# Financial markets

## Financial market environment

*Financial market trends*

The last few months have seen a re-evaluation of investment risks in the international financial markets. In addition, growing geopolitical tensions and changing expectations regarding the US Federal Reserve's future interest rate policy have been shaping events in the marketplace. Increased risk awareness and heightened uncertainty were reflected in sometimes sharp price movements in the global capital markets, especially from mid-May to mid-June. The market situation did, however, subsequently become somewhat calmer. Overall, European bond yields had improved slightly by the end of this reporting period, while stock prices, despite having rallied recently, were still down slightly overall.

## Exchange rates

*Euro exchange rate movements against the US dollar...*

In a setting of rising money market rates worldwide and of capital market rates showing little change, the euro has remained largely stable since mid-May following its perceptible appreciation in the second quarter. There was no clearly discernable trend in the euro-dollar exchange rate during the reporting period. Changing market expectations concerning the US Federal Reserve's prospective monetary policy stance are likely to have contributed significantly to short-term changes in the exchange rate. Moreover, the euro may have benefited to a lesser extent than the US dollar from the increased risk aversion of investors, who primarily wound up exposures in some emerging markets and invested mainly in US bonds.

At US$1.30, the euro's exchange rate initially hit a new annual record high in early June, when surprisingly unfavourable news about the US economy, especially its labour market, was published at the same time as unexpectedly positive economic figures for the euro area. However, the Federal Reserve's subsequent warnings of a possible further acceleration in US inflation, which were interpreted by the market as suggesting a continuation of monetary policy tightening, resulted in a depreciation of the euro against the US dollar.

The Federal Reserve's communication policy continued to have a major impact on the euro-dollar exchange rate. The euro recovered again at the end of June, when the announcement accompanying the Fed's interest rate decision gave no hints of further interest rate hikes. This was followed by a perceptible easing of US short-term forward interest rates. The euro forfeited its gains in the first half of July against the backdrop of a large, albeit smaller than feared, US trade deficit and surprisingly robust US economic activity – as indicated, not least, by rising industrial output and steadily increasing capacity utilisation. However, it then rebounded later when market players revised their expectations of rising US key interest rates downwards in response to statements by the Fed. Following the publication of the Beige Book, in which the Fed reported a cooling of the US economy, and an unexpectedly low rate of growth in the US economy for the second quarter, this assessment became further entrenched. After the Federal Reserve had left its key interest rates unchanged in early August – as had largely been anticipated – the euro, at latterly US$1.29, was trading a good 9% above its exchange rate at the beginning of the year.

*... the yen ...*

The euro appreciated against the Japanese yen during the reporting period and has since reached all-time highs. Rumours of the Governor of the Bank of Japan possibly resigning and emerging doubts among market players about the Japanese zero interest rate policy ending in the near future had initially imposed a strain on the yen in May and June. The yen exerted temporary downward pressure on the euro during the first week of July when the markets interpreted the Tankan report as a signal that the Bank of Japan was now indeed likely to be increasing its interest rates soon. Nevertheless, the euro regained its losses against the yen as early as the following week on the back of positive economic data for the euro area and speculation concerning an earlier than expected interest rate move by the European Central Bank. By contrast, the Bank of Japan's raising of the key interest rate in mid-July, which had been anticipated by market players, had no perceptible impact on the euro's exchange rate against the yen. As this report went to press, the euro was being quoted at ¥149, which was around 7% above its value at the beginning of the year.

