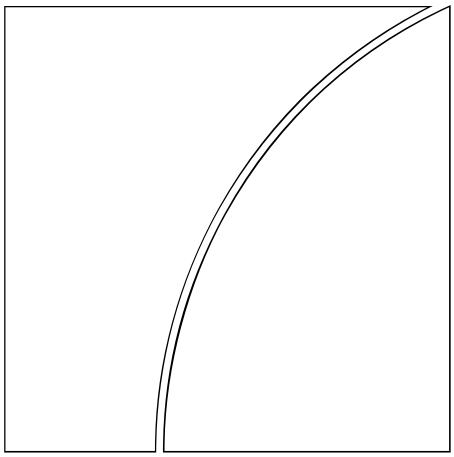
BANK FOR INTERNATIONAL SETTLEMENTS

BIS Quarterly Review

December 2001



International banking and financial market developments

BIS Quarterly Review
Monetary and Economic Department

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International banking and financial market developments

Special features

Structural and regulatory developments

Statistical Annex

Notations used in this Review

e	estimated
lhs, rhs	left-hand scale, right-hand scale
billion	thousand million
...	not available
.	not applicable
–	nil or negligible
$	US dollar unless specified otherwise

Differences in totals are due to rounding

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1. Overview: financial markets prove resilient

The terrorist attacks in the United States on 11 September brought uncertainty in global financial markets to a new level. During the summer, fading hopes for economic recovery had already weakened the major stock markets and problems in emerging markets had resurfaced. There were declines in most categories of international financial flows in the second quarter and at the start of the third, as borrowers moved to trim investment plans and restore balance sheets. The attacks shook consumer and business confidence still further and reinforced prospects for a broad global slowdown. Nevertheless, once the initial shock had worn off, markets again began to anticipate a recovery during the course of 2002, despite continued unfavourable macroeconomic data.

The immediate effect of the tragic events was to disrupt the functioning of some markets and induce investors to shift into less risky assets. US equity markets closed for four days, while those of Europe and Asia, which remained open but halted trading in the shares of US-based companies, saw stock prices retreat. When US stock exchanges reopened, prices there also dropped sharply, although by less than many had expected. The damage in New York to the operations of inter-dealer brokers, communications links and some clearing and settlement systems temporarily disrupted the functioning of segments of US fixed income markets.

Under the circumstances, the functioning of most markets and the confidence of participants proved remarkably resilient. Monetary authorities injected liquidity through open market operations, discount lending and currency swap arrangements and backed up these moves by reducing policy rates. Within a week of the attacks, most fixed income markets were functioning again, albeit with reduced capacity. Towards the end of September, issuance volumes in the corporate bond market rebounded, and by mid-October stock markets had returned to pre-attack price levels. While investors now expected the global slowdown to be more pronounced, they continued to exhibit confidence that a recovery would take place by mid-2002. These views were underpinned by the prompt easing of monetary policy in several countries and, in the United States, the added stimulus of a more expansionary fiscal policy.

This attitude of persistent medium-term optimism did not extend to the emerging economies. Increased risk aversion and worries about the impact of

the slowdown in the industrial countries led to higher risk spreads and portfolio outflows from several emerging markets, though not all. Emerging economies running current account deficits were affected by the sharp global slowdown in financing through the international banking and securities markets. The problems of specific borrowers, such as Argentina and Turkey, also weighed on market sentiment. Nevertheless, financial market contagion from these countries to other emerging markets appeared limited.

Attacks disrupt market functioning

Terrorist attacks disrupt several financial markets ...

The loss of life and the damage to infrastructure in downtown Manhattan as a consequence of the 11 September attacks led to major disruptions in financial markets. The US stock market closed for four trading days, its longest closure since the 1930s. US bond markets for outright trades closed for two days, and moved to longer settlement periods when they reopened. In the federal funds interbank lending market, the dislocation of inter-dealer brokers and telecommunications problems hindered the matching process between borrowers and lenders. Under a "gentleman's agreement", on the day of the attack all federal funds transactions were performed at the Federal Reserve's target rate rather than at a market-clearing rate. In Europe, some financial institutions briefly faced a shortage of dollars with which to settle currency trades and also experienced an increased precautionary demand for non-dollar liquidity.

... particularly those linked to US Treasury securities

The US Treasury bond cash and repo markets were particularly hard hit, because of the infrastructural and human losses suffered by several inter-dealer brokers, damage to communications links and the dislocation of a major clearing bank from its primary operating facilities. Together, these problems prevented the settlement of billions of dollars' worth of repo transactions for a few days following the attacks. This led to an unprecedented rise in the number of "failed" transactions in Treasury cash and repo markets, which in turn boosted demand for specific Treasury securities, in particular the most recently issued notes. Disruptions to the functioning of short-term money markets contributed to an increase in activity in the corresponding derivative instruments, as participants sought alternative channels for hedging and position-taking (see "Derivatives markets" on page 29).

Prompt action by monetary and fiscal authorities helps restore market functioning

Monetary and fiscal authorities were quick to respond. In the days following the attacks, the Federal Reserve injected ample amounts of liquidity into the banking system through repo operations and the discount window. In a jointly issued statement that helped to stem the flight to safety, the finance ministers of the G7 countries declared their commitment to minimising any "disruption to the global economy". Swap arrangements between the Federal Reserve and several central banks eased concerns about a shortage of dollars available to foreign financial institutions.

Official action, the restoration of communications links and cooperation among market participants enabled most markets to function more or less normally again within a week of the attack. The intraday volatility of federal

funds rates remained exceptionally high into October, but owing to the Federal Reserve's injections of liquidity, the effective rate was never much above target.

Normal market functioning returned last to the repo market, where high levels of failed transactions persisted into October. Indeed, the number of failed trades mounted in the weeks immediately following the attacks. This led to a collateral supply problem as lenders of securities withdrew from the market. To remedy the situation, the Federal Reserve promptly waived some restrictions on its securities lending programme, offering securities in short supply in exchange for those that were more easily available. Between the day of the attacks and the end of September, the Fed lent a total of $70 billion in par amounts of Treasury securities. On 4 October, the US Treasury provided a further boost to the supply of government paper by issuing $6 billion of 10-year notes in an unscheduled reopening of a previous issue. By mid-October, the rate of repo market fails had dropped to moderate levels.

Stock markets quickly regain confidence

Disappointing economic news cause market declines before 11 September ...

Even before 11 September, the news about the global economy had not been good. For most of the summer, disappointing macroeconomic data and profit announcements had battered the stock markets. On 30 August, profit warnings from Sun Microsystems and Corning had brought the Dow below 10,000 for the first time since April. On 7 September, the US employment report had shown a loss in non-farm payrolls of 113,000 jobs, more than double the number expected. Gloom about the European economy had also deepened, with data showing that German industrial production had fallen by 1.5% in July, much more than market participants had anticipated. The price declines from late May to 10 September had amounted to 17% for the S&P 500, 24% for the TOPIX, 16% for the FTSE 100 and 26% for the Dax. Most markets had fallen to their lowest price levels since the 1998 crisis.

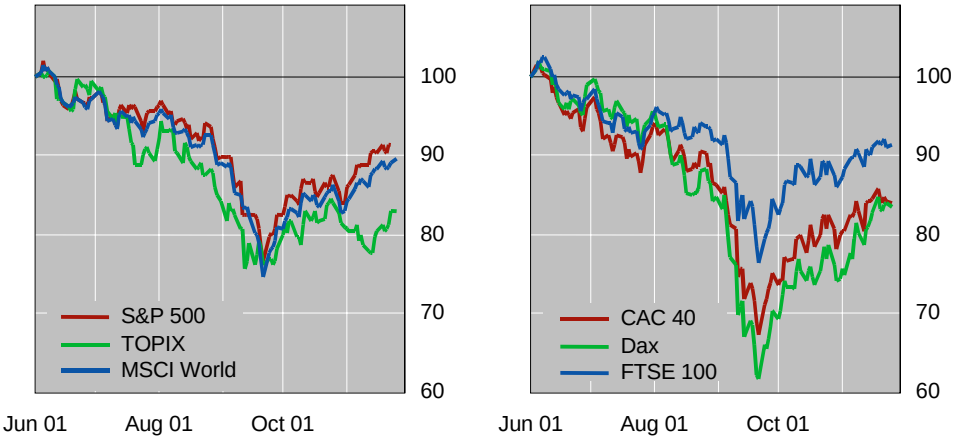
... which accelerate after the attacks

The shock of the attacks on 11 September served to compound the conditions of uncertainty. The reactions of stock prices to the events of 11 September were recorded first in markets outside the United States. In European markets, which were still open for afternoon trading, stock prices immediately started to slide (Graph 1.1). When Asian markets opened the next day, prices there also dropped. During the week, the FTSE 100 fell by 5.5%, the Dax by 11.9% and the TOPIX by 2.3%, partly in anticipation of sizeable stock price falls in New York.

When the US equity market reopened for trading on the Monday after the attacks, the S&P 500 index fell by 4.9% on the day, and by 11.6% during the week. The cumulative decline in the MSCI World Index between 10 and 21 September was 12%, amounting to a $3 trillion loss in value for the global market as a whole. Yet these declines were proportionately not as great as those on 19 October 1987, when the US market plunged by more than 20%. Indeed, Asian and European markets quickly recovered some of their losses

Broad stock market indices

1 June 2001 = 100



Sources: Datastream; national data. Graph 1.1

when investors there saw that declines in the US market were not as bad as they had feared.

Markets handle heavy trading volumes successfully ...

