Macroeconomic aspects of share price developments

As investment and financing instruments, shares played a rather minor role in the German financial system for many years. During the course of the 1990s, however, investors and companies in Germany, too, increasingly took the more direct route via the securities markets. This development has experienced a major setback with the collapse of stock market prices during the past few years. In the longer term, however, the importance of the equity market within the German financial system can be expected to continue to increase, and with it the influence of share price movements on saving, investment and consumption decisions and, ultimately, on the general level of prices. This article first provides a brief overview of the significance of shares as an investment and financing instrument and then examines the determinants of share prices and their implications for macroeconomic developments.

Shares as an investment and financing instrument

Significance of the equity market in Germany

In line with the boom of all the world's major equity markets in the second half of the 1990s, the German stock market's importance for the German economy increased substantially. In spring 2000 the market value of shares listed in Germany reached a level of just under €1.7 trillion, or 82% of GDP, compared with 22% at the end of 1995. After

27

International comparison of
stock market capitalisation as a
percentage of GDP

%

Region	1996	2001	2002 [1]
Germany	28	58	31
Euro area	34	69	46
United States	129	137	105
United Kingdom	127	150	108
Japan	70	59	54

Sources: Eurostat (GDP), World Federation of Exchanges
(stock market capitalisation, end-of-year levels). —
1 GDP forecasts.

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peaking in March 2000, however, market capitalisation fell sharply owing to the steep slide in share prices. At the end of 2002 the market value of German listed public limited companies (PLCs) had fallen to "only" €647 billion, or 31% of GDP, and has continued to decrease since then. While this ratio is still higher than it was in the mid-1990s, prior to the onset of the exceptional stock market boom, the significance of equity markets remains much smaller in Germany than in other industrial countries such as the USA (105% of GDP) or the UK (108%) with a long-established equity culture.

Share issuance During the bear market in the last three years, moreover, the number of domestic listed enterprises declined. The total at the end of January 2003 (1,003 PLCs) was neverthe-

less greater than in the mid-1990s, when fewer than 700 companies were listed. The key factor in this rise was the boom in initial public offerings (IPOs) on the *Neuer Markt* segment of the German stock market; in other regulated market segments, however, the number of listed companies declined. Although the amount of capital raised via the equity market likewise receded distinctly following the bull market in the second half of the 1990s, on a longer-term view the trend towards equity financing seems to be continuing.

However, it is too early to speak of a major shift in macroeconomic financing patterns towards the equity market. The corporate landscape in Germany has traditionally been dominated by non-corporations (sole proprietors and small and medium-sized partnerships). As for German corporations, they are largely run as private limited companies (*Gesellschaft mit beschränkter Haftung, GmbH*) or limited partnerships in which private limited companies are partners (*GmbH & Co. KG*), whereas public limited companies still play a much less significant role. The number of PLCs showed a marked rise only during the boom in the late 1990s. This trend continued subsequently, but on a greatly diminished scale. At the same time, the focus of share issuance shifted from listed companies to non-listed companies, whose equity financing outstripped capital funding via the stock exchange in the last two years.
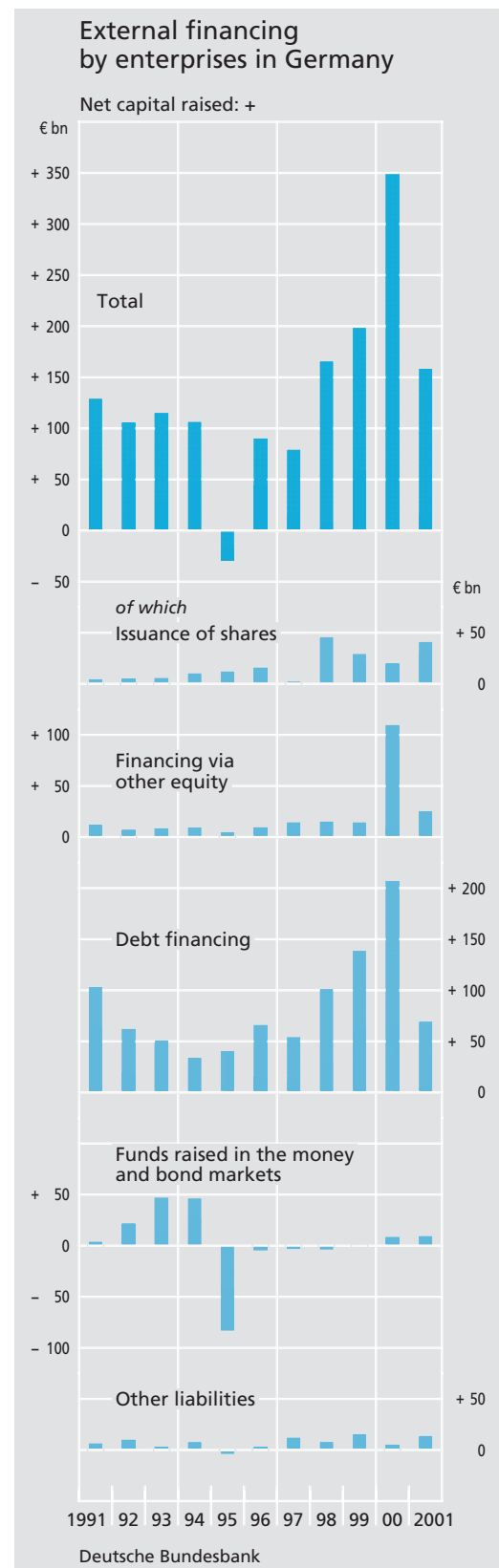
Number of public limited companies