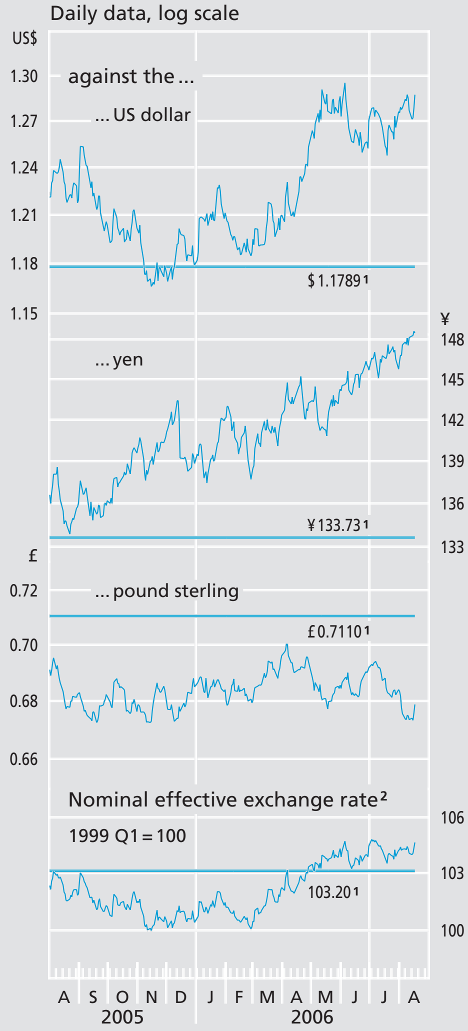
*... and the pound sterling*

The euro also initially gained ground on the pound sterling in the reporting period; this appreciation, however, was comparatively moderate as the gains were largely relinquished again as July progressed. Growing inflation expectations and surprisingly dynamic economic growth in the UK economy led markets players to view an increase in interest rates by the Bank of England as more likely, thus strengthening the pound. The expected interest rate move was, in fact, then made at the beginning of August. Portfolio shifts by some central banks to the advantage of the pound sterling are also likely to have contributed to the stabilisation of the British currency. At the end of the period under review, the euro stood at GBP 0.68, just below its exchange rate at the beginning of the year.

*Effective euro exchange rate*

The euro hardly moved vis-à-vis an average of the currencies of 23 major trading partners during the period under review. Most recently, the effective exchange rate was 4% higher than at the start of the year, and thus somewhat up on its level at the start of monetary union. In real terms, ie taking into account the inflation differentials between the euro area and its major trading partners, the euro's effective exchange rate has risen by 3½% since the final quarter of 2005.

Exchange rate of the euro




1 Rate at the beginning of monetary union on 4 January 1999. — 2 As calculated by the ECB against the currencies of 23 countries.

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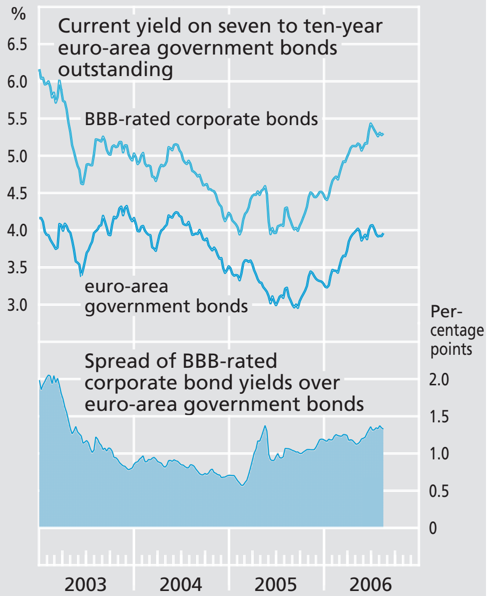
## Securities markets and portfolio transactions

*Slight rise in capital market rates in euro area with perceptible fluctuations*

European bond market yields were also subject to pronounced fluctuations in the second quarter. At 4% at the end of the reporting period, capital market rates, as measured by long-term public bond yields, were only slightly higher than at the end of March. Developments in recent months were similar across virtually all the major global markets. In the light of the generally positive economic indicators, yields in the euro area grew by approximately ⅓ of a percentage point to just under 4¼% before the onset of strains in the international financial markets in May. However, growing uncertainty about economic developments, especially in the United States, and increased risk awareness among internationally operating investors led to massive

Corporate and government bond yields in the euro area

Weekly average




Source: Merrill Lynch, Thomson Financial Datastream.

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portfolio shifts away from shares into bonds in mid-May. Government bonds, in particular, benefited from this move, while corporate bonds became less attractive in comparison. As a result, euro-area capital market rates, as measured by the yields of 10-year bonds, fell below 4% within a matter of days.

In June, upward tendencies in interest rates temporarily gained the upper hand. However, this development went into reverse again in July against the backdrop of military conflict in the Middle East and growing concerns about weak growth, stemming especially from the US economy. Ten-year euro government bonds were priced at around 4% at the end of the period under review, and thus showed an interest rate spread of just under ½ percentage point against US bonds.

