Financial markets

Financial market trends

Financial market setting

Given the ongoing recovery in the global economy paired with continuing abundant liquidity and low interest rates, the situation on the international capital markets eased further on the whole as the new year began. Phases of uncertainty were comparatively short-lived. This initially pushed up stock market prices further and brought down corporate bond yields. Since mid-January, however, the positive economic signals have increasingly been clouded by political developments in the perception of market participants. Thus plans to tighten banking regulation and potentially force financial institutions to shoulder part of the cost of the financial crisis triggered stock market losses worldwide, particularly among financial stocks. Moreover, the public discourse on the sustainability of Greece's sovereign debt given the uncertainty about the success of the consolidation measures introduced has seen spreads on Greek debt securities widen considerably vis-à-vis German Bunds. This has also affected the euro, which has fallen widely in the foreign exchange markets, particularly since the beginning of 2010.

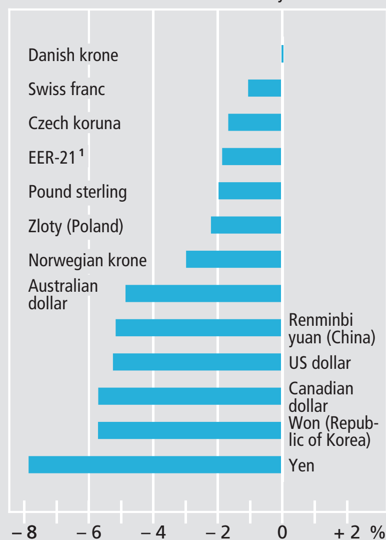
Exchange rates

Euro exchange rate developments against the US dollar, ...

The financial markets gradually calmed down, causing exchange rate uncertainty on the currency markets to decrease perceptibly. This seems to have led to a gradual unwinding of "safe haven" positions in the dollar area, which was, in the fourth quarter of 2009, initially also reflected in a noticeable

Appreciation/depreciation of the euro against selected currencies

31 December 2009 until 16 February 2010



1 Nominal effective exchange rate of the euro as measured against the currencies of 21 countries.

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appreciation of the euro against the US dollar. After reaching a high for the year of US$1.51 in early December, however, the euro relinquished some of its gains when positive signals from the US labour market contributed to the rise in economic optimism. The single currency subsequently traded in a narrow range around US$1.44 before experiencing renewed pressure in mid-January 2010. In particular, the precarious budget situation in Greece was perceived as a burden on the euro. Moreover, surprisingly upbeat GDP data for the United States gave the dollar a further boost. As this report went to press, the euro was trading at just over US$1.36, or roughly 5½% lower than at the beginning of 2010 and some 2% below the average for 2009.

... against the yen ...

In the two months after the euro-yen exchange rate reached a new high for the year of more than ¥138 in the second half of October 2009, it fluctuated with no clear trend within a range of ¥129 to ¥135. After the severe recession, Japan's economy too picked up again, stimulated by the revival in global economic activity. Yet the deflationary tendencies in Japan persisted despite government spending programmes and an expansionary monetary policy. In addition, carry trade considerations seemingly still played a part in the valuation of the yen. One indication of this is that the Japanese currency made broad-based gains when foreign exchange market uncertainty grew again somewhat at the beginning of January 2010. Nor did the new Japanese finance minister's stated preference for a weaker yen curb this trend for very long. As this report went to press, the euro stood at slightly less than ¥123 or roughly 8% below its level at the start of the year.