Public limited companies have thus apparently weathered the ups and downs of equity price movements on the stock markets to be-

come more attractive over time. Choosing this particular corporate legal status leaves open the option of an IPO at a later date. This prospect has been made more attractive by changes in the legal setting – notably as a result of the Financial Market Promotion Acts and the tax reform adopted in 2001. These extra benefits also outweigh the additional costs associated with the organisational re-quirements contained in the German Stock Corporation Act and the corresponding dis-closure rules. This development has been reinforced by legislative efforts to make it eas-ier for enterprises to obtain access to the cap-ital market. The new insolvency legislation, which has weakened the previously strong position of creditors and has thus tended to make debt financing more expensive, might also prompt enterprises indirectly to see equity financing in a new light. This will prob-ably be further bolstered by banks' reassess-ment of credit risk, since the generally strong-er capital base of PLCs gives them a better risk standing. Taken together, these factors will continue to strengthen the role of equity financing in the future.

Shares as an investment instrument

For many years shares were unpopular among investors in Germany as they were considered a particularly risky form of invest-ment. Moreover, for their old-age provision, large segments of the population relied heav-ily on their claims under the pay-as-you-go statutory pension system, which was supple-mented by company pension schemes and capital accumulation in the form of private life assurance policies. An important role was also played by savings with banks and invest-ment in real property. Many people, however,

External financing
by enterprises in Germany

Net capital raised: +

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saw no need to make additional private old-age provision by investing in the equity market.[1] A certain change in attitude has taken place since the mid-1990s. The debate on the problems involved in funding the statutory pension insurance scheme has caused the public to become more aware of the need for private old-age provision. In addition, the long period of rising share prices, accompanied by falling nominal interest rates, helped direct attention to shares as an alternative investment vehicle. The euphoric mood with which the markets celebrated the liberalisation and privatisation of the telecommunications sector and the dramatic upswing in the other "new growth industries", however, also raised overblown expectations which were ultimately dashed, causing considerable damage to the incipient equity market culture.

As in the past, only a small minority (around 8%) of the German population directly hold shares in companies,[2] although this figure was even lower in the mid-1990s, at around 6%. What has spread much faster, however, is indirect equity ownership through mutual funds. Now nearly 9% of Germans have shares in equity-based mutual funds. The total value of shares held by households directly and indirectly made up around 14% of their financial assets at the end of 2001, compared to less than 10% in 1995.

Share price swings between bull and bear markets

The trends outlined in the previous section indicate that, despite the serious setbacks in the past few years, shares have undoubtedly acquired greater long-term importance as an investment and financing instrument in Germany. Movements on equity markets interest monetary policy makers above all because they can provide insights into market participants' changing attitudes regarding the situation of, and outlook for, the economy. At the same time, these movements are closely linked to the other segments of the financial markets. The risk of exaggerated share price swings followed by downward corrections constitutes a particular danger – and not only for investors and savers. In fact, these phenomena may also have repercussions on the functional ability of the financial system and hence potentially on the effectiveness of monetary policy as well.