*Yield curve somewhat flatter*

Under the impact of these developments in capital market interest rates and the interest rate policy tightening by the Governing Council of the European Central Bank, the yield curve in the German bond market has flattened somewhat and shifted upwards. The yield spread between the capital market and the long-term maturity segment of the bond market thus dropped from around ¾ percentage point at the end of March to just under ½ percentage point.

*Wider interest rate spreads on corporate bonds ...*

Along with the change in investors' risk awareness, the risk premium on corporate bonds with a less than first-class rating widened considerably in the second quarter. Since the end of March, the interest rate spreads on BBB-rated European non-financial corporate bonds have increased by 25 basis points to 134 basis points. This is a return to the level reached in May 2005 immediately after the downgrading of one large US manufacturer's credit rating. This widening of the spread is more indicative of investors' re-evaluation of the risk involved than of greater uncertaintly about the fundamentals. This is because factors such as current profits, expected year-on-year earnings per share and expectations concerning the earnings growth of the companies listed on the Dow Jones EuroStoxx index[1] all point to enterprises being in a sound position and a correspondingly positive outlook for the future.

*... point to less willingness to take risks*

1 According to Consensus Forecasts. This picture is clouded slightly by Moody's rating agency, which downgraded more investment-grade borrowers than it upgraded in the first two quarters of the year.

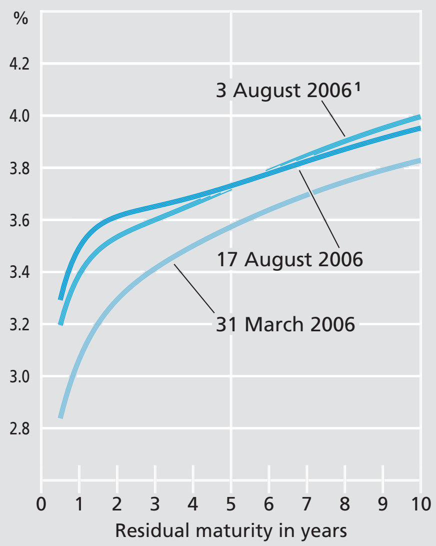
*Markedly lower bond sales*

With changing conditions in the international bond markets in the second quarter, issuing activity in the German bond market also flagged. At €267½ billion, gross sales of domestic debt securities were significantly lower than in the previous quarter (€325½ billion). After taking account of redemptions and changes in issuers' holdings of their own bonds, there were net sales of €27½ billion in the second quarter, which was well below the €66½ billion's worth of securities that German borrowers had placed on the bond market in the first quarter. However, foreign bonds and money market paper were sold in the German market for €43½ billion in the reporting period, which was barely more than in the previous quarter (€42½ billion). The vast majority of these were euro-denominated debt securities from euro-area partner countries (€30½ billion), which are regularly in demand among domestic investors owing to the fact they carry a slightly higher rate of interest than the benchmark Bund. Sales of foreign debt securities in currencies other than the euro raised €13 billion (first quarter: €9½ billion). As a result, the total funds raised through the issuance of domestic and foreign debt securities amounted to €71 billion compared with €109 billion in the preceding quarter.

*Less borrowing by credit institutions, ...*

Falling issuing activity in the German bond market was most obviously reflected in the net redemptions of credit institutions, which increased their bonded debt by no more than €12½ billion after selling €36 billion net in the first quarter. In the second quarter, debt securities issued by specialised credit institutions (€11½ billion) and other bank debt securities (€9½ billion) accounted in virtually equal parts for the funds raised, while public Pfandbriefe and mortgage Pfandbriefe were redeemed for €6½ billion and €2 billion respectively. The effects of restructuring at one large Pfandbrief issuer some time ago were thus still evident in the debt securities market in the second quarter of 2006.

Yield curve
in the German bond market*




* Interest rates for (hypothetical) zero-coupon bonds (Svensson method), based on listed Federal securities. — 1 Before the interest rate increase of 25 basis points by the Governing Council of the ECB.