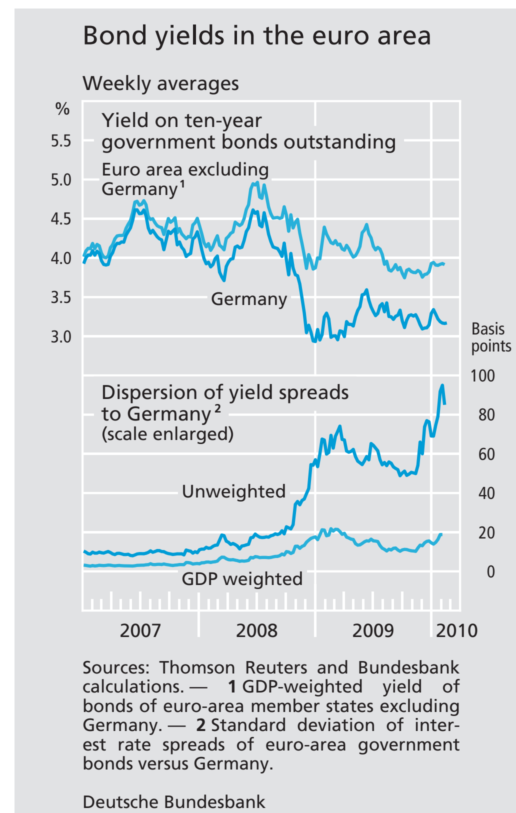
... and against the pound sterling

In the fourth quarter of 2009, the euro for the most part traded close to £0.90. The pound sterling came under some pressure in early November when the Bank of England published in its inflation report a generally pessimistic economic assessment. However, the euro subsequently relinquished its gains against the pound due to increasingly positive UK economic news. Surprisingly benign labour market data announced in mid-January signalled a faster economic recovery than hitherto expected. Thereupon, the Bank of England indicated that its stimulus measures would no longer include securities purchases. At the end of the reporting period the euro

was, at approximately £0.87, 2% below its level at the beginning of 2010.

Effective euro exchange rate

The European Central Bank adjusted its weighting scheme for calculating the effective exchange rates of the euro.[1] Based on the new weights, the euro's average rate against the 21 major currencies in the exchange rate index has therefore fallen by just under 4% since the beginning of 2010. As this report went to press, the single currency was 4½% above its level at the launch of monetary union. In real terms, ie taking account of the inflation differentials between the euro area and its major trading partners, the euro's effective exchange rate was therefore well above its longer-term average. This indicates an unfavourable price competitiveness of euro-area suppliers. It should be noted in this context that the real appreciation of the euro following the switch to the current weighting scheme is significantly less than before. Germany is in a more favourable situation. In view of the moderate price and cost developments seen for many years now, the price competitiveness of the German economy is currently roughly 5½% above its long-term average.



Sources: Thomson Reuters and Bundesbank calculations. — 1 GDP-weighted yield of bonds of euro-area member states excluding Germany. — 2 Standard deviation of interest rate spreads of euro-area government bonds versus Germany.

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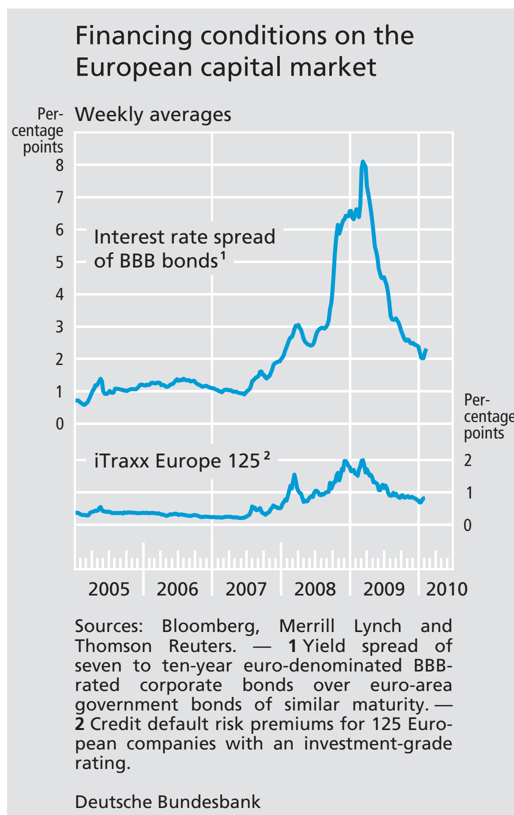
Securities markets and portfolio transactions