Macro-economic importance of share prices

In the past few years the financial market infrastructure has improved considerably, and this has not gone unnoticed by investors. The deregulation of international capital movements and innovations in information and communication technology (ICT) have made securities trading and settlement much cheaper and faster. In addition, the volume of information available to investors and the vel-

Recent developments

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1 See also Deutsche Bundesbank, Funded old-age provision and the financial markets, *Monthly Report,* July 2002, pp 25-39.
2 See Deutsches Aktieninstitut, Factbook 2002, and Kurzstudie (short survey) 1/2003, Frankfurt am Main, with information from Infratest surveys concerning the population over 14 years of age; latest information as at the end of 2002.

ocity with which it can be provided and processed have increased enormously. Today, market participants have at their fingertips a vast volume of up-to-date information from all over the world to which they can react immediately by adjusting their portfolios. As a consequence, markets have indeed become more sensitive to changes in information in the past few years. The downside of this development is that it has encouraged investors to focus more on the short term. Uncertainty is much more likely now to lead to high share price volatility, which in turn may amplify uncertainty (at least in the short run) – including outside the financial markets.

Structural weaknesses

These risks have been highlighted by various structural weaknesses which have become apparent during the bear market which has prevailed on major equity markets for the past three years. They include, for instance, the poor quality of some market-relevant data and information which even extends to glaring examples of fraudulent accounting practices. In principle, all market participants have an interest in reliable data on the business developments of listed enterprises in a system of checks and balances policed by independent auditors and financial analysts. However, this can function only if all participants, also in their own interest, maintain their integrity and respect the rules of the market. During the stock market boom, which was accompanied by high growth targets, checks and balances took a back seat to short-term gain. Especially where the "new economy" was concerned, many companies switched to remunerating their employees to a large extent by stock options. The rising asset prices

also led firms to make very optimistic assumptions regarding their pension scheme obligations. As a consequence, the focus of management was often narrowed to boosting their own company's share price in the short term without taking due account of their company's underlying performance. In some cases this took the form of exaggerated self-marketing, as happened when some start-ups abused the instrument of ad hoc disclosures on the *Neuer Markt* stock exchange segment. In other cases, such as in the USA, management often sought to meet market expectations by submitting supplementary and uncertified financial statements. In these "pro forma" financial statements earnings were often overstated, in some cases by not listing employee stock options as expenses.

Incentive problems

As a result, the principle of "shareholder value" was frequently turned on its head. Some audit firms showed increasing interest in acquiring additional consultancy contracts from enterprises whose financial statements they had to certify. Securities trading firms focused their attention more and more on lucrative IPO business, for which favourable analyses were an important prerequisite. Such conflicts of interest harbour the danger of overstating the profit situation and the profit outlook. Insufficient monitoring of reported corporate earnings and overly optimistic forecasts had a similar effect. The quality of market-relevant information has thus become a core issue to which the various economic policy decision-making bodies and committees will have to give intensive thought in the future at both a national and international level.

Factors determining share prices

Assessing the share price level

Even given reliable data, the task of assessing the appropriateness of the equity market's valuation would still be difficult and subject to major uncertainty. Many investors rely on professional analysts' earnings forecasts, although these are likewise not foolproof. Central banks, too, are partly reliant on such information when making their own assessments. Ultimately, careful analysis of earnings forecasts is the only way to even approximately recognise the danger of overvaluation in a reasonably timely manner.

Speculative price bubbles

Naturally, it is easier to recognise speculative bubbles with the benefit of hindsight. Today it seems clear that during the bull markets of the late 1990s the share prices of many companies, especially in the area of telecommunications, media and technology (TMT), had begun to become decoupled from the fundamentals. Herding behaviour on the part of investors may be one reason for such overvaluation. The trend in securities investment is clearly moving towards involving institutional asset managers, whose expertise and analytical advantages can be beneficial to general market developments. However, even professional portfolio managers often have virtually no scope for taking positions against the market trend.[3] That is how excessive swings can come to acquire increasing momentum and, for a while at least, become self-perpetuating until the trend eventually reverses.

Share prices and profits

Thus the massive collapse of share prices in 2000 took place at a price level which, measured by fundamental ratios, was already considered extremely high. One indication of this is the average price-earnings ratio (P/E ratio) for companies listed in important market indices such as the German blue-chip share price index DAX or the Dow Jones EuroStoxx index. In the mid-1990s DAX shares had already attained P/E ratios which, on the basis of actual profits, averaged 26, and thus twice their levels in the late 1980s and early 1990s.