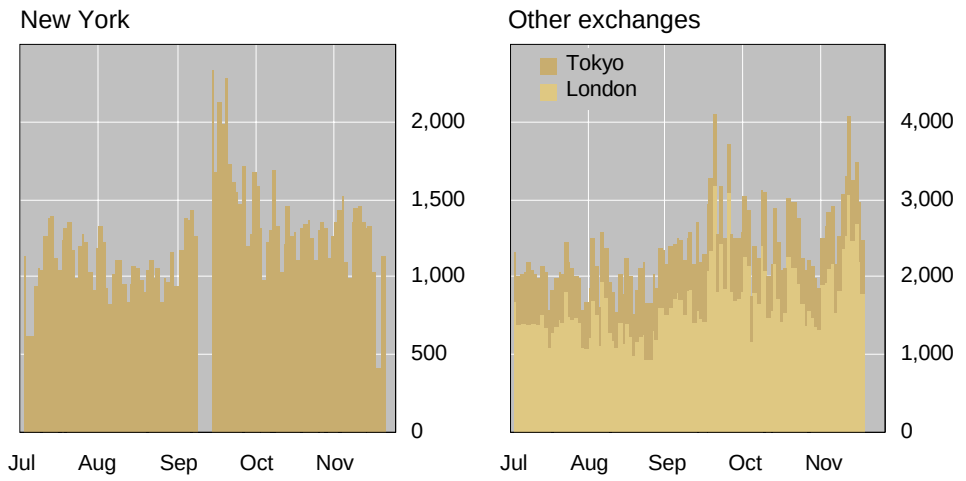
The release of selling pressure that had built up during the four days of US market closure gave rise to unprecedented trading volumes when they reopened. However, these did not overwhelm the capacities of the stock exchanges. The New York Stock Exchange in particular saw a record volume of 2.2 billion shares on the first trading day after the attacks, about two and a half times the normal turnover. Trading began to moderate over the next few days but even at the end of September volumes remained at least 25% above their one-year average (Graph 1.2). The trading surge in New York seemed to spill over into European markets, even though they had remained open during the week of the attacks.

To a large extent, the broad declines in stock prices in mid-September were driven by uncertainty about the implications of the attacks for the global economy as a whole. Nonetheless, this general uncertainty did not prevent investors from trying to identify those particular companies whose earnings would be most directly affected. Airline and tourism-related stocks were hit the hardest. Insurance stocks also fell, but subsequently recovered as it became clear that payouts related to the attacks would be spread widely across the industry and that demand for insurance services was likely to increase. Stocks in defence-related industries rallied.

Action by various authorities and investors helped prevent a downward spiral in prices. The Federal Reserve cut its policy rate by 50 basis points early on the morning of 17 September, shortly before the New York markets reopened, and the ECB and other central banks followed suit soon afterwards. In the course of that day and the rest of the week, some institutional investors voluntarily refrained from selling, while analysts held back on issuing downgrades in their stock recommendations. Corporations took advantage of a

Daily trading volume for selected stock exchanges

In millions of shares



Source: Bloomberg.

Graph 1.2

relaxation of securities rules to buy back their own stock. Faced with unprecedented net redemptions, US equity mutual funds drew on their cash balances rather than liquidating their stock holdings. Banking and insurance supervisory authorities temporarily adopted looser interpretations of certain rules, for example in cases where institutions might have had to sell large quantities of assets in order to maintain required capital levels.

... and eventually recover much of their losses

A global market recovery began during the last week of September. The rally was sparked in part by market strategists' recommending a return to stocks and in part by expressions of support from an unexpectedly broad coalition of countries for US-led efforts to combat terrorism. The belief that looser monetary policy and a jump in government spending would eventually be effective in stimulating the global economy seemed to take hold. In this context, macroeconomic data often counted for less than news associated with political and military developments. By mid-October, stock markets had recovered nearly all the value that had been lost since the attacks, despite unexpectedly steep falls in employment, consumer confidence and industrial output in several countries. Markets rallied further in November, when more positive economic data emerged and the war effort in Afghanistan began to show results.

Yield curves steepen on expectations of prompt recovery

Yield curves steepened in all three of the principal currency areas in the aftermath of 11 September, continuing trends that had begun during the summer (Graph 1.3). In the case of the United States and the euro area, this was the result of declines in short-term rates which were expected to help stimulate the economy. In Japan short-term rates remained close to zero while yields at longer maturity increased slightly to reflect expansionary fiscal policy.

US dollar swap rates fell around 110 basis points at the long end from end-June to end-October, while short rates fell 170 basis points. In response to the rapidly deteriorating growth picture and the absence of inflationary pressures, the Fed cut its target for the federal funds rate by 25 basis points on 27 June and by the same amount on 21 August. In the aftermath of the attacks, it made three further cuts of 50 basis points each, on 17 September, 2 October and 6 November. Trading activity in the US Treasury market was concentrated in the two-year note, traditionally the maturity that is used for making bets on future Fed actions. Movements in two-year yields suggest that, after the Fed's move on 6 November, markets stopped pricing in the expectation of further rate cuts and instead began to anticipate stable or increasing short-term rates.

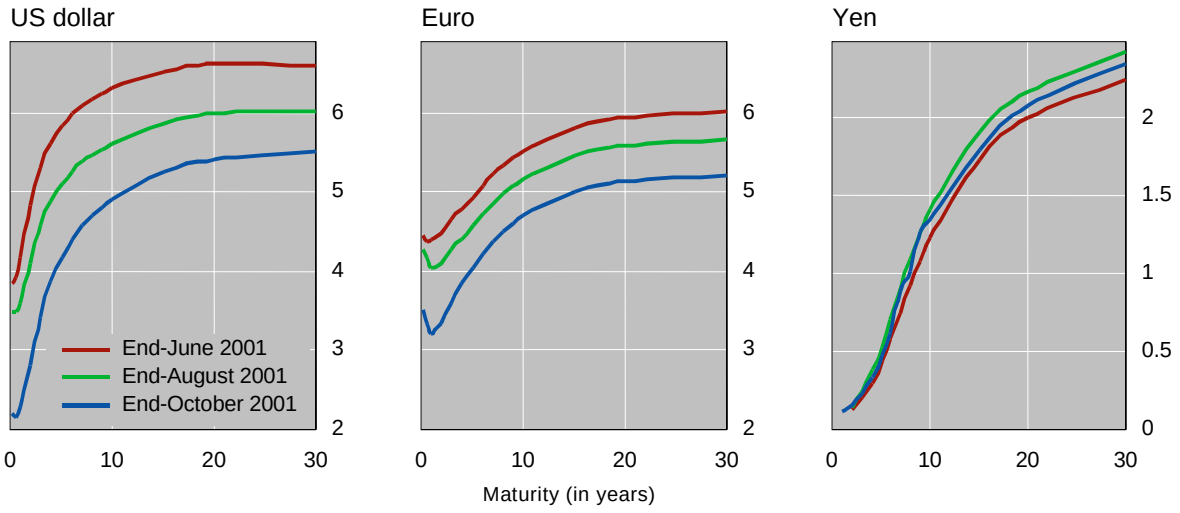
Steeper US yield curve reflects lower short-term policy rates ...

The prospect of an increased government bond supply hindered these cuts in short-term rates from being fully incorporated into the long end of the yield curve. Markets anticipated a return of government budget deficits, partly as an inevitable result of recession and partly reflecting plans for an aggressive loosening of fiscal policy. This projected increase in the supply of government paper caused investors to demand a relatively higher yield for holding it. As a result, the swap spread narrowed from 80–90 basis points for 10-year obligations before 11 September to 70 basis points afterwards. The steep yield curve also signalled the persistence of investor expectations of an eventual "V-shaped" recovery, though expectations regarding the extent of the downturn continued to grow and the anticipated timing of the recovery continued to be pushed back. At the end of October, the short-term forward curve had built in an expectation that rates would reverse direction in the second quarter of 2002, implying that investors expected signs of a recovery to become apparent by then. The Treasury's announcement on 30 October that it would suspend

... and narrower swap spreads reflect an increase in Treasury supplies

Yield curves for interest rate swaps[1]

In percentages



[1] For three-month, six-month and one-year maturities, Libor rates.

Source: Bloomberg.

Graph 1.3

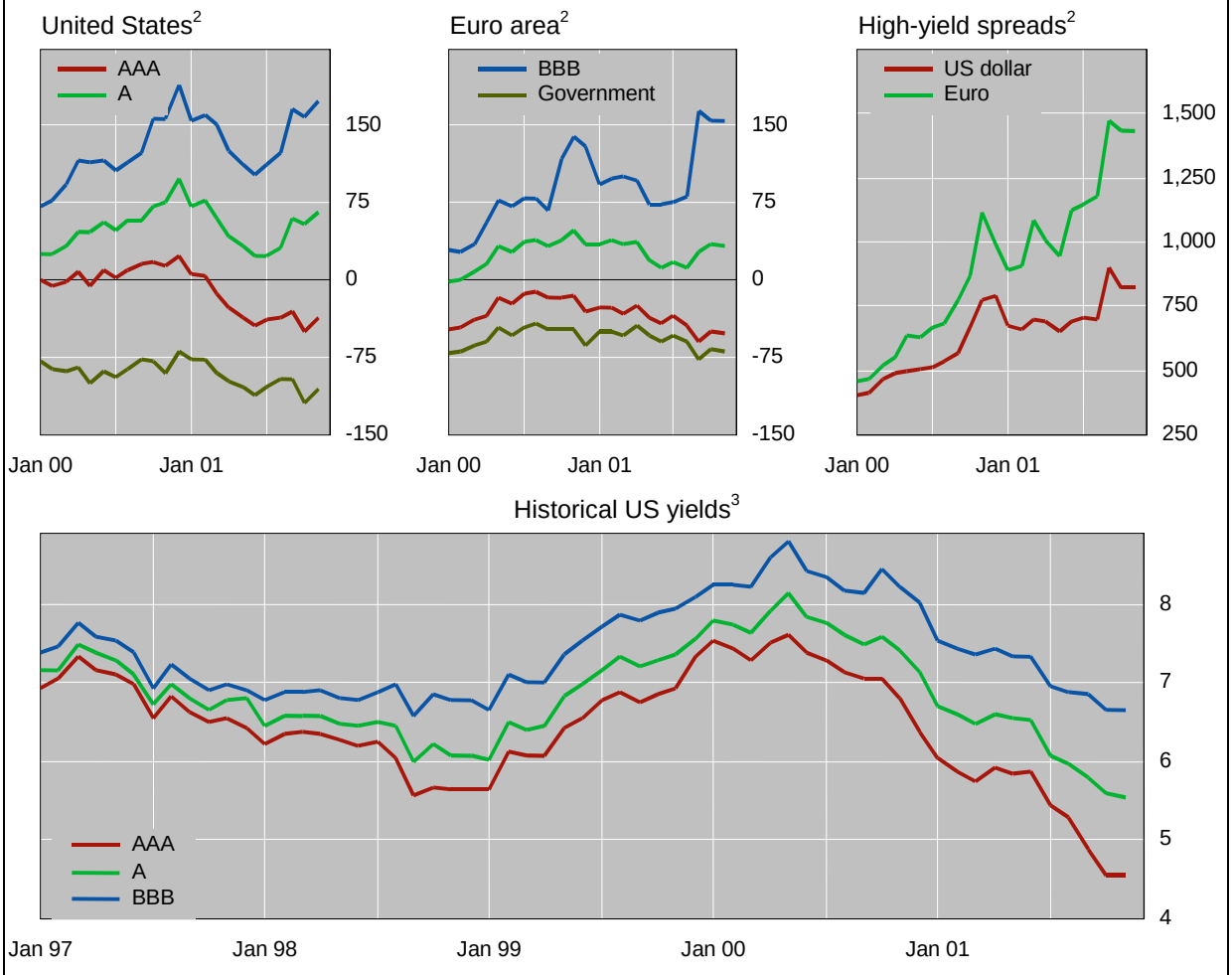
issuance of the 30-year bond increased the scarcity premium on that issue and moderated the steepness of the yield curve somewhat, but did little to alter its overall shape.