International bond markets

The GDP-weighted yield on euro-area government bonds outstanding fluctuated only slightly from the end of September onwards, rising finally to 3¾% at the time of going to press. As usual, there was a close linkage with the US market. Driven by upbeat economic data and the foreseeable severe strain that the high fiscal deficits will have on the bond market, the average yield on ten-year US government bonds showed a marked increase in the fourth quarter, but fell again somewhat after the start of 2010. On balance, it rose by just under ½ percentage point also to 3¾%. Uncertainty about future price developments, measured in terms of the implied volatility of options on bond futures, declined substantially in the period under review and, as this report went to press, was back at levels last recorded at the start of 2008 on both sides of the Atlantic. Japanese government bond yields fluctuated within a narrow range around 1¼%.

1 See: European Central Bank, International trade developments and revision of the effective exchange rates of the euro, ECB Monthly Bulletin, January 2010, pp 55-58).



Financing conditions on the European capital market

Sources: Bloomberg, Merrill Lynch and Thomson Reuters. — **1** Yield spread of seven to ten-year euro-denominated BBB-rated corporate bonds over euro-area government bonds of similar maturity. — **2** Credit default risk premiums for 125 European companies with an investment-grade rating.

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European government bonds in the spotlight

Market participants followed the widening interest-rate differentials in the euro area particularly closely. From the end of the third quarter, the GDP-weighted yield advantage of the other euro-area government bonds over the corresponding Federal bonds (Bunds) edged up to ¾ percentage point. However, the average view masks the considerable widening of the premium that investors demanded for holding Greek bonds, which was around 330 basis points at the time of going to press, or 200 basis points more than at end-September. This increase was driven by considerable uncertainty about the condition of Greek public finances and scepticism about the prospects of the success of the consolidation measures that are currently under way. Spreads for Portuguese and Spanish government bonds, too, were significantly higher – having risen ¾ and ¼ percentage point respectively – than at the end of the third quarter. At the time of going to press, the GDP-weighted yield dispersion of euro-area government bonds was again just below the level of the first quarter of 2009, when financial crisis-induced uncertainty was at its peak.

German yield curve remains steep

The current situation in the bond markets is characterised by an unusually steep yield curve. Based on German Bunds, the spread between ten and two-year yields is, at 242 basis points, still very high by historical standards. It even rose slightly from the end of the third quarter as a result, primarily, of falling yields on bonds with two-year maturities. The steep yield curve is currently boosting financial institutions' interest income from maturity transformation. Given the comparatively low long-term yield level, however, the risk of falling bond market prices cannot be ruled out.

Further improvement in financing conditions for enterprises

Wholesale funding conditions for enterprises in the euro area continued to improve appreciably compared with the third quarter of 2009. In line with developments in the US market, the spread of BBB-rated, euro-denominated corporate bonds over government bonds narrowed by more than 40 basis points to 2¼ percentage points, thus returning to levels last recorded at the beginning of 2008. Declining interest rate spreads since early 2009 were accompanied by lively issuance activity on Europe's corporate bond markets. During the reporting period, CDS premiums were largely unchanged for debt securities issued by non-financial corpor-

ations, whereas they rose for European financials, especially from mid-January.

Low net sales in the bond market

In the German bond market, gross sales of debt securities issued by residents totalled €373 billion in the fourth quarter of 2009. Thus, issuance was down both on the third quarter of 2009 and on the corresponding figure for the fourth quarter of 2008. With an increase in redemptions, and taking changes in issuers' holdings of their own bonds into account, domestic borrowers paid back a total of €19 billion to investors. On the other hand, foreign borrowers sold debt securities in Germany for €21 billion net, which on balance was accounted for almost exclusively by euro-denominated paper. All in all, the capital inflow from the sale of domestic and foreign debt securities in Germany during the reporting period was therefore only €2 billion.