Cash flow and dividend

Other indicators, such as a PLC's share price to cash flow ratio, show a similar picture. Looking at the overall market index, a very close correlation can be expected over the medium term between operating profit and reported profit. After all, dividend payments and other distributions ultimately depend on the actual earnings trend. The average dividend yield on DAX shares declined correspondingly from around 4% at the end of the 1980s and the beginning of the 1990s to 1½% by the end of the 1990s.

Key role of profit expectations

The fact that equity market quotations were able to remain high for as long as they did, however, is due not so much to inefficiencies in the processing of information on equity markets, which may be suggested at first sight by comparisons of the ratios mentioned above, than to optimistic profit expectations in the second half of the 1990s. Average profit growth expectations for DAX-listed companies for a rolling three-year period rose by more than 15% a year, compared with around 7% in the late 1980s and early 1990s. Looking back, these forecasts have

3 See Arnswald, T (2001), Investment behaviour of German equity fund managers, Economic Research Centre of the Deutsche Bundesbank, *Discussion paper 08/01*.

proved to be unrealistic and exaggerated. However, they were a key driving factor of share price movements until early 2000.
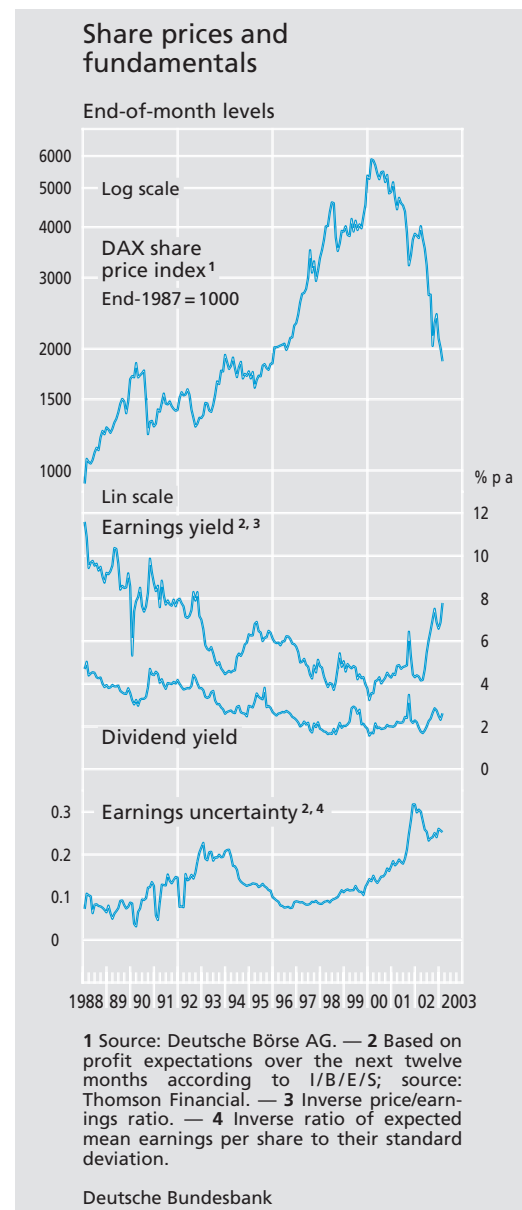
Share prices and capital market rates

However, the pattern of development of a given share price is characterised not just by the prevailing market expectations concerning the company's earnings but also by expected returns on alternative forms of investment such as, notably, fixed-income securities. The long bull market in the second half of the 1990s should thus also be seen in the context of the concurrent marked decrease in interest rates on the capital market.

Equity pricing with the dividend discount model

In addition, the stock market prices depend on how investors assess risk. For a given level of risk aversion, increased risk perception on the part of investors can cause the shares concerned to come under pressure; conversely, their prices will rise once uncertainty recedes. In what are called "dividend discount models", the implied risk premia contained in the share price are calculated as residuals (see explanations on page 35).[4] These approaches rely on the idea that the fair valuation of an equity corresponds to the present value of all future dividends. Based on this framework the implied risk premium can be derived by comparing the expected total yield on the respective equity investment (the "internal" rate of return) with the yield on comparatively risk-free assets, interpreting the differential as the premium required by investors for incurring higher risk on the equity market.