Short rates also fall in the euro zone …

A similar combination of a decline in overall rates and a steepening of the curve took place in the euro zone. The ECB cut its policy rate by 25 basis points on 30 August and by 50 basis points on both 17 September and 8 November. With virtually every new data release contributing to a picture of decelerating growth, rising unemployment and quiescent inflation, forward curves in September and October incorporated market expectations of further cuts over the next few months. Following the ECB's cut in November, these expectations dissipated. As in the United States, markets continued to anticipate a resumption of growth at some point in 2002. In contrast to the United States, however, supply effects did not seem to exert much influence on developments at the longer end of the yield curve.

Corporate and government bond spreads[1]

Month-end data



[1] Bond index yields against 10-year swap rates. [2] In basis points. [3] In percentages.

Sources: Bloomberg; Merrill Lynch; national data. Graph 1.4

In the case of Japan, long-term rates inched higher while short-term rates remained at very low levels. This reflected the continuing bad economic news, and the consequent expectation that fiscal policy would remain expansionary. Markets expected little change in economic conditions in the short and medium term, given the likely fall-off in demand for Japanese exports and the slow progress of the government's plans for restructuring the banking system.

... while Japanese yield curves are largely unchanged

Credit spreads widen but corporate bond issuance bounces back

Reversing a trend that had been in place since January, spreads between yields on lower-rated corporate bonds and swap yields widened steadily throughout the third quarter (Graph 1.4, top panels). This reflected worsening economic news in the United States and Europe and increases in default rates to levels that had not been seen for at least 10 years. While investment grade spreads generally remained narrower than their recent peaks in December 2000, speculative grade spreads widened well past their levels of late 2000, especially in Europe. Most of the increases in investment grade spreads over swaps resulted from declining swap yields, with the corporate yields themselves tending to decline or remain stable (Graph 1.4, bottom panel).

Credit spreads widen in the third quarter ...

Long-term credit spreads continued their widening trend in the days after 11 September. Yield spreads between 10-year triple-B corporates and swaps widened by 8 basis points when markets reopened and by a cumulative 37 basis points up to the end of September. Some observers feared that insurance companies would immediately sell large quantities of corporate bonds to fund payouts related to the disaster, but they did not do so. As with the stock market, the bonds of vulnerable sectors such as airlines were especially hard hit and faced possible downgrades by rating agencies. Credit spreads on commercial paper, which had been turbulent earlier in the year but had since narrowed steadily, jumped sharply after the attacks. They remained high and volatile throughout October following the downgrading of several prominent issuers (Graph 1.5).

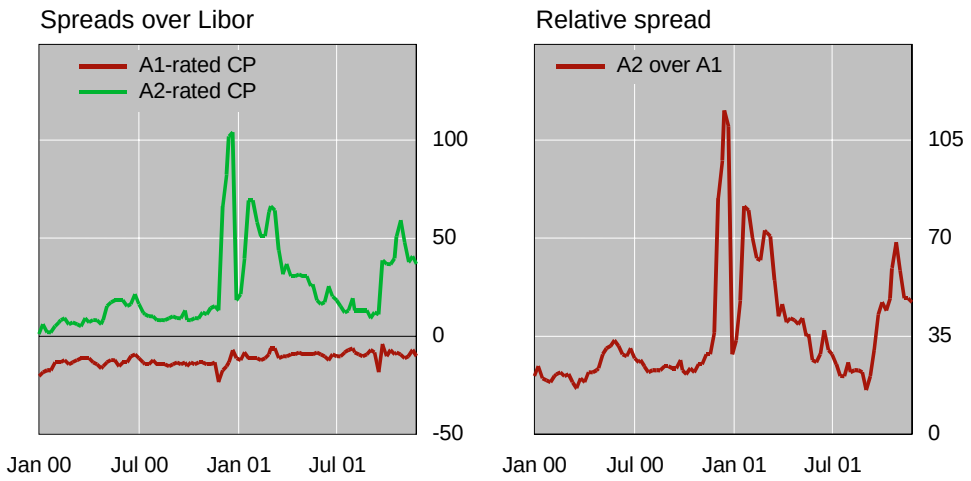
... especially after 11 September ...

The post-11 September rise in credit spreads was small relative to that implied by the fall in stock prices. In a parallel fashion, however, spreads did not narrow appreciably when stock prices rallied from late September onwards. By mid-October, markets seemed to be taking the view that, while the economic consequences of the attacks had been such as to compound the existing high level of corporate credit risk, equities still provided an opportunity to benefit from the "upside" of an eventual recovery. In other words, it appears that investors did not lower their overall valuations of corporate assets appreciably, but may have priced in higher levels of uncertainty about those valuations. In some cases, particularly for highly leveraged firms, this higher uncertainty resulted in relatively lower market values for bonds (which are in effect short volatility positions) and higher values for stocks (which benefit from

... though not by as much as falling equity prices would imply

US commercial paper spreads[1]

Weekly averages



[1] On 30-day yields, in basis points.

Sources: Bloomberg; BIS calculations. Graph 1.5

higher volatility).[1]

Most categories of financing flows fall in the third quarter ...

Even before 11 September, the slowing global economy had been contributing to a sharp overall decline in both gross and net debt issuance. In contrast to late 2000 and early 2001, when borrowers had shifted among different financing vehicles in response to market conditions, the third quarter of 2001 witnessed a drop in virtually every category of financing flows. In the international debt securities market, net issuance fell nearly 40%, with almost all of the decline resulting from reduced issuance by the financial and non-financial private sector (see "The international debt securities market" on page 22). The stock of outstanding international money market instruments fell by $46 billion during the quarter, and comparable declines in short-term debt issuance were also witnessed in several domestic markets. Gross amounts raised in the international syndicated loan market also fell sharply (see "International syndicated credits: shift towards higher-rated borrowers" on page 21).

... but investment grade borrowers retain market access

Despite the uncertain conditions prevailing after the attacks, investment grade borrowers generally maintained their access to debt markets. A $5 billion issue by AAA-rated Bristol-Myers Squibb on 25 September signalled the return of investment grade corporate issuance in the international market to more or less normal levels of activity. In October, issuance volumes were reported to be very strong, though some of this reflected the clearance of backlogs. Investors remained eager to absorb investment grade paper, given the poor performance of equity markets and the low yields available on government bonds and short-term instruments. Lower-rated borrowers, however, faced not only higher

[1] For a further discussion of this "option-based" theory of bond and equity valuation, see B Cohen, "Credit spreads and equity market volatility", in the November 2000 issue of the *BIS Quarterly Review*.

spreads but also reduced opportunities for issuance. The Japanese domestic corporate bond market was shaken by the default on 14 September of Mycal Corp, a large retailer that had been classed as investment grade by local credit rating agencies.

Rising risk aversion affects emerging markets

Most emerging economies see falling equity prices, rising credit spreads and shrinking debt flows ...

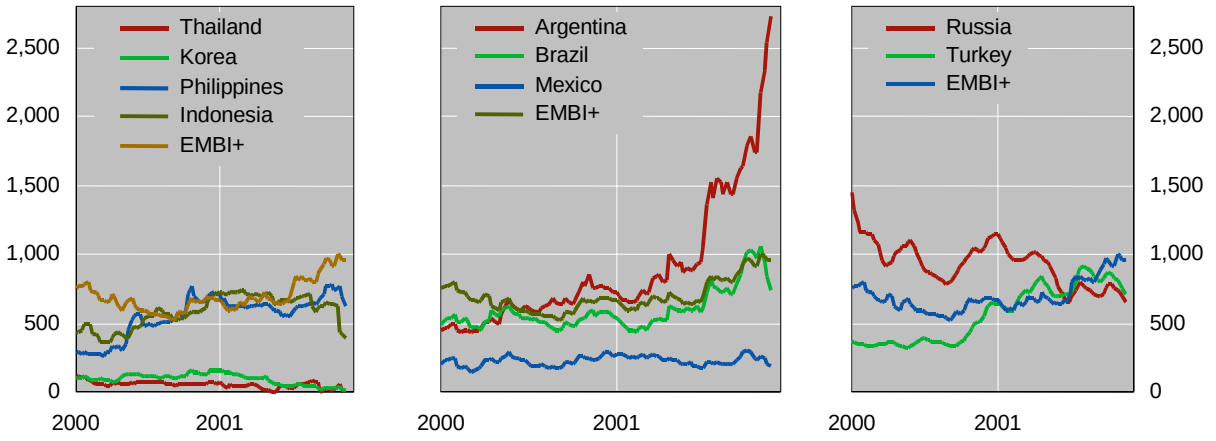
The growing perception of a significant slowdown in economic growth in the industrial world and increased risk aversion among international investors led to falling equity prices and rising credit risk premia in emerging economies (Graph 1.6). Debt issuance by emerging market borrowers declined in the third quarter, while bank lending to these debtors also showed signs of a slowdown (Graph 1.7). In contrast to the previous bout of turmoil in the emerging economies in 1997–98, the scope for an expansion of exports that could replace reduced capital inflows appeared limited. Some borrowers, such as Mexico and the leading eastern European economies, continued to enjoy relatively narrow yield spreads and stable currencies, though their ability to access capital markets in the post-11 September environment has yet to be fully tested. Unlike industrial country market indices, stock prices in the emerging economies generally did not recover fully from their late September lows.

... with attention focused on the problems of Argentina and Turkey ...