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*... the public sector ...*

General government also tapped the bond market to a lesser extent in the period under review than it did in the first quarter (€6½ billion as against €21 billion). The major part of these funds was raised by the Federal states, which, on balance, sold their own bonds in the German capital market in the amount of just under €6½ billion. By contrast, the Federal Government and other public sector borrowers have recently left their bond market debt

**Investment activity in the German securities markets**

€ billion

| Item | 2005 Q2 | 2006 Q1 | 2006 Q2 |
|---|---|---|---|
| **Debt securities** | | | |
| Residents | 42.1 | 53.9 | 59.7 |
| Credit institutions | 26.8 | 24.6 | 23.6 |
| *of which* | | | |
| Foreign debt securities | 26.0 | 29.0 | 25.5 |
| Non-banks | 15.3 | 29.4 | 36.1 |
| *of which* | | | |
| Domestic debt securities | – 6.9 | 15.9 | 17.9 |
| Non-residents | 62.5 | 55.3 | 11.3 |
| **Shares** | | | |
| Residents | – 25.3 | 4.9 | – 16.1 |
| Credit institutions | – 4.5 | 6.1 | – 8.2 |
| *of which* | | | |
| Domestic shares | – 6.9 | 7.4 | – 5.1 |
| Non-banks | – 20.8 | – 1.2 | – 7.9 |
| *of which* | | | |
| Domestic shares | – 18.3 | – 7.4 | – 5.5 |
| Non-residents | 26.4 | 0.6 | 12.7 |
| **Mutual fund shares** | | | |
| Investment in specialised funds | 6.2 | 11.5 | 9.7 |
| Investment in funds open to the general public | 3.2 | – 6.3 | – 2.1 |
| *of which:* Share-based funds | – 0.8 | – 0.5 | – 3.0 |

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virtually unchanged, not least because of the currently favourable cash balance. The Federal Government generated a net total of €8 billion from issuing further five-year Federal notes (Bobls) and issued short-term Federal Treasury financing paper (Schätze) to a net value of €½ billion. At the same time, the Federal Government reduced its net liabilities arising from ten-year bonds outstanding by €4½ billion and from 30-year bonds outstanding by €½ billion. In addition, it redeemed two-year Federal Treasury notes in the amount of €2½ billion net.

*... and by enterprises*

Given rising but still comparatively favourable borrowing costs, non-financial enterprises increased their capital market debt by €8 billion in the second quarter, compared with €9½ billion in the previous quarter. In particular, their liabilities arising from longer-term corporate bonds increased by €6½ billion, half of which was incurred by one large-scale issuance by a chemicals company. At the same time, money market instruments were issued for just under €2 billion.

*Purchases of debt securities*

Unlike before, domestic investors were the most important group of buyers in the German debt securities market with net purchases of €59½ billion. Domestic non-banks, especially, added substantially (€36 billion) to their bond portfolios, half of which was comprised of foreign bonds. Their purchases of domestic bonds consisted primarily of private-sector bonds (€13½ billion), with bank bonds predominating. German credit institutions also sharply expanded their bond investments in the second quarter (€23½ billion), exclusively through foreign paper on balance (€25½ billion), while overall slightly reducing their holdings of domestic debt securities (€2 billion). Foreign investors acquired German debt securities in the amount of €11½ billion, focusing exclusively on private issues. Demand for German short-dated bonds with a maturity of less than one year was at €3 billion.

*Correction in the stock markets*

Sharp price mark-downs in the stock markets from mid-May to mid-June reflected a fundamental re-evaluation of investment risk worldwide. The correction mainly affected markets in which price developments had been very positive over the past one and a half years or so. The Dow Jones EuroStoxx index fell by around 3% during the period under review, whereas the US market, as measured by the S&P 500, was ultimately unchanged. They have both recovered again slightly since mid-June, as has the Japanese Nikkei index, although, at the end of the reporting period, it was still approximately 7% below its level at the beginning of April. Global volatility, which had previously been at a very low level, shot up at times along with falling stock market prices. Although the situation has calmed down again somewhat recently, it is still higher than the levels recorded prior to the correction.

*Ebbing risk propensity*

With lower share prices overall, the price-earnings ratio for expected annual earnings on the Dow Jones EuroStoxx index now stands at 11.6, which is below its multi-year average. This valuation adjustment cannot be explained solely by the slightly increased capital market interest rate and thus a higher discount factor for future dividends. Rather, it points to a greater degree of restraint among investors in terms of taking on risk.