Borrowing by German government

In the final quarter of 2009, the public sector raised €6 billion in the capital market. The main reason for this was that the Federal states increased their capital market debt by €7 billion. Conversely, central government reduced its borrowing slightly in the fourth quarter, by €1 billion, after new issues and redemptions had balanced each other out in the previous three-month period. From October to December, the Federal government issued two-year Federal Treasury notes (Schätze) totalling €6½ billion net and 30-year bonds worth €2½ billion net. By contrast, it redeemed five-year Federal notes (Bobls) amounting to €6½ billion, Federal Treasury discount paper (Bubills) with maturities of up to 12 months for €3 billion and a small quantity of Federal Treasury financing paper, ten-year Federal bonds (Bunds) as well as German government Day Bonds (both worth €½ billion).

Investment activity in the German securities markets

€ billion

Item	2008	2009	
	Q4	Q3	Q4
Debt securities			
Residents	7.7	6.9	5.6
Credit institutions	10.5	– 5.4	– 19.1
of which			
Foreign debt securities	– 46.9	– 9.9	– 9.0
Non-banks	– 2.9	12.4	24.6
of which			
Domestic debt securities	– 3.0	– 14.6	– 5.2
Non-residents	– 38.2	– 12.3	– 3.8
Shares			
Residents	– 16.3	– 12.7	7.6
Credit institutions	– 12.3	– 8.0	7.1
of which			
Domestic shares	– 7.8	– 7.6	4.8
Non-banks	– 4.0	– 4.7	0.4
of which			
Domestic shares	8.7	– 5.8	– 1.2
Non-residents	2.4	18.1	– 1.2
Mutual fund shares			
Investment in specialised funds	0.3	12.3	19.3
Investment in funds open to the general public	– 11.3	0.9	3.2
of which: Share-based funds	0.5	1.3	1.6

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Issues by non-banks

As wholesale funding conditions continued to ease, domestic non-banks issued debt securities (excluding money market paper) in Germany amounting to €5 billion net in the reporting quarter, compared with €8 billion in the previous three-month period. By contrast, enterprises continued to redeem commercial paper in the fourth quarter (€2 billion).

Net redemptions by credit institutions

In the reporting period, credit institutions reduced their capital market debt by the same amount as in the third quarter (€28½ billion). These net redemptions were the result, above all, of other bank debt securities, which were paid back in the amount of €20½ billion.

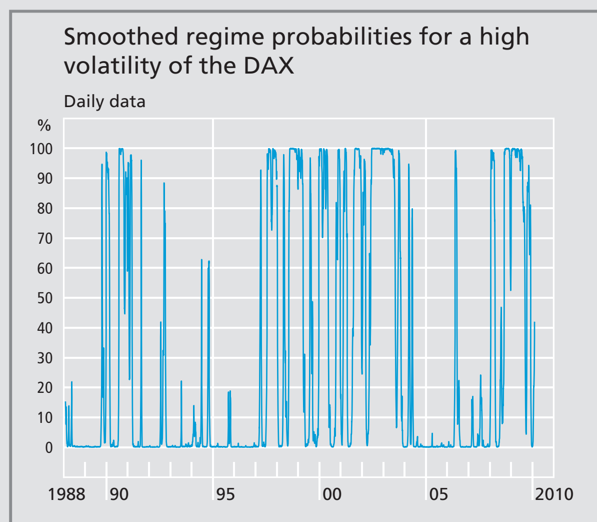
Volatility in the German stock market

Volatility in the German blue-chip share price index (DAX), which reached a record high in the autumn of 2008, fell back significantly during the subsequent period of price recovery and was close to its five-year average as this report went to press. This box puts the developments since the height of the financial crisis into their historical context and analyses them with a view to identifying possible indicators of the risk of abrupt price movements in future.