Attention continued to be focused on Argentina and Turkey. In early September the IMF increased the size of the lending package available to Argentina by $8 billion, to approximately $22 billion. Of this amount, $3 billion was designated as support for a voluntary rescheduling of Argentina's debt profile. Argentina's problems weighed in turn on investor sentiment towards Brazil, where a significant slowdown in growth, compounded by an energy crisis, contributed to a 28% depreciation of its currency from the start of the year to end-October. Turkey continued to struggle with weaknesses in its

Spreads of US dollar sovereign bonds over 10-year US swap rates

Weekly averages, in basis points

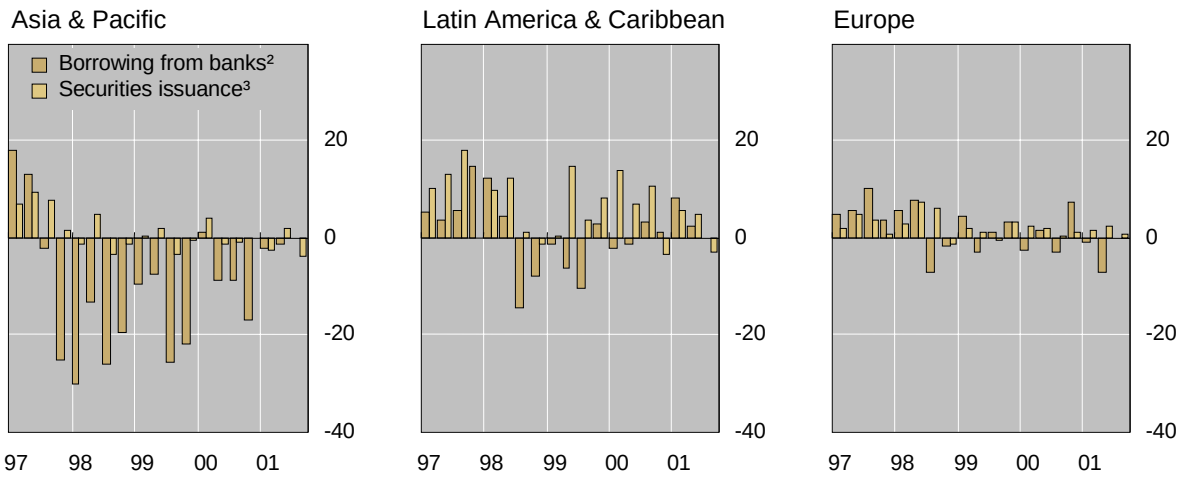


Source: Bloomberg.

Graph 1.6

International bank and securities financing in emerging economies[1]

In billions of US dollars



[1] See Annex Table 7A for a list of the countries included in each region. [2] Exchange rate adjusted changes in cross-border loans of BIS reporting banks. Data on bank lending are not yet available for the third quarter of 2001. [3] Net issues of international money market instruments, bonds and notes.

Sources: Bank of England; Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; national data; BIS locational banking statistics. Graph 1.7

banking system, compounded by the likelihood of a substantial decline in real GDP in 2001.

On 1 November, the Argentine government announced plans to restructure its debt by means of an exchange of loans, paying 7% for bonds and other instruments that had offered coupons of 10% or more (and, given the default premium built into Argentine bond prices, an implied yield to maturity far above that). The first phase of the exchange, which closed on 30 November, targeted local investors, who by and large accepted the terms offered. A second phase aimed at international investors is planned. Some international investors regarded the initial announcement of the exchange as a de facto default, and the price of the country's benchmark floating rate bond fell by 6.3% on 1 November. As the debt situation had been widely considered to be unsustainable for some time, this reaction seems unlikely to have resulted from a fundamental re-evaluation of Argentina's creditworthiness. Instead, the price decline may indicate that investors had been hoping for a form of restructuring that would involve more assistance from multilateral institutions.

... though contagion to other emerging markets is limited

Except to a limited degree, these problems did not seem to spread to other emerging markets. Investors had spent several months adjusting their exposures to emerging economies to their desired levels, leaving the risk in the hands of those more willing to wait out the anticipated period of turbulence. Banks had already begun to reduce their exposures to Turkey and Argentina in the first half of 2001, in some cases by using credit risk mitigants such as collateral and guarantees (see "The international banking market" on page 13). As a consequence of this unwinding of positions, spreads on countries perceived to be at risk, and Argentine debt in particular, had already widened

sharply in July. With portfolio flows not having recovered to their 1996–7 levels, the number and influence of global investors with exposures to a broad range of emerging markets was relatively low. In addition, the adoption of more flexible exchange rate regimes by many countries had enabled them to adjust to the external shock of the global slowdown without running up unsustainable current account deficits.

As a result, it appeared unlikely that a further deterioration in the outlook for specific countries would lead to a general "rush for the exits" as in past crises. Indeed, sentiment towards Brazil improved markedly from mid-October onwards, with the real appreciating by approximately 10% against the US dollar between mid-October and the end of November. Sentiment towards Turkey also became more positive, helped by progress on the adoption of a new support package from the IMF.

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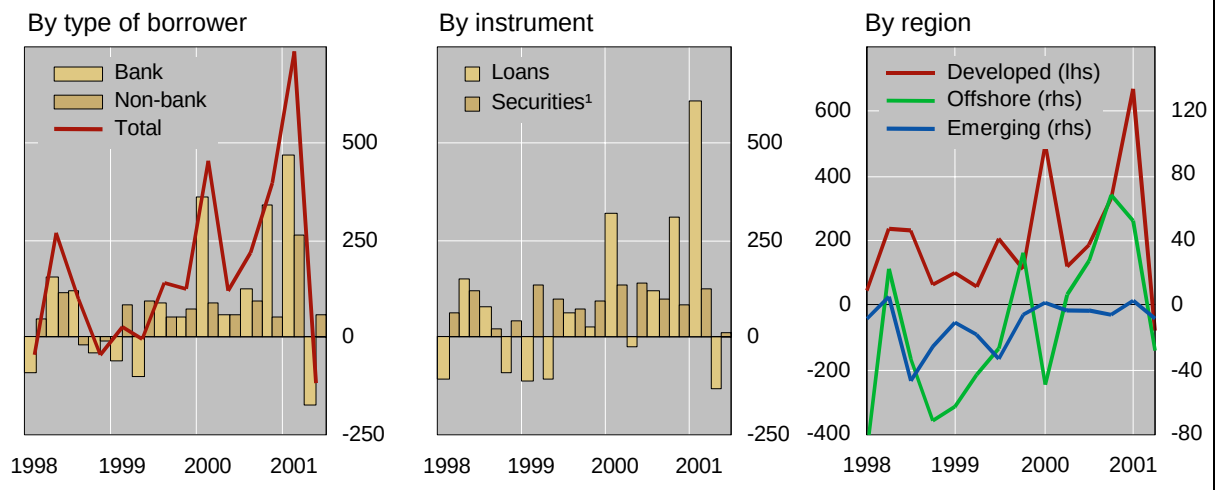
2. The international banking market

Weak demand for bank financing restrained the growth of the international banking market in the second quarter of 2001. The locational banking statistics indicate that cross-border claims of BIS reporting banks fell by $118 billion in the second quarter to $10.9 trillion (Graph 2.1). Cross-border flows to corporations and other non-bank borrowers slowed considerably from the first quarter's remarkably high levels, as the deterioration in global economic conditions dampened demand for new bank financing. With no need to recycle either large repayments from non-bank borrowers or loans to such borrowers, banks unwound some of the large interbank positions they had built up in the previous quarter. Consequently, cross-border claims on banks contracted by a record $175 billion.

The picture in emerging economies was more mixed. Demand in several regions remained weak, with Asia and oil-exporting countries in particular continuing to post current account surpluses. Banks in the reporting area reduced their cross-border claims to countries perceived to be higher risks, such as Turkey. They increased their claims on several other lower-grade

Cross-border claims of BIS reporting banks

Exchange rate adjusted changes in amounts outstanding, in billions of US dollars



[1] Mainly debt securities. Other assets account for less than 5% of total claims outstanding. Data are partly estimated.

Graph 2.1

borrowers, including Argentina, but at the same time limited their ultimate risk exposure through the use of credit risk mitigants such as guarantees. Overall, cross-border claims on emerging economies fell by $8 billion in the second quarter.

Weakening demand for dollar interbank funding

Large decline in dollar-denominated interbank claims

Following several quarters of rapid growth, the international interbank market contracted by $204 billion in the second quarter (Table 2.1). A weakening of demand for US dollar funding appears to have been responsible for much of the contraction. Repayments to banks in the Caribbean and other banking centres resulted in a $100 billion decline in dollar-denominated interbank claims. The turnaround in lending by US banks was especially noteworthy. Banks abroad had tapped banks in the United States for substantial amounts of dollar funding in the final quarter of 2000 and first quarter of 2001. By contrast, in the second quarter they paid down their outstanding dollar loan balances.

In the euro segment of the international interbank market, activity returned to more normal levels in the second quarter, with claims increasing by $10 billion, down from the first quarter's exceptionally high level of $315 billion. Flows between the United Kingdom and the euro area, which had driven the expansion in the first quarter, reversed direction in the second, resulting in a partial unwinding of cross-border euro positions on the United Kingdom. Intra-euro area business, on the other hand, continued to expand. The largest transactions were between banks domiciled in Germany and France and their offices in Luxembourg.

International interbank claims

Exchange rate adjusted changes in amounts outstanding, in billions of US dollars

	1999	2000				2001		Stocks at end-June 2001
	Year	Year	Q2	Q3	Q4	Q1	Q2	
Total claims on banks[1]	12.6	945.4	62.7	145.3	323.8	569.0	– 204.1	7,971.8
of which: cross-border	*– 17.2*	*892.8*	*60.1*	*126.5*	*342.5*	*472.0*	*– 175.0*	*7,206.9*
US dollar	– 108.3	324.9	37.8	77.5	116.4	146.0	– 100.1	3,269.1
Euro	281.8	312.1	31.4	27.5	39.5	314.5	10.3	2,091.5
of which: intra-euro area[2]	*154.3*	*88.4*	*– 13.1*	*10.9*	*15.8*	*63.9*	*25.7*	*774.8*
Japanese yen	– 195.9	81.8	– 5.4	– 2.4	88.0	– 9.2	– 21.6	580.6
Pound sterling	– 0.3	65.4	4.4	9.4	4.0	52.9	– 41.0	354.6
Swiss franc	14.5	– 0.7	– 29.3	7.2	– 11.2	18.8	– 12.9	186.9
Other currencies[3]	20.9	161.8	23.9	26.2	87.2	45.9	– 38.7	1,489.1

[1] Cross-border claims on banks in all currencies and local claims on banks domiciled in reporting countries in foreign currencies. [2] Euro-denominated cross-border claims of reporting banks in the euro area on residents of the euro area. [3] Including unallocated currencies. Table 2.1

Banks willing to lend but finding few borrowers in the United States

The shift in funding patterns in the interbank market reflected a fall-off in flows to non-bank borrowers in the second quarter. The deterioration in the global economic outlook muted non-bank demand for new bank financing; as a result, cross-border flows to non-banks slowed to $57 billion in the second quarter from $267 billion in the first (Table 2.2).