Risk premium as an indicator of the valuation level

The risk premium can vary considerably over time as a function of the economic and political environment as well as of the state of the

Share prices and fundamentals

1 Source: Deutsche Börse AG. — 2 Based on profit expectations over the next twelve months according to I/B/E/S; source: Thomson Financial. — 3 Inverse price/earnings ratio. — 4 Inverse ratio of expected mean earnings per share to their standard deviation.

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market. A basis for assessing share prices is given by comparing the premia contained in these prices with historical values. If the pre-

4 The three-stage dividend discount model widely used in practice calculates the implied premium under the assumption that, in a transitional phase, the forecast profit growth rates will converge to a long-run target rate which in turn is composed of the long-term real interest rate and the risk premium itself. See Panigirtzoglou, N and Scammell, R, Analysts' earnings forecasts and equity valuations, Bank of England, *Quarterly Bulletin*, Vol 42, 1, pp 59-65, 2002.

mium is well below a "normal" value (which is determined on a case-to-case basis), this indicates a relatively high level of valuation. By this token, the implied risk premium at the beginning of 2000 on an equity portfolio embracing the DAX index was well below the average value of the end of the 1980s and the beginning of the 1990s but has latterly returned to that level following the sharp falls in share prices. In fact, there are many signs at the moment of the existence of a high risk premium. For one thing, the geopolitical tensions caused by the Iraq crisis are weighing heavily on stock exchanges; for another, there is still great uncertainty concerning the outlook for growth, which is expressed in the wide spread of corporate profit forecasts. Although this spread has narrowed somewhat since spring 2002, it remains much greater than that prevailing at the time of the steep fall in earnings in 1994.

Implications of share price movements on real activity

Stock market and the business cycle

In view of the assessment of overall economic growth which they imply, share price movements on the stock markets are often used as leading indicators of cyclical developments. Indeed, share prices usually do lead both consumer confidence[5] and business confidence.[6] However the underlying causes and effects can vary greatly. Share price movements may reflect market participants' earnings prospects without causing them. But it is also possible that share price movements – via the wealth effects that they trigger, for instance – may themselves become a determinant of

business activity. In that case, expectations regarding share price changes and changes in the economic situation which they cause can be mutually reinforcing.

Wealth effects on consumer demand

The increased importance of shares as an investment instrument has also raised the potential for corresponding wealth effects to occur. One important transmission channel is through assets held by households who consume not only out of current disposable income but also depending on the value of their savings. Econometric studies indicate that the correlation between equity assets and households' consumption has indeed become closer over the past decade. These estimations, suggest that for a €100 loss in German households' equity wealth, their expenditure on consumption will decrease by €1 to €2. This is a very low ratio compared with countries that have relatively large equity markets and a corresponding larger share ownership by households.[7] Given the size of the fall in share prices on the German equity markets, which last year alone amounted to around 40%, this direct wealth effect could therefore have reduced consumption growth, based on the above computation results, by between 0.2 and 0.4 percentage point. Moreover, falling share prices may have contributed to the pronounced consumption restraint via other transmission channels, too.

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5 Consumer confidence defined according to the EU Business and Consumer Survey for Germany.
6 See Ifo business survey for the manufacturing industry.
7 See Ludwig, A and Sløk, T, The Impact of Stock Prices and House Prices on Consumption in OECD Countries, *IMF Working Paper 02/1*, 2002.

Calculating the implied risk premium using dividend discount models

In a simple dividend discount model the value of a share or, alternatively, the index being looked at when valuing the total market, is equivalent to the present value of all future expected dividend payments:

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{1 + R_t}$$

where P_0 is the current share price or index value, D_t the expected dividend at time t and R_t the discount rate for the timespan t. The discount rate, which can also be interpreted as the rate of return required by investors, is made up of the risk-free interest rate for the period under consideration and a risk premium which reflects uncertainty about future dividends.

Assuming a constant payment ratio $\bar{b}$ the dividend growth rate g in a steady-state equilibrium corresponds to the return on equity ROE multiplied by the retention rate $1-\bar{b}$. [1] The required return on equity corresponds over the long run to the cost of capital, which is made up of an equity risk premium ERP and a risk-free interest rate r. If a constant rate g is assumed, then for the price level P_t the following equation holds: [2]

$$P_t = \frac{D_t (1 + g)}{(ERP + r) - g}$$

where g = ROE $(1-\bar{b})$. Since P_t, D_t and r can all be observed on the market, the implied risk premium can be calculated. High share prices indicate that market participants require only a small risk premium for holding shares.