A decomposition of the total realised volatility of a typical German stock[1] into a firm-specific component and a market or systematic component shows that the correlation of the price fluctuations for the individual DAX companies rose in October 2008, thus leading to a disproportionately large increase in realised non-diversifiable market volatility. This reflects the fact that the observed price fluctuations were triggered less by news affecting individual firms than by the emergence of new information relevant to the market as a whole. This undermines the ability of investors to guard against the effects of unwelcome price fluctuations by diversifying their equity portfolios. Experience has shown that this pattern is typical in times of crisis; in the case of the DAX, it can be observed in particular when prices fall. This increased correlation among the individual index members often continues for an extended period following a drop in prices. It was 40% at last report – despite a moderate decline – and was thus still slightly above its five-year average (38%).

Smoothed regime probabilities for a high volatility of the DAX

Daily data



Owing to the – related – persistence of volatility, the extent of future price fluctuations is not detached from previous values. A day of high volatility is very likely to be followed by another day of strong fluctuations (clustering). A calming of the stock markets – ie a phase of smaller fluctuations – is thus less likely at that point than at times when the persistence of volatility is already low. Transitions between periods of low and high fluctuation can be analysed in a regime switching model.[2] In 2008 – as during the Asian and Russian crises and the bursting of the dotcom bubble – the stock market temporarily switched to a high volatility regime (see adjacent chart). The probability of being in a high volatility DAX regime has recently fallen again significantly; however, it is still above the five-year average of 30%, meaning that a sustained moderation in the stock market is not yet assured.

Another starting point for estimating future stock price movements are the implicit volatilities of DAX options, which can be used to obtain information on the price fluctuations expected by market players. As shown by the VDAX-NEW (maturity: 30 days) and the VDAX-NEW subindices with residual maturities of one to two years, which are likewise calculated by Deutsche Börse, the financial crisis has led to a sharp increase in expected volatility across all time horizons since early 2008 (see chart on p 43). There was a particularly steep rise in short-term uncertainty, which reached highs of over 80% per year in October 2008.

The term structure of volatility expectations can be examined in more detail using a principal component analysis, in which all eight VDAX-NEW subindices are

1 See J Stapf and T Werner (2003), How wacky is the DAX? The changing structure of German stock market volatility, Deutsche Bundesbank Research Centre, Discussion Paper, Series 1, No 18/2003. — **2** See, for example, J D Hamilton (1994), Time series analysis, Princeton University Press, Princeton, New Jersey, chapter 22. — **3** The VDAX-NEW itself is not included in the analysis as it is calculated using linear interpolation of two subindices. The subindices are linked to the following maturities: 1 month, 2 months, 3 months, 6 months, 9 months, 12 months, 18