Fall-off in cross-border flows to US non-banks ...

Just as the expansion in the first quarter had been driven by flows to the United States, so too was the slowdown in the second. Cross-border claims on non-bank borrowers in the United States increased by only $10 billion in the second quarter, the smallest increase in two years. Both lending and securities purchases were weak.

... even as syndicated lending rises

The slowdown in cross-border flows to US non-banks is surprising considering that US borrowers raised a record amount (in gross terms) in the international syndicated credit market in the second quarter. The conflicting movements in the locational and syndicated banking statistics suggest that syndicated loans were either intended primarily as backup facilities and so were not drawn down, or were used to refinance maturing loans, or were sold in the secondary market.[1] Indeed, all three explanations were probably behind the fall-off in cross-border flows to US non-banks in the second quarter. Deteriorating earnings prospects led borrowers active in the commercial paper (CP) market to bolster their credit lines in expectation of a loss of access to that market. General Motors Acceptance Corporation's signing of a $14.7 billion facility in June looks especially prescient given its downgrade in October and consequent reduced access to the CP market. Borrowers also appear to have taken advantage of the decline in yields following the Federal Reserve's interest rate cuts to refinance outstanding loans. Finally, banks found receptive buyers for investment grade loans, with credit spreads narrowing despite the deteriorating economic outlook.

Taken together, the three sets of banking statistics published by the BIS – locational, consolidated and syndicated lending – indicate that international banks remained willing, in the second quarter, to extend credit to US borrowers. Cross-border flows to US non-banks did slow. But even as corporate earnings prospects were deteriorating, banks in the reporting area

[1] The international syndicated credit statistics and the locational banking statistics are not directly comparable. The former are gross figures based on signed facilities, whereas the latter are net figures based on reporting banks' balance sheets. Moreover, the former include local lending by domestic banks (when part of an international syndicate), whereas the latter refer to the cross-border positions of international banks. The participation of US banks is substantial in the case of international syndicated lending to US borrowers, and so local lending explains part of the conflicting movements in the two sets of statistics. In addition, international banks participating in the syndicate may have funded the loans through their US-based branches or subsidiaries. However, this is unlikely to have been the case because US flow-of-funds data show a sharp slowdown in domestic bank lending in the second quarter. Furthermore, no acceleration in the pace of local lending by foreign banks in the United States is evident in the consolidated international banking statistics.

Banks' cross-border claims on non-bank borrowers

Exchange rate adjusted changes in amounts outstanding, in billions of US dollars

	1999	2000				2001		Stocks at end-June 2001
	Year	Year	Q2	Q3	Q4	Q1	Q2	
Total claims on non-banks	303.1	296.9	58.2	94.1	53.8	266.5	57.4	3,705.3
Loans	102.7	66.7	– 0.2	22.9	16.8	198.7	36.7	2,204.3
Securities[1]	200.3	230.2	58.4	71.3	37.0	67.8	20.7	1,501.0
Developed countries	275.3	265.8	40.5	81.2	55.7	228.9	45.8	2,766.5
Europe	259.0	205.9	25.5	67.3	39.2	92.1	23.8	1,496.5
of which: intra-euro area[2]	*156.8*	*60.8*	*3.5*	*12.2*	*10.9*	*42.6*	*7.2*	*641.2*
Japan	– 64.5	– 67.5	– 8.5	– 10.3	– 33.5	– 7.0	4.3	113.5
United States	86.0	123.4	26.8	22.3	48.4	141.5	9.8	1,066.6
Offshore centres	24.6	47.0	18.5	7.0	16.2	25.2	7.5	366.6
Emerging economies	– 15.9	– 15.7	2.9	5.2	– 13.6	9.3	4.8	489.8
Unallocated[3]	19.1	– 0.2	– 3.6	0.8	– 4.5	3.0	– 0.7	82.3
US dollar	141.5	125.0	25.2	26.7	58.2	137.5	30.1	1,724.6
Euro	185.1	157.4	16.6	52.6	21.2	128.3	– 0.2	1,139.8
Japanese yen	– 7.0	19.1	37.4	– 8.6	– 26.0	6.2	7.3	256.1
Other currencies[4]	– 16.5	– 4.6	– 20.9	23.4	0.4	– 5.5	20.2	584.8

[1] Mainly debt securities. Other assets account for less than 5% of total claims outstanding. Data are partly estimated. [2] Euro-denominated cross-border claims of reporting banks in the euro area on residents of the euro area. [3] Including claims on international institutions. [4] Including unallocated currencies. Table 2.2

showed no signs of reducing their claims on the non-bank private sector, whose share in outstanding consolidated claims on the United States remained stable at 57% in the second quarter. Instead, they reduced their holdings of US Treasury securities, resulting in a 1 percentage point decline in the public sector's share of outstanding claims, to 13%.

In the third quarter too, bank funding for US borrowers seemed to be available, at least for investment grade borrowers. Syndicated lending to the United States slowed from the second quarter's exceptionally high levels (see "International syndicated credits: shift towards higher-rated borrowers" on page 21). Nevertheless, at $181 billion, it was not far below the levels of a year earlier, when the US economy was growing much more rapidly than it did in the third quarter of 2001.

Flows to European non-banks slow but remain positive

Flows to non-banks in Europe also slowed in the second quarter, but not as sharply as in the United States. Cross-border claims on European non-banks increased by $24 billion, below the levels of recent quarters but still positive (Table 2.2). Italy was the largest recipient of funds, followed by France. The United Kingdom and the Netherlands experienced the largest declines.

Intra-European business again accounted for most of the activity in the second quarter. Flows to non-bank borrowers in Europe from banks domiciled within Europe totalled $20 billion, compared to $4 billion from banks outside

German banks strengthen their position in Europe

Europe.[2] Through HypoVereinsbank's purchase of Bank Austria, German banks strengthened their position as the leading source of international bank credit to governments, corporations and non-bank financial institutions in Europe. According to the consolidated banking statistics, German banks' share of outstanding international claims on European non-banks increased by 2 percentage points in the second quarter, to 25%. Japanese banks maintained their 11% market share, followed by Swiss and French banks at 9% each, and US banks at 8%.

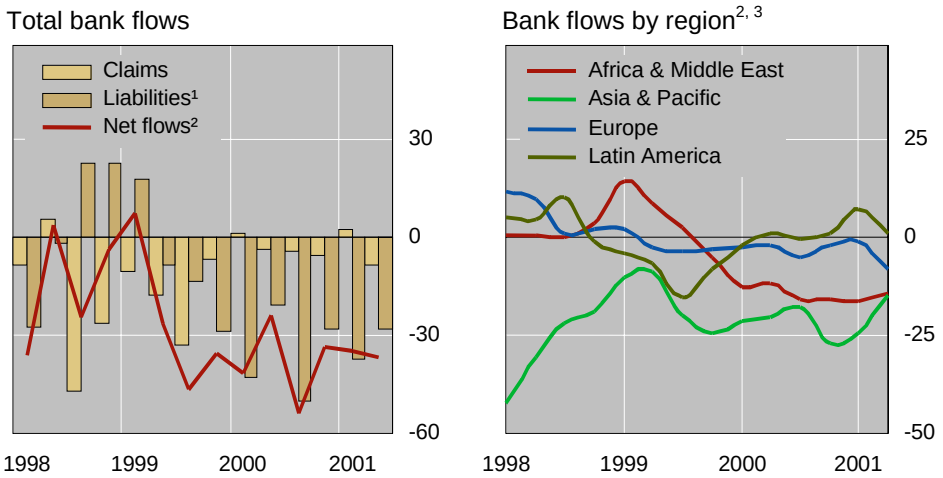
New financing for emerging economies is limited to top-tier credits

Large decline in cross-border claims on emerging economies …

Whereas demand factors appeared to be driving the slowdown in bank flows to the developed countries in the second quarter, the picture in emerging economies was more mixed. The second quarter saw cross-border claims on emerging economies contract by $9 billion, the largest decline in nearly two years (Graph 2.2 and Table 2.3). Demand for external bank finance remained weak in Asia and other regions with current account surpluses. Banks in the reporting area continued to lend modest amounts to emerging economies in need of external finance, including higher-risk borrowers such as Argentina and Russia. At the same time, however, they took steps to limit their exposure by, for example, lending primarily to top-tier borrowers or only against collateral and guarantees.

Banks' external positions vis-à-vis emerging economies

Exchange rate adjusted changes in amounts outstanding, in billions of US dollars



[1] A negative (positive) value indicates an increase (decrease) in BIS reporting banks' liabilities vis-à-vis emerging economies. [2] Changes in claims minus changes in liabilities. [3] Two-quarter moving average.

Graph 2.2

[2] The locational banking statistics do not include securities purchases by banks in the United States, only loans, and so they underestimate banking flows between Europe and the United States. The consolidated banking statistics include both loans and securities. The Statistical Annex outlines the main differences between the consolidated and locational banking statistics.

