat, this model equates the value of a share with the present value of the future income the share is expected to generate. A valuation in P/E terms accordingly rests on the assumptions that are made about these future incomes - the future growth of the company's earnings - and the factor by which these incomes are discounted - the stock market's expected return.

We can insert alternative values for these assumptions to find the combinations that might justify different P/E ratios (Fig. 4). It will be seen that a P/E ratio of 14 can be warranted if the expected real return is 6% and the real growth of earnings averages 2.5%. These figures are all approximately in line with the historical trends.



In order to justify an upward shift in the P/E ratio from just under 15 to between 30 and 35, the expected real return has to be lower and/or expected earnings growth needs to be higher. A P/E ratio at the current level can be explained if, for example:

<sup>2</sup> The picture in Sweden is somewhat different, with signs of a strengthening of the earnings trend in the period 1982-99, though this is not visible in the figure. The krona's depreciation after 1992 seems to have been the main factor here. Earnings per share showed little, if any, improvement from 1982 to 1990. However, cyclical fluctuations and changes connected with the krona's marked depreciation should not be central issues for our discussion here. As the stock market trend in both the shorter and the longer term has been largely the same in the United States and Sweden and the P/E ratio in both cases is between 30 and 35, there are grounds for assuming that the earnings trend has also been at least approximately the same.

<sup>3</sup> See Gordon, M J (1962), *The Investment, Financing and Valuation of the Corporation*, Homewood (Irwin). The simple model is written  $P/E = d/(k-g)$ , where P is the share price, E earnings per share, d the percentage dividend, k the expected return and g the expected dividend growth.

- the expected real return has fallen from 6% to 4%, or
- the expected real earnings trend has risen from 2.5% to 4.5% a year, or
- a fall in the expected real return from 6% to 5% has been accompanied by an acceleration of expected earnings growth from 2.5% to 3.5%.

### **Has the expected stock market return fallen?**

Let us begin with the possibility of a lower expected return. Does it seem likely? For a long period the expected return, in the United States as well as in Sweden, has been stable at around 6%. So why should things have suddenly changed in recent years in a way that dramatically alters conditions for the long-term valuation of share prices?

Moreover, a lower expected return would mean that the real return on shares is much the same as on treasury bonds, for example. Why would share investment be perceived as having roughly the same risk as investment in bonds issued by a sovereign?

But there are, in fact, some reasons why the expected return may have become somewhat lower.

One is that when central banks around the world focus monetary policy on price stability, this is expected to result in greater stability in the real economy. From this it follows that corporate earnings and consequently share prices should also be more stable. Another factor that may point to less marked cyclical fluctuations in the future is the transition from manufacturing to the production of services, together with the era of information technology. Thus, if the yield from share investment is more stable in the future than it has been in the past, this might warrant some downward adjustment of the expected return and thereby lead to a higher valuation.

Another argument is that with more and more people saving in shares for retirement, the investment horizon has been lengthened. This category of share investor is less concerned about short-run fluctuations in share prices and that might justify a somewhat lower expected return.

A third argument is that financial market developments have resulted in decreased transaction costs and less liquidity risk.

There may be some truth in arguments of this type but it is still difficult to believe that the expected return has fallen as much as would be needed to justify today's stock market valuations.

### **Or is higher earnings growth foreseen?**

Let us now look at the importance of earnings growth for share valuations. We noted earlier that to justify a P/E ratio between 30 and 35, given an unchanged expected return, real earnings growth must move up from 2.5% to 4.5%. Is it reasonable to suppose that the future earnings trend will be as high as that?

One way of answering this question is to look at the macro picture and determine the trend rate of GDP growth that would be commensurate with such a strong increase in corporate earnings. This is also pertinent in the context of the current discussion about a "new economy" that is perceived as being capable of higher productivity growth and thereby an upward shift in potential GDP growth.

A simple growth model shows that in order to justify a P/E ratio between 30 and 35, the growth trend for total factor productivity would have to move up almost 3 percentage points.<sup>4</sup> That in turn implies