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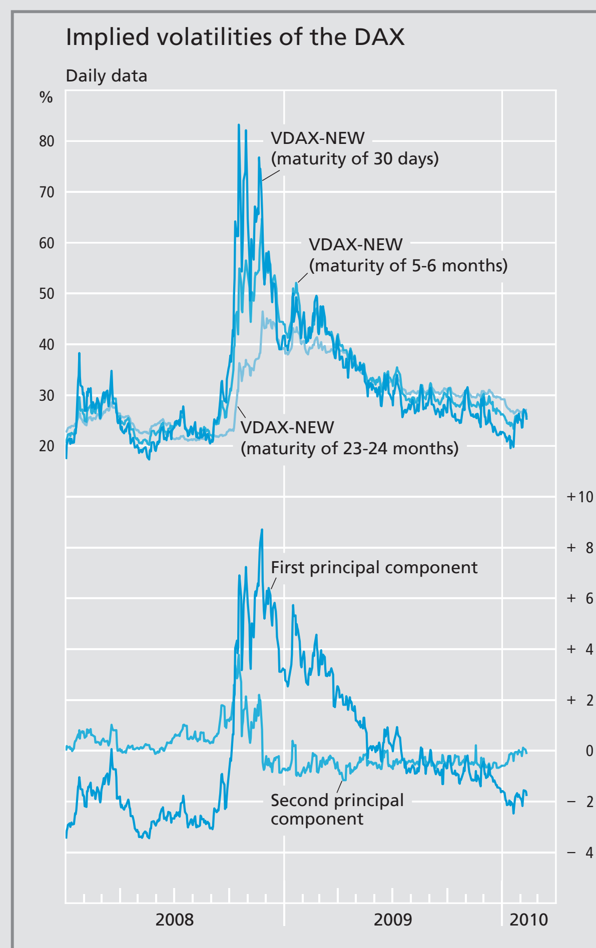
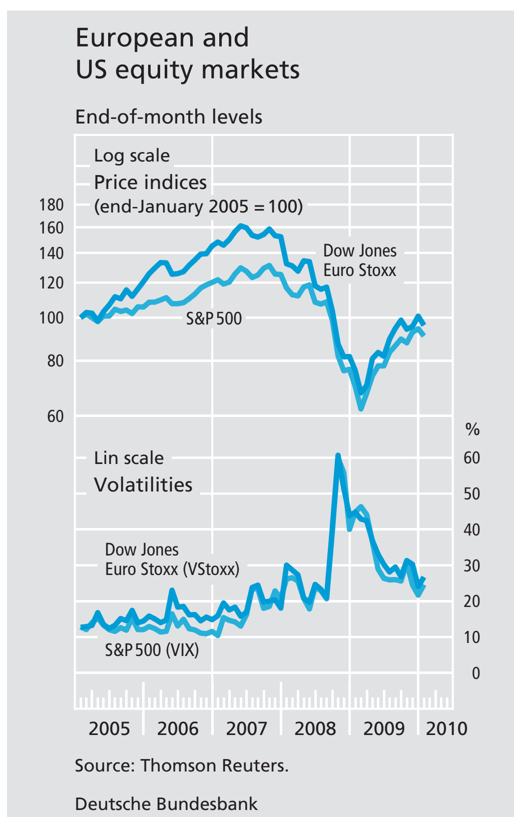
included.[3] Taken together, the first two principal components explain more than 98% of the total variance. The first principal component, which contributes 91% to the total variance, can be interpreted as a factor reflecting the overall level of volatility expectations measured across the various maturities. This factor can therefore be regarded as an indicator of market players' general uncertainty – irrespective of maturities – concerning future stock price developments. By contrast, the second principal component, which explains around 7% of the total variance, can be described as a discriminating factor.[4] An increase in this factor is accompanied by growth in expected short-term volatility but a decline in long-term uncertainty. Thus, all other things being equal, a high value for this principal component suggests that market players expect turbulence in the short term but actually anticipate a calming of the stock markets in the longer term.

The upsurge in the first principal component beginning in late September 2008 reflects the fact that the general uncertainty among market players that affected all maturities following the Lehman Brothers bankruptcy on 15 September 2008 increased clearly and peaked at the end of November 2008 (see adjacent chart). In the first half of 2009, general uncertainty receded again significantly. The government rescue packages introduced across the globe for individual financial institutions and other government support measures for the financial sector probably played a role in this respect. The continued decline from the end of last year reflects the renewed growth in confidence among stock market players.

From the end of November 2008, the second main principal component fell to below-average (negative) values, thus signalling a shift in price uncertainty from short-term to longer-term maturities. This is likely to reflect the view emerging at the time that, while it would be possible to mitigate the immediate turmoil in the financial system through political measures, the interplay between the stricken financial sector and the real economy would have a negative impact on the longer-term stock market outlook. The subsequent sideways movement in the second principal component lasting through to the current end is attributable to the still elevated long-term uncertainty, which has remained above expected short-term volatility throughout the past few months. It was not until the end of the reporting period that talk of a "crisis tax" for financial enterprises and tougher regulation for the financial sector increased investors' focus on the more immediate future and led to a slight rise in the price fluctuations expected in the short term.



months and 24 months, ie over time the underlying options switch to the subindex with the corresponding maturity. — 4 While the loading coefficients of the first principal component all have similar (positive) values, the loading coefficients of the second principal component have different signs and tend to be smaller the longer the maturity.