Banks' external positions vis-à-vis emerging economies

Exchange rate adjusted changes in amounts outstanding, in billions of US dollars

	1999	2000				2001		Stocks at end-June 2001
	Year	Year	Q2	Q3	Q4	Q1	Q2	
Total claims	– 68.0	– 11.9	– 3.6	– 3.9	– 5.5	2.7	– 8.4	867.3
Africa & Middle East	0.2	– 7.6	– 1.0	– 1.6	1.2	– 5.6	– 1.6	139.5
Saudi Arabia	2.1	0.1	– 0.1	0.0	1.4	– 1.9	0.1	23.8
Asia & Pacific	– 61.3	– 29.0	– 7.2	– 6.6	– 18.2	– 0.8	– 1.5	272.8
Mainland China	– 17.1	– 5.4	– 3.4	– 1.6	– 0.4	– 1.8	1.5	57.7
Taiwan, China	– 3.3	– 4.3	– 0.1	– 1.1	– 4.3	– 0.2	1.3	15.8
Europe	9.1	10.9	2.6	0.3	8.4	0.4	– 7.3	158.5
Russia	– 6.5	– 6.6	– 1.3	– 3.3	– 0.6	– 1.2	0.3	33.7
Turkey	5.9	11.3	2.6	2.5	3.4	– 2.3	– 5.1	40.4
Latin America	– 16.0	13.8	2.1	4.0	3.2	8.7	2.0	296.5
Argentina	0.7	1.2	– 0.1	2.3	0.3	– 1.7	1.5	46.4
Brazil	– 8.9	9.5	0.2	3.2	4.6	4.0	0.0	98.2
Total liabilities[1]	32.6	141.5	20.5	50.2	28.2	37.5	28.3	1,089.5
Africa & Middle East	– 6.9	47.2	8.4	21.0	10.1	17.8	3.3	328.2
Saudi Arabia	– 17.9	10.9	– 0.9	7.3	4.9	4.7	– 1.4	62.1
Asia & Pacific	5.0	65.3	9.5	12.1	16.9	12.5	14.7	378.2
Mainland China	– 4.1	35.7	10.4	5.2	8.1	0.6	3.5	104.5
Taiwan, China	7.5	19.2	0.6	6.1	12.6	3.4	6.8	73.2
Europe	20.8	19.4	4.8	7.7	5.0	6.0	3.0	127.4
Russia	3.8	7.2	3.4	3.2	– 1.8	3.8	2.6	29.4
Turkey	3.3	2.3	– 0.6	0.3	2.6	– 1.3	0.5	19.3
Latin America	13.8	9.6	– 2.1	9.3	– 3.9	1.2	7.3	255.7
Argentina	0.1	3.2	0.1	3.7	– 1.0	– 6.0	2.3	36.6
Brazil	2.2	– 4.6	– 8.9	2.3	0.7	– 2.6	2.2	46.6
Net flows[2]	– 100.7	– 153.4	– 24.1	– 54.1	– 33.7	– 34.8	– 36.7	– 222.2
Memo: OPEC deposits	*– 19.6*	*37.7*	*9.1*	*17.9*	*8.5*	*12.7*	*2.3*	*243.7*

[1] Mainly deposits. Other liabilities account for less than 1% of the total outstanding. [2] Total claims minus total liabilities.

Table 2.3

... especially Turkey

Turkey again experienced the largest contraction in claims. The $5.1 billion fall in the second quarter brought the total decline in the first half of 2001 to 15% of cross-border claims on Turkey outstanding at the end of 2000. Maturing short-term credits extended to Turkish banks and public sector borrowers accounted for most of the fall. The Turkish government repaid a $1 billion syndicated loan arranged in December 2000. Turkish banks, which had borrowed heavily in 2000, were absent from the international syndicated loan market in the second quarter. However, top-tier banks returned to the market in the third, signing $1.4 billion in new credits.

Following six consecutive quarterly increases, cross-border claims on Brazil were unchanged in the second quarter. While banks in the United States and the euro area continued to lend sizeable amounts to Brazilian borrowers, this was offset by a $3 billion decline in holdings of bank-issued securities reported by banking centres in the Caribbean. The consolidated statistics show

a $1.5 billion increase in international claims on Brazil in the second quarter, suggesting that inter-office transactions may have been behind the sales of securities.

Cross-border claims on Argentina and Russia rise …

In Argentina, cross-border claims increased by $1.5 billion in the second quarter despite growing concern about the country's economic and fiscal prospects at the time. Banks in Europe and the United States reduced their holdings of Argentine securities, but these sales were offset by $1.7 billion in new lending from banks in the United States and other banking centres. This increase in cross-border claims on Argentina must, however, be distinguished from changes in banks' ultimate risk exposure. Indeed, the consolidated banking statistics show that banks in the reporting area reduced their exposure to Argentina in the second quarter. International on-balance sheet claims fell by $1.6 billion, or 2%, after consolidation of the operations of local subsidiaries with those of the parent bank. Foreign banks' subsidiaries in Argentina appear to have sold dollar bonds issued by the Argentine government, contributing to a 3 percentage point drop in claims on the public sector in the second quarter to 20% of total consolidated claims. Whereas such sales do not necessarily affect cross-border positions, they would result in a decline in consolidated claims.[3] Banks' net risk exposure, which also takes credit risk mitigants into account, fell by an even larger $3.2 billion, suggesting that banks did not renew unsecured credits and sought guarantees and collateral for their claims.

… but banks' net risk exposure continues to fall

In Russia too, cross-border claims rose in the second quarter even while banks' net risk exposure continued to decline. The increase in cross-border claims amounted to only $0.3 billion, but it interrupted the long decline in claims that began when Russia declared a debt moratorium in August 1998. Over the June 1998 to June 2001 period, cross-border claims on Russia fell by $26 billion, or 40%. The international banking market remains closed to all but the top-rated Russian borrowers. What new lending takes place tends to be collateralised, for example by oil and gas revenues, or guaranteed, usually by European or other export credit agencies. Owing to such guarantees, banks' net risk exposure to Russia fell by approximately $1 billion in the second quarter.

Deposit flows from OPEC members slow …

Oil-exporting countries and emerging economies in Asia continued to recycle their current account surpluses through the international banking market. However, there were signs that net outflows from these regions to banks might soon diminish. While OPEC members repaid another $2.8 billion to banks in the reporting area in the second quarter, falling oil prices slowed deposit flows to $2.3 billion, their lowest level since 1999. Changes in banks' claims and liabilities vis-à-vis Asia as a whole stayed in line with recent trends, with claims falling by $1.5 billion and liabilities rising by $14.7 billion. But cross-border claims on several countries are no longer declining, and indeed in some cases are beginning to trend upwards. Cross-border claims on the Philippines and Malaysia increased for the third consecutive quarter, by $0.5 billion and

[3] Such sales would affect cross-border positions if the proceeds were remitted to head office.

$0.3 billion respectively. Moreover, the composition of claims is shifting away from the private sector and towards the public sector. Claims on public sector borrowers increased by 2 percentage points in the Philippines and 3 percentage points in Malaysia, to 20% of outstanding consolidated claims. In Taiwan, China (hereafter Taiwan), public sector claims doubled to 12% of consolidated claims.

… while those from Taiwan and mainland China continue

In addition to public sector borrowers, banks in Taiwan received substantial amounts from banks in the reporting area, resulting in a $1.3 billion increase in claims on that economy. However, with dollar funding available domestically, banks in Taiwan channelled surplus dollars back into the international banking market, contributing to a $6.8 billion increase in banks' liabilities vis-à-vis Taiwan. Similarly, in mainland China cross-border claims increased by $1.5 billion. Yet, with little need for dollars, banks in mainland China continued to deposit large amounts with banks abroad, boosting international banks' liabilities vis-à-vis mainland China by $3.5 billion in the second quarter.[4]

[4] Special features in past issues of the *BIS Quarterly Review* examine the growth of foreign currency deposits in Taiwan and mainland China. See Robert N McCauley and Y K Mo, "Foreign currency deposits of firms and individuals with banks in China", August 2000, pp 35-9, and Ben S C Fung and Robert N McCauley, "Analysing the growth of Taiwanese deposits in foreign currency", September 2001, pp 49-56.

International syndicated credits: shift towards higher-rated borrowers

Blaise Gadanecz

Following a record second quarter, new signings of international syndicated credit facilities slowed to $304 billion in the third. On a seasonally adjusted basis, signings fell by 26%. A reduction in lending to lower-rated borrowers was an important factor behind the slowdown in the third quarter. Whereas borrowers rated triple-B or below had accounted for approximately two thirds of syndicated lending to rated borrowers during the past few years, this proportion fell to 50% in the third quarter. Nevertheless, overall activity in the international syndicated credit market remained above average levels for the 1997–99 period, when the growth of the global economy was considerably stronger.

Borrowing by US entities totalled $181 billion in the third quarter, down by 42% from second quarter levels but only 9% below levels one year earlier. Financial institutions, including the finance subsidiaries of corporations, were much less active in the syndicated loan market; their share of facilities arranged for US borrowers fell to 20% in the third quarter from 39% in the second. The largest facilities in the third quarter were signed by Philip Morris USA, for $8 billion, and Kraft, for $6 billion. These deals helped to boost the food, drink and tobacco sector's share of total lending to 12%, compared to an average of 3% over the previous year.

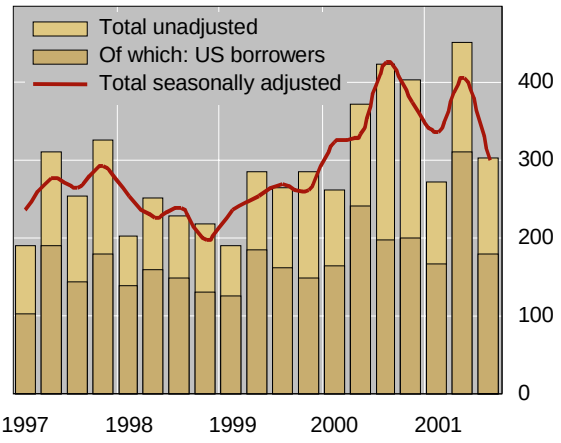
In Europe, signings fell by 21% from second quarter levels, to $75 billion, and by 58% from the levels of a year earlier, when telecoms borrowing had been at a peak. The largest deals were arranged by telecoms to refinance maturing facilities. British Telecom closed a facility for £5.5 billion, and Telecom Italia and Deutsche Telekom facilities for €5 billion each.

Facilities arranged for emerging economies increased to $18 billion in the third quarter, above average levels in the first half of 2001 but still below 2000 levels. South African borrowers secured the largest amount, at $4.6 billion. The South African Reserve Bank borrowed $1.5 billion to refinance bilateral loans, and Old Mutual, an insurance company, £900 million to refinance an earlier facility. Korean borrowers, mainly banks, signed facilities totalling $1.6 billion. After two quarters of negligible borrowing, Turkish entities raised $1.5 billion in the third. Almost all of this was raised by Turkish banks, signalling their re-entry into the international syndicated credit market. They had to pay for the privilege, however. Spreads on Libor-based facilities arranged by Turkish banks widened to more than 200 basis points in the third quarter from approximately 110 basis points in 2000. Signings by Latin American entities fell to their lowest level since 1999, with Mexican borrowers in particular much less active than in recent quarters. Argentina raised $0.4 billion in the third quarter, all of it for oil and gas projects.