In the three-stage dividend discount model, there are three distinct phases of dividend growth. For an initial phase of A years it is assumed that the dividend growth rate g is constant. Since a constant observable dividend payment rate $\bar{b}$ is also assumed, in this stage g can be calculated with the help of long-run analyst estimates of profit growth. [3] In a second phase lasting B years, g is assumed to continuously approach its above-mentioned steady-state equilibrium value, which it reaches in the third phase. The price level P_t is approximated as follows: [4]

$$P_t = \frac{D_t \left[(1 + g) + (A + \frac{B}{2})(g^* - g) \right]}{(ERP + r) - g}$$
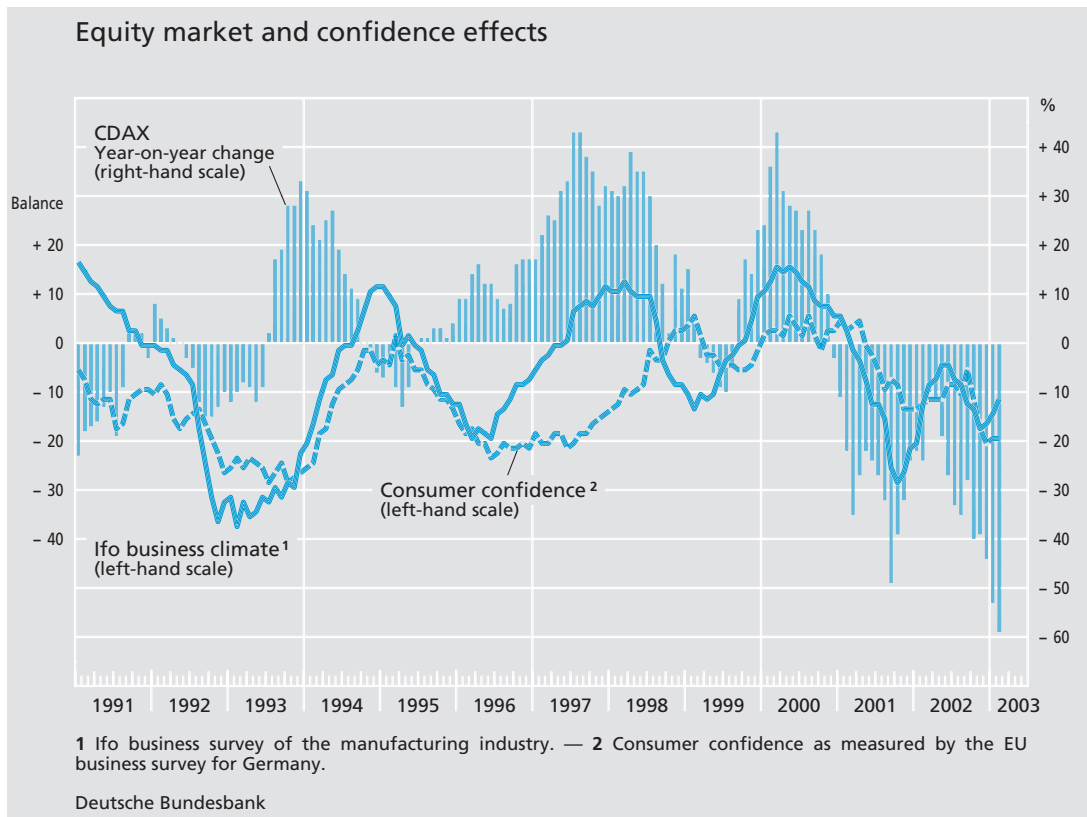
where g^* is the dividend growth rate based on analysts' estimates. The term

$$\frac{D_t (A + \frac{B}{2})(g^* - g)}{(ERP + r) - g}$$

reflects the portion of the value based on the dividend growth of the first two stages deviating from the steady-state equilibrium value g. That way the implied risk premium can also be derived in this type of dividend discount model, where short-run deviations from long-run dividend growth are taken into account.