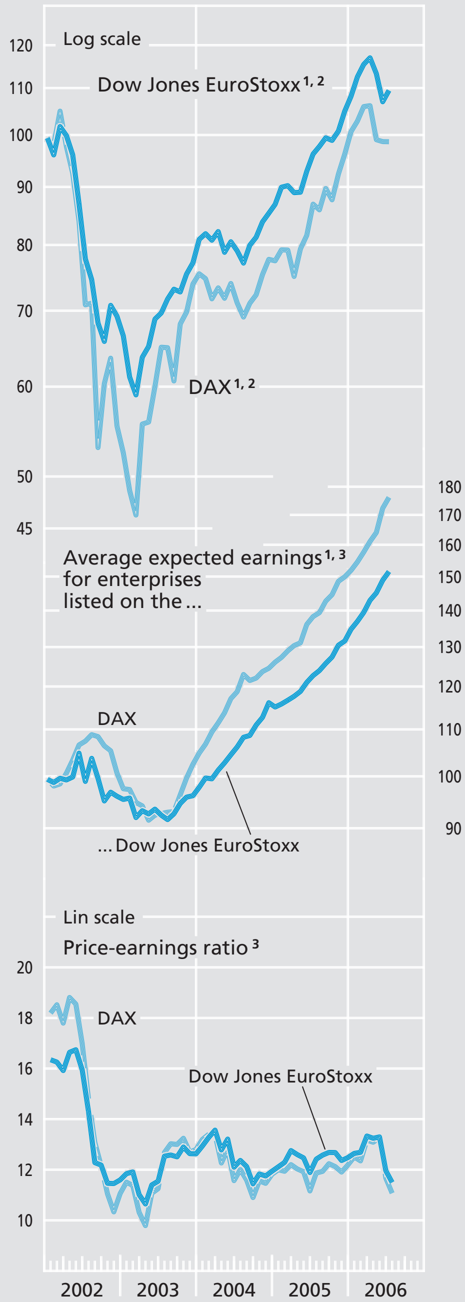
A characteristic of this keener risk awareness among globally active investors is the comparatively good performance of the defensive sectors. For example, the basic goods industry and utilities experienced smaller price losses than, say, technology sector shares. Moreover, share price developments in the euro area and the United States are likely to have been bolstered by currently vigorous mergers and acquisitions activity, which was also buoyed up by continuing favourable debt financing conditions.

*Slightly more funds raised in equity market*

Despite the changeable, and latterly difficult, financial market setting, issuing activity in the German equity market picked up slightly in

Price movements and earnings estimates for European and German public limited companies

Monthly data




1 January 2002 = 100. — 2 Source: Deutsche Börse AG. — 3 Based on year-on-year I/B/E/S analyst estimates ("earnings before goodwill"). Source: Thomson Financial Datastream.

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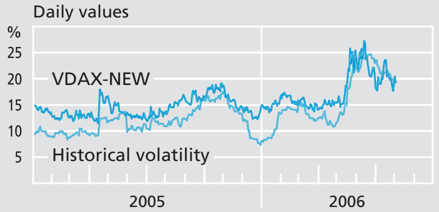
## Volatility in the stock market

Volatility in the German stock market, which had been in extremely low figures in the previous two years, showed a marked rise over a short space of time along with the simultaneous slump in prices in mid-May 2006. Since then, it has remained at a noticeably higher level. The volatility of the DAX – measured by the historical 30-day standard deviation – amounted to approximately 20% per year at the end of the period under review, which is close to its five-year average and much lower than the figures of mid-2002 to mid-2003, when it peaked at over 60% per year. However, abrupt surges in volatility can prevent the stock market from functioning properly, at least in the short term. Thus, selling a large volume of stocks when prices are falling, for example, to comply with risk limits set in value-at-risk models, decreases market liquidity. Stock prices that persistently fluctuate sharply can have an impact on the real economy, for example, through an adjustment of the collateral limits or consumption.

Breaking down the monthly realised volatility of a typical DAX-listed enterprise into a company-specific (idiosyncratic) component and a market component is useful for analysing and placing current fluctuations in the stock market into context historically.[1] Such a breakdown shows that market volatility, in particular, has risen in the past few months. By contrast, the rise in idiosyncratic volatility was somewhat smaller. This implies a higher correlation between the yields on individual DAX stocks. As a result, the ratio of systemic (non-diversifiable) risk to non-systemic (diversifiable) risk increases so that even broadly diversified investments in stocks are exposed to a higher fluctuation risk. In comparison with the periods of high historical volatility from 1990 to 1992 (exchange rate crisis), around 1998 (Russia and Asia crisis) and from 2000 to 2003 (global stock market decline), the current volatility situation may be described as moderate.