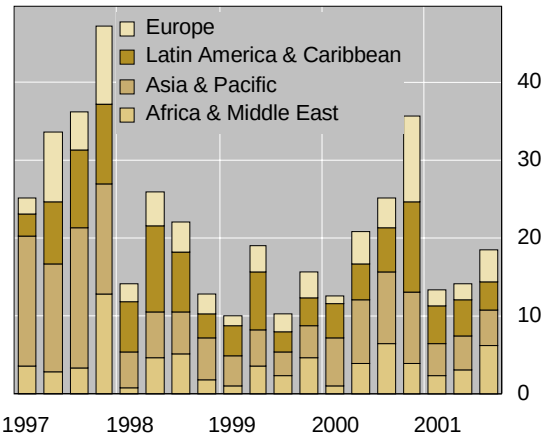
Activity in the international syndicated credit market

In billions of US dollars

Signed facilities



Facilities for emerging economies



Sources: Dealogic Capital Data Loanware; BIS.

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3. The international debt securities market

Demand for international financing slowed further during the third quarter of 2001 against the backdrop of the global economic downturn. In that quarter, net issuance in the international debt securities market fell almost 40% to $169 billion (Table 3.1). It declined across the maturity spectrum, as well as across economic areas and business classifications. Net issuance by financial institutions fell particularly sharply, continuing a pattern documented in the last *BIS Quarterly Review*. Gross announced issuance in the international bond and note markets declined from $533 billion to $423 billion over the same period (Table 3.2).

Total repayments of international bonds and notes remained strong during the third quarter of 2001. The $207 billion of repayments brought aggregate repayments for the first three quarters of the year to $642 billion, the largest amount ever for a three-quarter period. This reflected both the steady increase in overall issuance in recent years, and a desire amongst borrowers with early redemption options to seek lower borrowing costs by refinancing their debt. Gross issuance of straight fixed rate issues fell sharply during the third quarter while that of floating rate issues actually increased slightly, suggesting that borrowers may have been more optimistic about additional declines in interest rates than lenders.

Net issuance continues to decline across the maturity spectrum

Global downturn leads to decline in issuance ...

The global economic downturn led to a continuation of the decline in net issuance in the international debt securities market during the third quarter of 2001. This decline was seen across the maturity spectrum. At the short end, net issuance was actually negative for the second quarter in a row, with the outstanding stock of international money market instruments down by $46 billion (Graph 3.1, left-hand panel). This followed a $26 billion fall during the second quarter. The stock of commercial paper (CP) sold on the international market, the largest component of international money market instruments, fell by $12 billion in the third quarter, the largest contraction ever recorded. In the US domestic CP market, there was an even sharper contraction, with the outstanding stock declining by $58 billion, adding to the $131 billion fall during the first half of the year.

... especially of short-term instruments ...

Main features of net issuance in international debt securities markets

In billions of US dollars

	1999	2000			2001			Stocks at end-Sep 2001
	Year	Year	Q3	Q4	Q1	Q2	Q3	
Total net issues	1,241.2	1,246.0	317.5	312.6	325.3	277.4	168.7	7,085.1
Money market instruments[1]	135.6	152.1	42.3	46.6	2.2	– 26.2	– 46.3	416.4
Commercial paper	*49.1*	*55.2*	*17.6*	*23.3*	*22.3*	*10.1*	*– 12.0*	*241.4*
Bonds and notes[1]	1,105.6	1,093.8	275.1	265.9	323.0	303.5	214.9	6,668.6
Floating rate issues	*293.6*	*358.7*	*78.0*	*90.3*	*85.7*	*70.5*	*72.8*	*1,700.4*
Straight fixed rate issues	*780.8*	*718.0*	*196.2*	*166.2*	*233.5*	*222.5*	*139.4*	*4,710.1*
Equity-related issues	*31.2*	*17.1*	*0.9*	*9.4*	*3.8*	*10.5*	*2.7*	*258.1*
Developed countries	1,164.0	1,162.7	294.6	299.1	312.9	253.6	157.5	6,134.0
United States	*483.2*	*465.5*	*140.0*	*121.2*	*153.1*	*119.8*	*94.6*	*2,124.6*
Euro area	*516.2*	*559.8*	*137.8*	*138.1*	*146.6*	*100.7*	*61.4*	*2,521.2*
Japan	*2.4*	*– 27.4*	*– 8.4*	*– 5.4*	*– 5.5*	*2.1*	*– 6.4*	*272.3*
Offshore centres	11.2	18.9	6.8	6.6	7.4	5.6	4.1	91.5
Emerging economies	40.9	42.0	13.5	– 0.7	6.8	12.7	– 3.9	469.4
International institutions	25.1	22.3	2.6	7.6	– 1.8	5.5	10.9	390.2
Private sector	1,020.1	980.6	239.5	252.0	264.8	216.6	116.4	5,291.2
Financial institutions[2]	*867.4*	*799.5*	*188.2*	*201.0*	*221.7*	*160.1*	*98.7*	*4,255.4*
Corporate issuers	*152.7*	*181.1*	*51.4*	*51.1*	*43.1*	*56.5*	*17.7*	*1,035.9*
Public sector[3]	196.0	243.0	75.3	53.0	62.2	55.3	41.4	1,403.6
Central government	*37.5*	*51.3*	*8.7*	*– 3.6*	*8.5*	*7.7*	*– 2.9*	*498.2*
State agencies and other	*158.5*	*191.7*	*66.6*	*56.5*	*53.7*	*47.5*	*44.2*	*905.4*
Memo: Domestic CP[4]	*361.6*	*256.2*	*40.3*	*124.8*	*– 53.8*	*– 63.8*	*– 59.2*	*1,894.5*
of which: US	*232.8*	*208.3*	*35.6*	*42.5*	*– 63.1*	*– 67.9*	*– 58.5*	*1,412.6*

[1] Excluding notes issued by non-residents in the domestic market. [2] Commercial banks and other financial institutions. [3] Excluding international institutions. [4] Data for the third quarter of 2001 are partly estimated.

Sources: Bank of England; Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; national authorities; BIS. Table 3.1

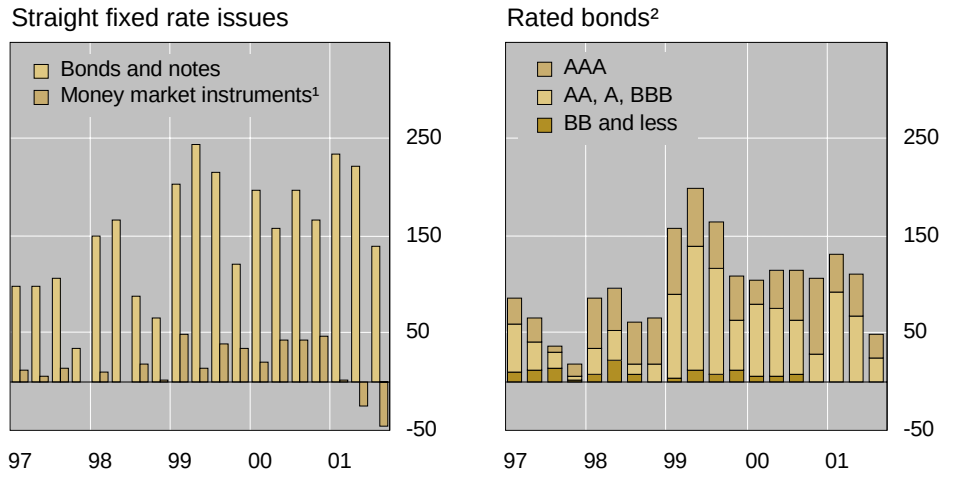
Net issuance of longer-term securities (bonds and notes) also declined sharply during the third quarter of 2001, following a smaller decline during the previous quarter. At $215 billion, long-term net issuance fell 33% from the recent peak attained during the first quarter of the year. Net issuance of straight fixed rate issues saw the largest contraction in absolute terms between the second and third quarters, declining 37% to $139 billion. This was associated with a sharp drop in announcements of straight fixed rate issues in the international bond and note market, from $382 billion in the second quarter of 2001 to $276 billion in the third. Gross and net issuance by European borrowers fell especially sharply.

... and sub-AAA bonds

Net issuance of rated bonds decreased across all rating categories during the third quarter of 2001. Net issuance in the AAA category declined 42% to $25 billion while net issuance in the other investment grade categories fell 63%

Net issuance by maturity and credit rating

International issuance, in billions of US dollars



¹ Excludes issues redeemed in the same quarter. ² Includes bonds issued under EMTN documentation.

Sources: Bank of England; Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; BIS. Graph 3.1

to $24 billion. As noted in the Overview, there was a steady increase in credit spreads over the course of the third quarter. This suggests that, in the light of deteriorating economic conditions globally, market participants had grown more pessimistic in their subjective assessments of default probabilities. Nonetheless, the sharp fall in benchmark yields over the course of the third quarter led to a marked decline in total corporate borrowing costs. That corporate issuance did not rise in response to lower borrowing costs is consistent with the view that the current decline in issuance reflects the impact of the global economic downturn on the demand for funds by borrowers, rather than a tightening in credit conditions on the part of lenders.

Borrowing by the private sector falls particularly sharply

Most of the decline in issuance reflects a decline in private sector borrowing ...

Net issuance by the private sector continued to decline during the third quarter of 2001: at $116 billion, it was 46% below the previous quarter's amount and 56% off the recent peak value attained during the first quarter of the year. The third quarter decline in private sector issuance by itself accounted for most of the total fall in net issuance in the international debt securities market. Since the mid-1990s there has been only one other two-quarter fall of a larger proportion. This was the decline in 1998 (from $177 billion in the second quarter of that year to $58 billion in the fourth) associated with the Russian economic crisis.