1 The dividend growth rate g is positively correlated to the retention rate $1-\bar{b}$ because retained profits are invested in the future growth of the enterprise. — **2** It is assumed that ERP +r > g. — **3** Such estimates are provided, for example, by the Institutional Brokers Estimate System (IBES). — **4** This equation is based on the three-stage dividend discount model developed by Fuller and Hsia. See Fuller, RJ and Hsia, C-C (1984), A Simplified Common Stock Valuation Model, *Financial Analysts Journal,* September-October, pp 49-56.

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Equity market and confidence effects

CDAX
Year-on-year change
(right-hand scale)

Balance

Consumer confidence[2]
(left-hand scale)

Ifo business climate[1]
(left-hand scale)

%

1 Ifo business survey of the manufacturing industry. — **2** Consumer confidence as measured by the EU business survey for Germany.

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However, owing to the extreme volatility of share prices and the continuing heightened uncertainty, it is impossible to tell whether the reactions of private investors to last year's decrease in share prices have run their course. It is likely that the marginal propensity to consume also varies among the different categories of income and wealth. High-income households with a large volume of wealth can normally take declining share prices in their stride, tending to base their consumption decisions more on their long-term income outlook. The fact that equity ownership is concentrated precisely on such higher-income households may explain, at least in part, the relatively low wealth elasticity of private consumption in Germany.[8]

As a source of corporate finance, the equity market has dried up for the time being during the current bear market. This, too, can have an adverse effect on economic growth; however, in macroeconomic terms this effect is virtually negligible since, even during the boom years from 1996 to 2000, the percentage of total corporate finance in Germany accounted for by funds raised on the equity market was only around 7%. In individual sectors such as the technology sector, by contrast, the acquisition of capital on the equity market played a much greater role in the second half of the 1990s.

Moreover, the falling value of technology shares on the stock exchanges indirectly put a

Effect on firms' financing and investment decisions

8 See Deutsches Aktieninstitut, Factbook 2002, p 08.3-E-A.

Estimating wealth effects

The relationship between wealth and consumption is based on the permanent income hypothesis. This hypothesis states that household consumption is driven by (human and non-human) wealth – ie by the present value of future income. Decomposing health into the current value of future labour income, on the one hand, and real and financial (non-human) wealth, on the other, the intertemporal budget constraint faced by households can be written as follows:

$$A_{t+1} = (1 + r_{t+1}) \cdot [A_t + Y_t - C_t]$$

Future real and financial assets A_{t+1} are equal to current non-consumed labour income $Y_t - C_t$, remunerated at the rate r_{t+1}, and current assets A_t remunerated at the same rate. Solving forward, the current value of planned future consumption equals the consumers' total assets, ie real and financial assets A_t plus the current value of their expected future labour income:

$$E_t \sum_{i=0}^{\infty} \frac{C_{t+i}}{(1 + r_t)^{-1} \prod_{j=0}^{i}(1 + r_{t+j})} = A_t + E_t \sum_{i=0}^{\infty} \frac{Y_{t+i}}{(1 + r_t)^{-1} \prod_{j=0}^{i}(1 + r_{t+j})}$$

Lettau and Ludwigson [1] show that, given stationary consumption growth and stationary expectations of future asset returns, there exists an equilibrium relationship between the log consumption of households c_t, their log labour income y_t and their log assets a_t:

$$c_t = \alpha\, y_t + (1 - \alpha)\, a_t + \varepsilon_t$$

where ε_t is a mean zero stationary random variable. The coefficients α and $(1-\alpha)$ can be interpreted as the long-run income elasticity and the long-run wealth elasticity of consumption, respectively. If the ratio of consumption to assets falls, then so does the long-run marginal propensity to consume out of non-human wealth:

$$\frac{\Delta C_t}{\Delta A_t} = (1 - \alpha)\frac{C_t}{A_t}$$

However, rising expected returns on assets have a positive impact on the marginal propensity to consume.

This estimation approach, which postulates a constant wealth elasticity and therefore bears only an indirect relationship to the long-run marginal propensity to consume, contrasts with a method of directly estimating a long-run marginal propensity to consume. It assumes that households base their current consumption on expected future consumption and thus smooth it out over time. [2] C_t then corresponds to $E_t(C_{t+1})$ for all points in time i. Given constant future asset returns r and stationary expected growth of labour income, the following direct estimation approach applies: [3]

$$\frac{C_t}{Y_t} = \frac{r}{1 + r} \frac{A_t}{Y_t} + k + \varepsilon_t$$

where k is a constant and ε_t mean zero deviation of future income growth from the average. An unexpected permanent change in assets ΔA_t of one euro, consequently, leads to a permanent change in consumption ΔC_t of r/(1+r) euro. However, this estimation approach is only unbiased if the ratio of current assets A_t to labour income Y_t does not predict future in creases in labour income.

