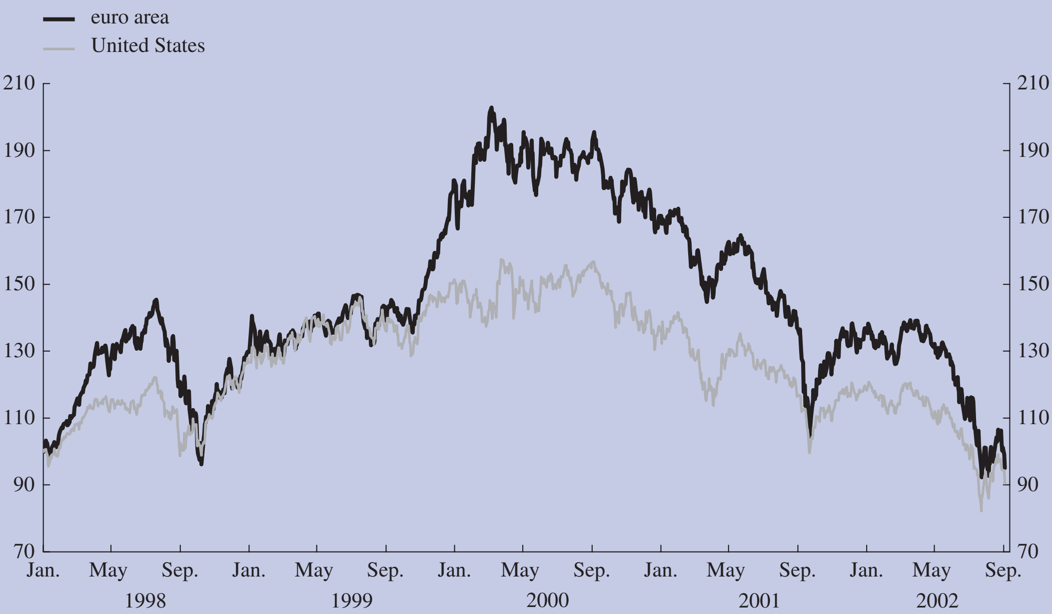
Box 3

The importance of the effects of stock price movements on economic activity in the euro area

Over recent months stock prices in the euro area and other major economies have fallen. Between the end of March 2002 and 11 September 2002, broad-based stock price indices in the euro area and the United States – as measured by the Dow Jones EURO STOXX and the Standard & Poor's 500 price indices – declined by 27% and 20% respectively (see the chart below). From a longer-term perspective, by 11 September 2002 stock price levels in the euro area and the United States were respectively 50% and 40% lower than the all-time highs reached in March 2000. As a result, these significant declines reversed the exceptionally strong stock price increases seen in 1998 and 1999, leaving euro area and US stock prices close to end-1997 levels by 11 September 2002. This box examines the impact which stock price changes may have on economic activity in the euro area. The impact of stock prices on government budgetary balances is dealt with in Box 7.

Longer-term stock price developments in the euro area and the United States

(index:1 January 1998 = 100; daily data)



Source: Reuters.

Note: Dow Jones EURO STOXX broad (stock price) index for the euro area, Standard & Poor's 500 for the United States.

There are four main channels through which the stock market can have a direct impact on economic developments: wealth effects on private consumption, cost-of-capital effects on corporate investment, and balance sheet as well as confidence effects on both consumption and investment. The underlying theoretical and conceptual issues, including the monetary policy implications of these stock price transmission channels, were dealt with in the article entitled "The stock market and monetary policy" in the February 2002 issue of the Monthly Bulletin. In the following, only the first two channels are further investigated given the lack of direct evidence on balance sheet and confidence effects for the euro area. Empirically, it is very difficult to disentangle the effects on consumption and investment stemming from each individual channel, in particular when basing the analysis on aggregate data. Hence, any correlation between, for example, stock prices and aggregate consumption or investment is likely to reflect the combined effect of a variety of transmission channels.