Moreover, as in the previous quarters, public Pfandbriefe were redeemed (worth €14 billion net), as were small amounts of mortgage Pfandbriefe (€½ billion) – despite further purchases by the Eurosystem under the purchase programme for covered bonds.[2] Specialised credit institutions, meanwhile, sold their own instruments in the amount of €6½ billion.

Purchase of debt securities

In the fourth quarter of 2009, as in the quarter before, debt securities were purchased exclusively by domestic non-banks, which added a total of €24½ billion worth of debt instruments to their portfolios. By contrast, domestic credit institutions and foreign investors disposed of interest-bearing securities worth, in net terms, €19 billion and €4 billion respectively.

Mixed developments on the international stock markets

All in all, developments on the stock markets were mixed in the reporting period. Whereas the European Dow Jones Stoxx index and the German CDAX were down 6% and 3%, respectively, on end-September 2009, the US S&P 500 index posted gains (1¾%). The upward trend on the stock markets, which began in the second quarter of 2009, was temporarily interrupted at the end of November following announcements that bonds issued by quasi-government entities in Dubai would be restructured. Given the small degree of interconnectedness of the euro area and the United States with the debtors involved, the resultant decline in stock prices worldwide reflected uncertainty about the sustainability of the stock market recovery rather than concerns about the immediate impact of a debtor's default. The markets made a relatively fast recovery and in some cases were already posting new highs for the year at the end of 2009. This positive trend persisted at the beginning of January before further pronounced share price losses were triggered, primarily, by debate surrounding tougher regulation and the possibility of financial institutions being made to shoulder some of the cost of the financial crisis. This led to a slump in share prices that hit financial stocks particularly hard.

Uncertainty remains high

The risk premium demanded by investors for holding stocks – which can be determined using a dividend discount model – has fallen again slightly since September, and so is still at the level seen prior to the insolvency of investment bank Lehman Brothers. Although

2 As this report went to press, Eurosystem purchases of covered bonds since July 2009 totalled €36 billion.

this suggests a stabilisation of market expectations, it should not be interpreted as meaning that the financial and economic crisis has been fully overcome. The stock markets continue to benefit from high global liquidity and the support measures taken by governments and central banks. It remains to be seen how sustainable the upswing is. Accordingly, on both sides of the Atlantic, uncertainty about future stock price developments as gauged by the implied volatility of options on futures was still above its long-term averages as this report went to press, despite a further decline (see the box on pages 46-47).

Stock market funding and stock purchases

On the German equity market, new shares – mostly listed equities – totalling €2½ billion were issued in the fourth quarter. Thus, the positive stock market developments evidently had no effect on issuing activity, which fell short of that in previous quarters. In addition, foreign shares were sold in Germany for €4 billion. Domestic and foreign equities were purchased by domestic credit institutions (€7 billion) and, to a small extent, by domestic non-banks (€½ billion). By contrast, foreign investors sold shares worth €1 billion.