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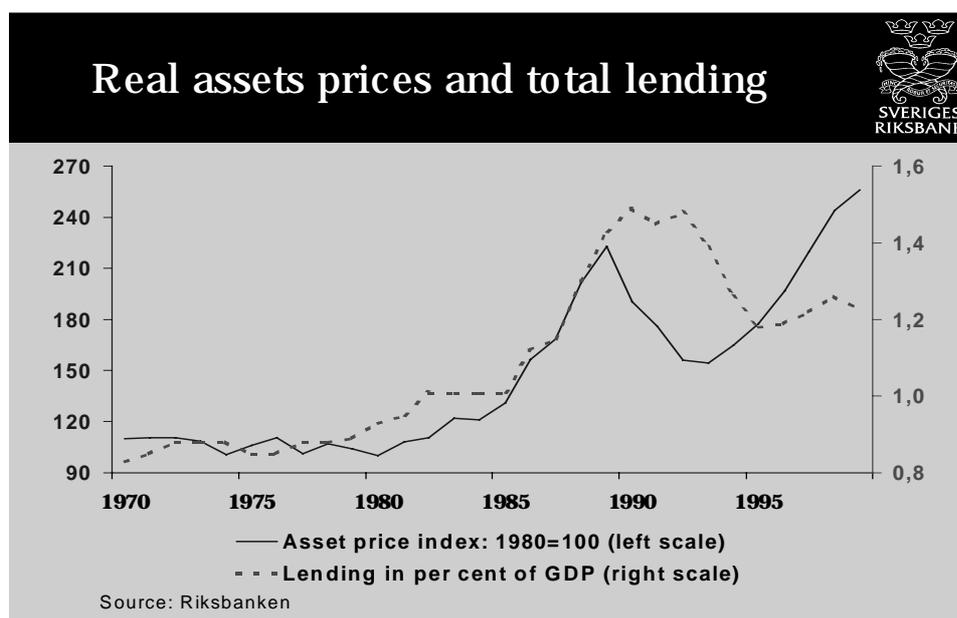
<sup>4</sup> The feasibility of a higher future increase in corporate earnings can be analysed with a simple model where GDP growth is determined by the inputs of capital and labour together with the efficiency with which these resources are utilised in production. Using a simple Cobb-Douglas function, the rate of increase in the return to capital can be derived as  $gR = gA + (1-a)(gL - gK)$ , where  $gA$ ,  $gL$  and  $gK$  are the growth rates for total factor productivity, labour and capital, respectively. The relevant factor in the present context is the return to capital (the flow of income to owners of the capital stock in relation to the value of the stock) because this should be linked to the growth of corporate earnings. The return to

that the trend rate of GDP growth has to move up from around 2% to an annual rate of 5% over a considerable period. Thus, we are talking of a marked upward shift in the growth trend that has not yet occurred in Sweden. Neither has such high growth been mentioned in the United States, except perhaps for a single year. The discussion there does, however, concern the possibility that the trend or potential rate of growth has risen. That would then point to some increase in the growth of corporate earnings in the United States.

### Why are asset prices relevant for central banks?

If asset prices and the growth of credit in an economy are based on unrealistic expectations of future prospects, the result is liable to be a financial bubble. Under normal circumstances, rising asset prices add to the value of collateral and thereby strengthen the borrowing propensity of investors and the lending propensity of banks. An upward trend in asset prices is therefore often accompanied by an expansion of credit. In Sweden, for example, in the five-year period up to the early 1990s, real asset prices had risen more than 70% and private sector debt relative to GDP had grown from 100% to 150% (Fig. 5). Bubbles burst sooner or later, with consequences for the financial system and the economy in general that may be grave. That is one reason for central banks to take an interest in stock market trends.

Today, however, the situation in Sweden does not resemble what happened in the second half of the 1980s. Asset prices have certainly risen strongly in recent years but credit has not grown to the same extent. It seems that, at least to date in the present upswing, Swedish banks and their customers have taken a different line on the provision of credit and borrowing. Everyone is hopefully more accustomed to a deregulated credit market than was the case in the late 1980s. Still, it is important to be alert to the future path of asset prices and credit aggregates, as well as to the underlying forces at work in the Swedish economy.



capital in an economy is dependent on the level of output and how this income is shared between labour and the owners of capital. To keep things simple, we can assume that the labour and capital shares are constant in the longer run and concentrate on how the return to capital is affected by changes in total factor productivity (the overall efficiency with which labour and capital are utilised in production). A higher return to capital should imply a higher rate of increase in corporate earnings. Conversely, an accelerating growth of corporate earnings should show up as a rising return to capital at the macro level.

## Conclusions

From what I have said this evening it is possible to draw two conclusions that at first sight may seem to be somewhat contradictory. On the one hand we have noted that stock market values are historically high and that in the past this has normally been followed by some form of correction. On the other hand, there may be some grounds for arguing that changes have occurred in expected stock market returns and/or the economy's potential growth rate which could justify a stock market valuation above the historical level. In the United States there are at least signs that point in this direction. For Sweden, however, figures at macro level have not yet been discerned that would confirm such a change.

But these two conclusions are not necessarily contradictory. Present stock market prices could mirror a combination of "irrational exuberance" and a change in the fundamental picture of the global economy. The impact of the new information technology may be leading to higher productivity growth. It is also conceivable that stock market investment is now considered to be somewhat less risky than before, in which case the expected return may have become somewhat lower. But the stock market reaction to these new signs may have been rather hasty. Experience has shown that financial markets are sometimes liable to overshoot when adjusting upwards or downwards.

My intention today, however, is not to opt for a particular view. I am more interested in initiating a discussion and would like to take this opportunity of asking the share investors who are present here: Which conclusion do you find most valid?

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An increase of 3 percentage points in the growth of total factor productivity above the long-term trend leads to an upward shift in the real return to capital from 6.0% initially to 6.2% ( $1.03^1 \times 6$ ) after one year, 7.0% ( $1.03^5 \times 6$ ) after five years and 8.1% ( $1.03^{10} \times 6$ ) after ten years, that is, an increase of about 2 percentage points after ten years.