The wealth effect relates to the fact that consumers may spend more of their current income if they perceive a rise in their financial and non-financial wealth and assume that this will be permanent. As equity holdings form part of households' financial wealth, a lasting rise in the market value of stocks may cause households to feel permanently wealthier and to increase their current spending on consumer goods. The strength of the impact of a given change in stock prices on consumption hinges on three factors: the extent of households' direct and indirect stock market exposure in relation to disposable income, the marginal propensity to consume out of equity wealth and the extent to which these households perceive the stock price change to be permanent.

With regard to the first factor, euro area households have increased their direct and indirect holdings of equities considerably over recent years which, in turn, has raised the potential for more significant wealth effects in the euro area. According to financial accounts data, the outstanding amount of holdings of quoted shares and mutual fund shares by euro area households as a percentage of disposable income increased from 45% in 1997 to 66% in 2000. For households in the United States, the comparable figures are 116% in 1997 and 122% in 2000. As a percentage of total financial assets, euro area households' direct and indirect equity holdings rose from 15% to 20% between 1997 and 2000, whereas this share remained basically unchanged at around 30% during the same period for US households. The increased stock market exposure of euro area households is due both to large stock price increases and to higher equity investments. For example, on the basis of transactions alone (i.e. disregarding valuation effects), investments in shares and mutual fund shares increased by 48% between 1996 and 2001. This compares with a (transactions-based) increase in total financial assets of only 34% during the same period. To conclude, the higher stock market exposure of euro area households implies that, compared with the situation some years ago, a given decline in stock prices entails larger capital losses for households' equity holdings (and thus for their total financial wealth) in absolute terms and in relation to disposable income.

Second, in order to assess the impact of an equity price change on consumption, one has to estimate the marginal propensity to consume out of equity wealth. This marginal propensity to consume is traditionally estimated by linking a measure of aggregate consumption to a comparable measure of households' equity wealth and further explanatory variables such as disposable income. Owing to data limitations, no reliable estimate of the marginal propensity to consume out of equity wealth is thus far available for the euro area as a whole. Approximate measures may be taken from studies on individual euro area countries. For example, a recent study undertaken by staff from the International Monetary Fund estimates the marginal propensity to consume out of equity wealth for a group of euro area countries (Belgium, Germany, Spain, France, Italy and Finland) to be around 0.01.[1] This means that consumers in these countries tend to spend one cent more if they experience a permanent increase in their equity wealth by one euro. In the case of France and Italy, other studies suggest somewhat higher marginal propensities up to 0.03 to consume out of equity and/or financial wealth.[2] Estimates for the United States are usually higher than for euro area countries, falling within the range of 0.03 to 0.07 in most cases.[3]

One reason why the marginal propensity to consume out of equity wealth may be lower in the euro area than in the United States is the fact that direct equity holdings of households are still not as widely distributed in the euro area as in the United States. This notwithstanding, equity holdings have become more popular among euro area households across all income classes over recent years. For example, according to recent household surveys, in Germany and France 6% and 12% of households held stocks directly in 1997, while this share increased to 10% and 13% respectively in 2000. In Italy, the percentage of households with stock holdings increased from 5% in 1995 to 10% in 2000. In the United States, by contrast, 19% of households held equities directly in 1998, up from 15% in 1995.[4]

On the basis of this information, a rough gauge of the wealth effect on euro area consumption can be calculated. Assuming a marginal propensity to consume out of equity wealth of 0.01 for the euro area, a permanent decline in stock prices by 10% would imply a very limited long-term decline in consumption by approximately 0.06%. Assuming a higher marginal propensity to consume between 0.01 and 0.03 would still lead to a rather moderate long-term decline in consumption by 0.06% to 0.19%.

Stock prices may also have a direct impact on economic activity by changing the cost of raising equity capital to finance corporate investment. For example, a firm may perceive the cost of equity capital to be rather high in periods when the firm's stock price declines to a level which is relatively low compared with earnings per share. As a result, firms may reduce investment in projects previously perceived as profitable, in which case economic activity would be directly affected by the decline in stock prices. However, only a relatively weak empirical relationship between overall issuing activity on euro area stock markets and corporate fixed-capital