Sales and purchases of mutual fund shares

Domestic investment companies recorded inflows of €22½ billion during the reporting quarter. After the unusually high figure posted in the previous three-month period, inflows to specialised funds reserved for institutional investors increased again (€19½ billion). Funds open to the general public received smaller inflows (€3 billion), notably equity-based funds (€1½ billion) and mixed securities-based funds (€1 billion). Bond-based funds and mixed funds also attracted

Major items of the balance of payments

€ billion

Item	2008 Q4	2009 Q3	2009 Q4
I Current account [1, 2]	+ 38.2	+ 25.3	+ 49.5
Foreign trade [1, 3]	+ 34.0	+ 32.8	+ 44.1
Services [1]	– 0.4	– 9.6	+ 1.4
Income [1]	+ 14.8	+ 13.6	+ 14.3
Current transfers [1]	– 6.8	– 8.7	– 7.8
II Capital transfers [1, 4]	– 0.6	– 0.2	+ 0.2
III Financial account [1] (Net capital exports: –)	– 52.2	– 13.0	– 72.3
1 Direct investment	– 18.2	– 8.4	+ 4.7
German investment abroad	– 22.5	– 17.5	+ 4.7
Foreign investment in Germany	+ 4.3	+ 9.1	– 0.0
2 Portfolio investment	+ 36.4	– 16.9	– 24.3
German investment abroad	+ 74.4	– 18.1	– 21.0
Shares	+ 14.0	– 0.1	– 0.6
Mutual fund shares	+ 13.6	– 0.9	+ 0.5
Debt securities	+ 46.8	– 17.1	– 20.9
Bonds and notes [5]	+ 20.7	– 19.7	– 21.5
of which Euro-denominated bonds and notes	+ 13.6	– 20.3	– 19.6
Money market instruments	+ 26.1	+ 2.6	+ 0.6
Foreign investment in Germany	– 38.0	+ 1.2	– 3.3
Shares	+ 2.9	+ 14.1	– 0.8
Mutual fund shares	– 2.7	– 0.6	+ 1.3
Debt securities	– 38.2	– 12.3	– 3.8
Bonds and notes [5]	– 45.3	– 26.3	– 8.7
of which Public bonds and notes	– 7.4	– 8.4	+ 3.5
Money market instruments	+ 7.1	+ 14.0	+ 4.9
3 Financial derivatives [6]	+ 10.2	– 5.8	– 0.8
4 Other investment [7]	– 79.0	+ 15.9	– 52.4
Monetary financial institutions [8]	– 87.5	+ 25.3	– 37.7
of which: short-term	– 73.1	+ 11.7	– 48.9
Enterprises and households	+ 29.3	– 14.8	– 1.1
of which: short-term	+ 22.8	– 0.5	+ 6.7
General government	– 8.9	+ 14.9	– 15.2
of which: short-term	– 9.2	+ 15.1	– 15.1
Bundesbank	– 12.0	– 9.4	+ 1.6
5 Change in reserve assets at transaction values (increase: –) [9]	– 1.6	+ 2.3	+ 0.6
IV Errors and omissions	+ 14.7	– 12.1	+ 22.7

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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small net inflows. Meanwhile, investors – still faced with exceptionally low money market rates – withdrew capital from money market funds (€1 billion) as they had done in the previous quarter. Foreign mutual fund units were returned in Germany for €½ billion. On balance, mutual fund shares were bought mainly by German non-banks (€25½ billion) – predominantly, as was mentioned above, by institutional investors. At the same time, German credit institutions returned mutual fund shares to the tune of €4½ billion, exclusively in the form of foreign certificates. Non-residents purchased German mutual fund shares worth €1½ billion.

Direct investment

German direct investment abroad

Unlike in portfolio investments, which recorded net capital exports amounting to €24½ billion in the fourth quarter of 2009, in direct investment cross-border transactions resulted in net capital imports of €4½ billion. German enterprises withdrew funds from their foreign branches totalling €4½ billion, primarily through intra-group loans (€5½ billion). For the first time since the first quarter of 2004, moreover, German enterprises reduced their equity capital abroad, by €2½ billion. The capital reduction at a banking subsidiary in Luxembourg was a major factor.

Foreign direct investment in Germany

Foreign firms' investment in their branches in Germany was broadly neutral in the months October to December 2009, with a slight increase in equity capital roughly offsetting capital outflows through reinvestment of earnings.