By decomposing wealth into its components, both the direct estimation approach and the indirect approach [4] can be used to estimate households' marginal propensity to consume out of their equity wealth. For Germany the relevant asset data – which are available for the 1991-2001 period based on the European System of Accounts (ESA 95) – provide some indications. It is estimated that for every euro of change in equity wealth, the marginal propensity to consume is estimated at between one and two cents. That would mean that a 40 % reduction in household equity wealth would per se reduce consumption growth by around 0.2 to 0.4 percentage point.

1 See Lettau, M and Ludvigson, S, Consumption, Aggregate Wealth and Expected Stock Returns, *Journal of Finance*, Vol LVI, No 3, 2001, pp 815-849. See also Campbell, JY and Mankiw, NG, Consumption, income and interest rates: Reinterpreting the time series evidence, in Blanchard, OJ and Fischer, S, NBER Macroeconomics Annual, MIT Press, Cambridge, MA, 1989. — **2** See Hall, R, Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence, *Journal of Political Economy* 86, December 1978, pp 971-987. — **3** See Palumbo, M, Rudd, J and Whelan, K, On the Relationships between Real Consumption, Income and Wealth, Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series, No 2002/38, 2002. — **4** To estimate the elasticity of consumption to changes in wealth, an error correction model was used in which levels and their first differences were estimated simultaneously. See Stock, JH, Asymptotic Properties of Least Squares Estimators of Cointegrating Vectors, *Econometrica*, Vol 55, 5, pp 1035-1056, 1987.

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– hopefully only temporary – end to the hith-erto feverish growth of the German venture capital market. Previously the stock market had been an important exit channel for ven-ture capital investors. The plummeting of share prices made this option unattractive and thus also curtailed new investment op-portunities. The unprecedented slide in share prices, particularly on the *Neuer Markt*, there-fore also caused the net investment of ven-ture capital companies to grind to a halt. Newly established companies are being funded barely at all by venture capital at the moment, and follow-up investment in young companies is being scaled back sharply. Even if the macroeconomic significance of the ven-ture capital market is very small, the reluc-tance to invest is cause for concern that tech-nological innovation and growth stimuli, which have major long-term benefits, are being postponed.

International repercussions

Finally, domestic economic growth can de-pend to a considerable degree on the state of equity markets in other major economies. For one thing, retail and institutional investors alike are increasingly holding foreign equities. For another, the repercussions of stock mar-ket movements on the economies of other countries are also relevant to Germany owing to firms' international capital and trading links.

Monetary policy implications

Goods and asset prices

The Eurosystem's monetary policy is geared to ensuring stable consumer prices. The stability of asset prices – which also include share

prices – is not an autonomous objective of monetary policy. Thus rising share prices may not be inconsistent with stable consumer prices, if, for instance, they reflect corres-pondingly positive corporate growth pro-spects. However, rising share prices not justi-fied by the fundamentals can, through the as-sociated wealth effect, increase macroeco-nomic demand and thus cause consumer prices to rise. In the extreme, excessive swings in either direction could have an adverse ef-fect on the stability of the financial system.

For these reasons, share prices play an im-portant role as a monetary policy indicator, even though monetary policy is not geared to share price developments. A major factor in this context is the ability of share prices, in connection with other indicators, to provide important information on potentially undesir-able developments. In this connection, the ongoing analysis of credit and monetary growth has proved to be helpful. Experience to date has shown that share price increases not justified by the fundamentals are associ-ated with increased lending and thus with ac-celerated monetary growth. However, a rise in share prices which is accompanied by in-creased monetary growth does not necessar-ily indicate the formation of a "bubble", be-cause fundamentally justified asset price in-creases, too, are likely to coincide with stronger monetary growth.

What this makes clear is that the appropriate course of action for a central bank cannot be inferred from share price movements per se. It is more important that central banks ob-serve developments on equity markets closely

in the light of their impact on consumer price stability and combine them with an analysis of other indicators – especially monetary growth.