1 *See International Monetary Fund: "World Economic Outlook", April 2002, p. 79 ff.*
2 *Bertaut, C.C., "Equity prices, household wealth, and consumption growth in foreign industrial countries: Wealth effects in the 1990s", Board of Governors of the Federal Reserve System, International Finance Discussion Papers No. 724, April 2002; Boone, L., Girouard, N. and Wanner, I., "Financial market liberalisation, wealth and consumption", OECD Economics Department Working Paper No. 308, September 2001.*
3 *Boone, L., Giorno, C. and Richardson, P., "Stock market fluctuations and consumption behaviour: Some recent evidence", OECD Economics Department Working Paper No. 208, December 1998; Bertaut, C.C., op. cit.*
4 *See Deutsches Aktieninstitut: DAI-Factbook, February 2002; Banca d'Italia: "Italian household budgets in 2000", Supplement to the Statistical Bulletin, New Series, Year XII, No. 6, January 2002; "Recent changes in U.S. family finances: Results from the 1998 Survey of Consumer Finances", Federal Reserve Bulletin, January 2000; "Equity wealth and consumption – the experience of Germany, France and Italy in an international context", Bank of England Quarterly Bulletin, Spring 2002, p. 81.*

Net issuance of shares by non-financial corporations and gross fixed capital formation in the euro area
(as a percentage of GDP unless otherwise indicated)

	1995	1996	1997	1998	1999	2000	2001
Annual stock price change (as a %, end-of-period data)	8.8	21.2	37.0	29.8	39.5	-5.9	-19.7
Issuance of shares (transactions) as a % of annual financing	65.4	42.9	40.0	41.8	31.9	40.5	36.2
Annual net issuance of shares	1.7	2.1	2.0	3.3	3.6	6.4	3.8
Gross fixed capital formation	10.2	10.2	10.4	10.7	11.0	11.5	11.4

Sources: Reuters and the ECB.

investment both relative to GDP has been observed (see the table above). The different motives underlying this phenomenon may be the following. First, firms may switch to other, less costly forms of external finance (e.g. bank loans, issuance of corporate bonds) in such a situation without reducing investment. In addition, firms may also issue or repurchase their own stock simply to adjust their capital structure, in particular when they perceive the costs of equity capital to be temporarily high or low compared with the costs of other sources of finance. Finally, equity may be issued to finance merger and acquisition activities not directly related to firms' plans to invest in fixed capital.

However, it has to be stressed that the sources of a given change in stock prices also determine the extent to which consumption and investment tend to react. On the one hand, if market participants perceive a decline in equity prices as being permanent – reflecting, for example, revised expectations of permanently lower corporate earnings growth – it is likely that consumers and firms will react more strongly. On the other hand, if a given decline in stock prices reflects temporary increases in the equity risk premium required by market participants – for example in a period of exceptional financial uncertainty – consumers and firms may not adjust their current spending plans downwards at all. However, since stock prices tend to be highly volatile, households and firms may find it particularly difficult to assess whether a change in stock prices is permanent or temporary. This, in turn, is likely to lead to rather cautious responses from economic agents to short-term stock market developments.

All in all, the rather scarce empirical evidence available for the euro area suggests that the direct impact of stock market developments on economic activity through the above-mentioned transmission channels can be expected to be rather limited, though discernible. Direct stock market effects in the euro area appear moderate, in particular when compared with the United States where stock markets have long played an important role in the economy as a whole owing to their generally more widespread use by households and firms. This is true even though stock markets have become somewhat more important for the euro area economy over recent years. At the same time, the euro area economy is more affected by a synchronous worldwide downturn in equity prices resulting in spillover effects from abroad. Adverse stock price effects in the United States, in particular, may lead to reduced economic activity in this country which, in turn, affects economic growth in the euro area as well, mainly through international trade effects.

The main difficulty in assessing the effects of recent stock price changes on economic activity in the euro area relates to the fact that it is almost impossible to know to what extent economic agents regard them as permanent. Stock markets have been very volatile over recent years, and it is not clear to what extent: a) the high levels reached up to 2000 were indeed considered to be permanent increases in the value of stocks at the time; and b) the subsequent fall in stock prices is now regarded as affecting stock valuations permanently. Thus, it is very difficult to reliably quantify the impact of recent stock price declines on the euro area economy. This notwithstanding, it may be prudent to assume that recent stock price movements will affect economic activity in the euro area at least to some extent, in particular given the fact that recent stock market corrections have affected all major economies at the same time.