Historical volatility and VDAX-NEW

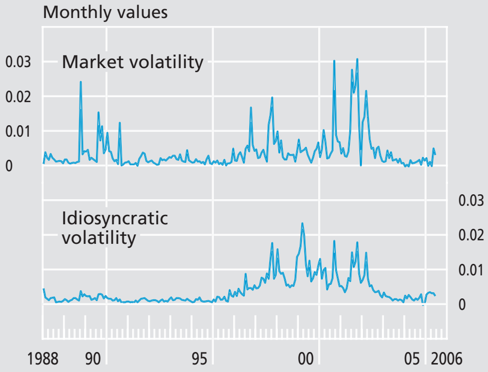
Daily values




Source: Deutsche Börse AG and Bundesbank calculations.

Breakdown of volatility[2]

Monthly values




Source: Deutsche Börse AG and Bundesbank calculations.

Further indications as to whether the development of volatility might cause disruptions to the financial markets may be gained from the expected future volatility. The VDAX-NEW, for example, which is calculated from the market prices of traded DAX options, is designed to model the expected volatility of the DAX over the next 30 trading days. Owing to its forward-looking nature, it is often called the investors' "fear barometer". This indicator, too, has shown a distinct rise since mid-May. However, an empirical study shows that the VDAX-NEW, as an estimator of future volatility, is biased upwards.[3] Nevertheless, if this bias is taken into account – say, by analysing the changes – the VDAX-NEW is a more suitable tool than the historical volatility for estimating future price fluctuations. Following the sudden rise up to mid-June, this indicator has been declining again.

**1** See: Deutsche Bundesbank, Change in DAX volatility, Monthly Report, December 2003, p 17, as well as J Stapf and T Werner, How wacky is the DAX? The changing structure of German stock market volatility, Deutsche Bundesbank Discussion Paper, Series 1, No 18/2003. — **2** Cumulative squared daily returns. — **3** One reason for this could be that the option premiums paid on the market are somewhat higher than would be necessary with a synthetic replication of the option, although this requires a continuous restructuring outlay.

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the second quarter. Particularly at the beginning of the quarter, domestic enterprises issued new shares totalling €2 billion, compared with no more than €½ billion in the previous quarter. Half of this involved shares of listed companies. The equity injections of one enterprise in the energy sector accounted for a substantial part of this issue volume. Unlike in previous quarters, domestic investors sold foreign equities on quite a large scale on balance (€5½ billion).

*Share purchases*

German and foreign shares were purchased in the second quarter exclusively by foreign investors, who sharply expanded their holdings in the German market (€12½ billion, compared with €½ billion in the previous quarter). By contrast, against the backdrop of developments on the global markets, domestic investors – banks and non-banks alike – sold shares in the amount of €16 billion. However, they resold more domestic equities than foreign ones (€10½ billion and €5½ billion respectively).

*Sales of mutual fund shares*

In contrast to the trend among other forms of investment, the inflow of resources to domestic investment funds, at €7½ billion in the second quarter, was up slightly on the start of the year (€5 billion). Resources channelled into specialised funds open only to institutional investors were somewhat down overall compared with the preceding three-month period (€9½ billion as against €11½ billion). However, publicly offered funds experienced notably smaller outflows in the reporting period than in the first quarter (€2 billion compared with €6½ billion). Share-based funds were particularly affected by the sales

## Major items of the balance of payments

€ billion

| | 2005 | 2006 | |
|---|---|---|---|
| Item | Q2 | Q1 | Q2 |
| I Current account [1,2] | + 23.4 | + 26.5 | + 21.0 |
| Foreign trade [1,3] | + 41.5 | + 39.9 | + 37.5 |
| Services [1] | − 5.8 | − 6.0 | − 4.3 |
| Income [1] | − 1.3 | + 3.3 | − 2.8 |
| Current transfers [1] | − 6.4 | − 6.0 | − 4.8 |
| II Capital transfers [1,4] | + 0.1 | + 0.2 | + 0.0 |
| III Financial account [1] (Net capital exports: –) | − 24.6 | − 43.4 | − 50.0 |
| 1 Direct investment | − 11.2 | − 15.8 | − 6.9 |
| German investment abroad | − 17.2 | − 16.1 | − 12.1 |
| Foreign investment in Germany | + 6.0 | + 0.3 | + 5.2 |
| 2 Portfolio investment | + 33.0 | − 1.2 | − 4.7 |
| German investment abroad | − 56.5 | − 62.1 | − 29.7 |
| Shares | + 0.4 | − 1.2 | + 11.3 |
| Mutual fund shares | − 8.7 | − 18.4 | + 2.7 |
| Debt securities | − 48.2 | − 42.5 | − 43.6 |
| Bonds and notes [5] | − 46.1 | − 42.3 | − 36.0 |
| *of which:* Euro-denominated bonds and notes | − 41.8 | − 33.2 | − 30.5 |
| Money market instruments | − 2.2 | − 0.2 | − 7.6 |
| Foreign investment in Germany | + 89.5 | + 60.9 | + 25.0 |
| Shares | + 26.1 | + 0.7 | + 12.1 |
| Mutual fund shares | + 0.8 | + 5.0 | + 1.6 |
| Debt securities | + 62.5 | + 55.3 | + 11.3 |
| Bonds and notes [5] | + 64.6 | + 46.0 | + 8.6 |
| *of which:* Public bonds and notes | + 29.9 | + 21.3 | + 0.9 |
| Money market instruments | − 2.1 | + 9.3 | + 2.8 |
| 3 Financial derivatives [6] | − 2.0 | − 5.5 | + 2.0 |
| 4 Other investment [7] | − 45.6 | − 22.0 | − 40.9 |
| Monetary financial institutions [8] | − 64.8 | − 48.3 | − 56.0 |
| *of which:* short-term | − 48.3 | − 30.0 | − 38.9 |
| Enterprises and individuals | + 5.2 | − 5.7 | + 16.3 |
| *of which:* short-term | + 7.7 | − 2.5 | + 10.0 |
| General government | − 0.8 | + 4.6 | − 15.2 |
| *of which:* short-term | − 1.3 | + 5.6 | − 15.1 |
| Bundesbank | + 14.8 | + 27.4 | + 14.0 |
| 5 Change in reserve assets at transaction values (increase: –) [9] | + 1.2 | + 1.1 | + 0.4 |
| IV Errors and omissions | + 1.1 | + 16.7 | + 29.0 |

**1** Balance. — **2** Including supplementary trade items. — **3** Special trade according to the official foreign trade statistics (source: Federal Statistical Office). — **4** Including the acquisition/disposal of non-produced non-financial assets. — **5** Original maturity of more than one year. — **6** Securitised and non-securitised options as well as financial futures contracts. — **7** Includes financial and trade credits, bank deposits and other assets. — **8** Excluding the Bundesbank. — **9** Excluding allocation of SDRs and excluding changes due to value adjustments.

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(€7 billion). Shares in bond-based funds were also liquidated on a smaller scale (€1 billion). Open-end real estate funds, which had come under pressure from the temporary closure of some funds, even managed to post slight inflows of funds again in the second quarter (€½ billion). Although shares in foreign investment funds worth €18½ billion had been sold in the German market in the first quarter, shares to the value of €2½ billion were redeemed in the period under review.

*Purchases of mutual fund shares*

The main purchasers of mutual fund shares (€3 billion) were German credit institutions, which predominantly added domestic mutual funds to their portfolios. Domestic non-banks slightly increased their net holdings of mutual fund shares by €½ billion. Overall, they sold foreign investment fund certificates and acquired shares in domestic investment companies for roughly the same amount. Foreign investors purchased just under €½ billion in mutual fund shares in the German market.

## Direct investment

*Net capital exports in direct investment*

In terms of direct investment, there were outflows of investment funds in the second quarter, although, on balance, these were €7 billion smaller than in the first quarter of 2006 (€16 billion). This was due mainly, for one thing, to the investment decisions of German companies (capital exports of €12 billion, down from €16 billion in the first quarter). New investments by the chemicals industry in Malta and the United States played a major role in this, while this industry concurrently withdrew capital from Sweden. Additionally, foreign direct investment in Germany came to €5 billion in the second quarter, after being at a very low level in the preceding three-month period. The most significant factor in the period under review was financial credit among affiliated enterprises.