... mainly by financial institutions

A continuation of the fall in net issuance by financial institutions during the third quarter of 2001 was the main cause of the reduction in borrowing by the private sector. At $99 billion, net issuance by financial institutions was

Gross issuance in the international bond and note markets

In billions of US dollars

	1999	2000			2001		
	Year	Year	Q3	Q4	Q1	Q2	Q3
Total announced issues	1,628.1	1,706.6	441.8	384.0	550.8	532.5	423.2
Floating rate issues	416.1	520.5	133.1	128.2	133.7	132.1	138.8
Straight fixed rate issues	1,159.9	1,129.5	292.2	242.1	405.0	382.1	276.3
Equity-related issues[1]	52.1	56.5	16.5	13.8	12.1	18.3	8.1
US dollar	723.1	794.1	216.9	179.5	257.5	255.5	219.8
Euro	639.6	582.2	136.5	134.4	214.4	191.3	129.9
Yen	78.1	128.8	33.5	19.2	27.5	36.0	32.1
Other currencies	187.4	201.5	54.8	51.0	51.4	49.7	41.3
Private sector	1,265.0	1,319.2	338.3	303.6	410.2	397.1	293.0
Financial institutions[2]	*1,047.9*	*1,083.8*	*277.9*	*248.8*	*331.4*	*307.1*	*245.1*
Corporate issuers	*217.2*	*235.5*	*60.4*	*54.8*	*78.8*	*90.1*	*47.8*
of which: telecoms	*83.0*	*114.7*	*24.5*	*19.0*	*49.2*	*31.9*	*15.6*
Public sector	286.2	318.2	89.1	65.9	123.7	112.6	110.2
Central government	*93.6*	*92.5*	*23.5*	*4.5*	*28.5*	*20.8*	*13.2*
State agencies and other	*192.6*	*225.7*	*65.6*	*61.3*	*95.2*	*91.8*	*97.0*
International institutions	76.9	69.2	14.4	14.5	17.0	22.7	20.0
Completed issues	1,632.7	1,708.2	440.3	419.9	539.2	522.0	421.8
Repayments	527.1	614.4	165.2	153.9	216.2	218.5	206.9

[1] Convertible bonds and bonds with equity warrants. [2] Commercial banks and other financial institutions.

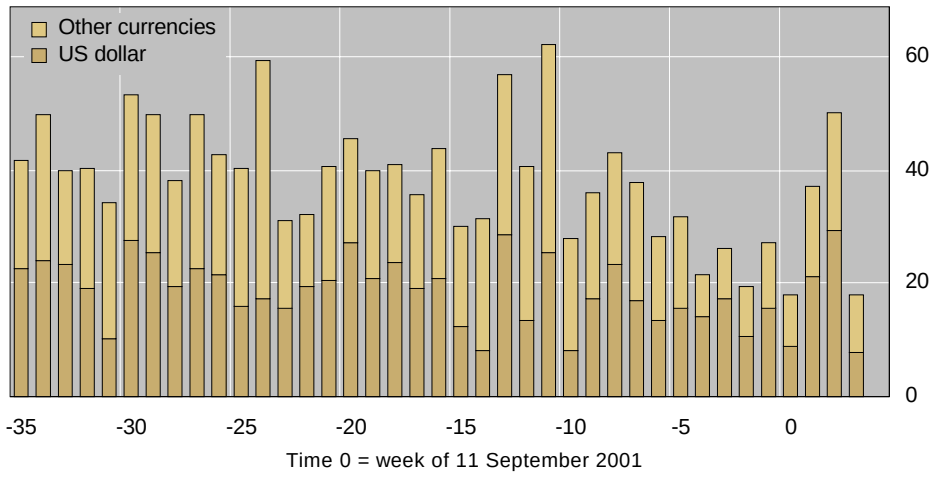
Sources: Bank of England; Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; BIS. Table 3.2

$61 billion less than the previous quarter's amount and only 45% of the recent peak issuance attained during the first quarter of the year. The decline in net issuance probably reflected the perception among financial institutions of a generalised fall in the demand for loans. During the second quarter, the decline had been driven by the reduced financing needs of US and German financial institutions. During the third quarter the decline spread to other European developed countries and Japan.

Net issuance by non-financial corporations also fell substantially between the second and third quarters of 2001, from $57 billion to $18 billion. Corporate issuance had been on a downward trend during the third quarter, paralleling the general trend in announcements in the international bond and note market that reached a low point during the week of 11 September (Graph 3.2). Surprisingly, announcements recovered sharply in the three weeks following the terrorist attacks, with particularly strong issuance by corporations in the AAA rating category. An example of a relatively large flotation in the days following the terrorist attacks was the $5 billion offering in two tranches by Bristol-Myers Squibb, a AAA borrower, that priced at a relatively narrow spread of about 100 basis points. Likewise, General Electric Capital brought two AAA issues to market in the week following that of the terrorist attacks, raising $4.7 billion.

Announced weekly issuance in the international bond and note markets in 2001

In billions of US dollars



Sources: Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; BIS.

Graph 3.2

US agencies continue to be active borrowers

Net issuance by the public sector also fell over the same period, but to a smaller degree. This mostly reflected the reduced borrowing needs of central governments, whose net issuance fell from $8 billion in the second quarter to –$3 billion in the third. Net issuance by government-sponsored agencies also declined slightly over the same period, from $48 billion to $44 billion. In contrast, gross issuance by government-sponsored agencies rose from $100 billion to $112 billion. The increase is mainly accounted for by the activities of US agencies, whose gross long-term issuance climbed to a record $88 billion in the third quarter from $79 billion in the previous one. The desire of the US housing agencies to acquire benchmark status for their issues, coupled with a surge in mortgage refinancing in the United States, contributed to the rise in gross issuance.

Economic downturn and turmoil hit developing countries

Emerging market borrowers become net repayers of debt securities ...

Net issuance in the international debt securities market by emerging market borrowers actually turned slightly negative by $4 billion during the third quarter of 2001. This is perhaps not surprising given the impact of the global economic downturn on the perceived export earnings of emerging markets and the turmoil that hit some of these countries in July. Net borrowing fell across all regions, with net issuance by Latin American and Caribbean issuers declining the most between the second and third quarters of 2001, from $7.4 billion to –$3.8 billion. This was mostly because of a sharp decrease in net issuance by Mexican borrowers. Net borrowing by Asian and Pacific emerging markets also fell over the same period, from $1.8 billion to –$3.5 billion, reversing last quarter's gains by these borrowers.

Net issuance of international debt securities by currency and region[1]

In billions of US dollars

Region/currency		1999	2000			2001		
		Year	Year	Q3	Q4	Q1	Q2	Q3
North America	US dollar	434.2	379.4	115.3	99.8	123.0	96.0	83.0
	Euro	47.8	44.8	17.7	10.8	20.9	14.7	7.0
	Yen	– 2.0	16.9	3.5	3.1	3.3	5.2	6.5
	Other currencies	16.8	16.3	3.8	7.8	4.9	3.1	– 1.5
Europe	US dollar	59.6	172.8	42.3	54.0	24.7	13.2	– 3.4
	Euro	514.0	412.3	83.3	104.6	129.3	104.3	53.3
	Yen	4.1	40.7	7.9	– 2.5	– 6.0	1.9	4.0
	Other currencies	76.5	89.0	25.8	24.9	18.7	10.9	11.6
Others	US dollar	52.5	63.8	14.1	8.3	3.6	19.5	7.4
	Euro	39.0	15.1	1.9	2.0	5.4	4.1	0.5
	Yen	– 13.6	– 20.3	– 2.4	– 4.6	– 3.3	4.5	– 2.1
	Other currencies	12.3	15.0	4.3	4.4	0.8	0.1	2.6
Total	US dollar	546.3	616.0	171.7	162.1	151.3	128.6	87.0
	Euro	600.8	472.2	102.9	117.4	155.6	123.0	60.8
	Yen	– 11.5	37.4	9.0	– 4.0	– 6.0	11.6	8.3
	Other currencies	105.5	120.3	33.8	37.1	24.4	14.2	12.6

[1] Based on the nationality of the borrower.

Sources: Bank of England; Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; BIS. Table 3.3

Nevertheless, some emerging economies retained access to the international debt securities market in the third quarter. Argentina, for example, floated $356 million using a variety of relatively small announcements, the largest being a $74 million issue by the Province of Buenos Aires. This occurred even against the backdrop of public discussion about the restructuring of Argentine debt. Mexico, whose net borrowing declined significantly during the third quarter, had $3.1 billion in new announcements and Brazil had $3.5 billion.

... and their ability to access capital markets remains inconsistent

The increased uncertainty about the outlook for the emerging economies following the terrorist attacks of 11 September severely limited the access of emerging market borrowers to the international debt securities market towards the end of the third quarter. The announcements by two large Mexican borrowers that, because of worsening economic conditions, some interest payments might not be made led to a further rise in risk aversion amongst global investors. Indeed, the only significant sovereign emerging market issues to come to market after 11 September were a $650 million offering by the Chilean government, arranged on 11 October, and a $500 million offering by the Dominican Republic on 27 November.

Issuance in both dollars and euros falls

Euro-denominated issuance falls faster than issuance denominated in dollars

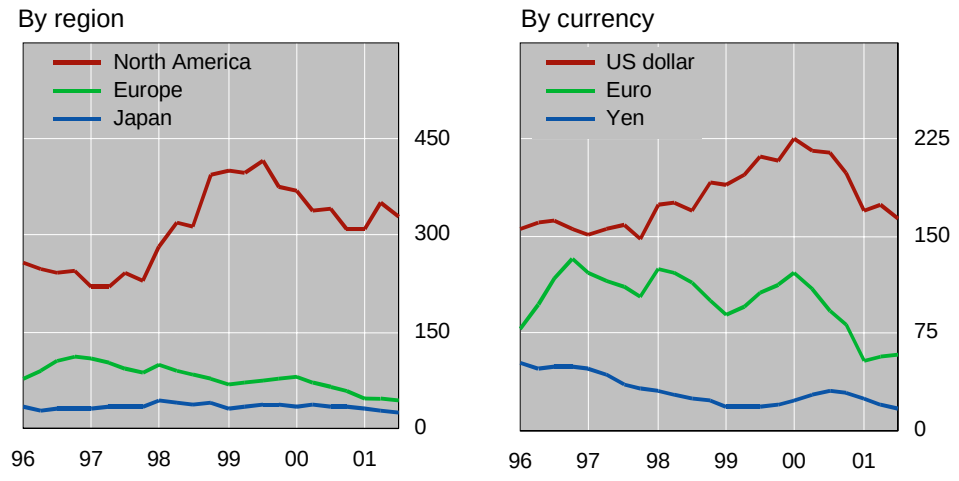
The global economic downturn led to a continuation of the decline in net issuance of both US dollar- and euro-denominated securities, the former falling by about 30% and the latter by about 50% between the second and third quarters of 2001. The decrease in the demand for funds appears to have been particularly marked in Europe. Net issuance of euro-denominated securities by European issuers fell by 19% between the first and second quarters and another 50% between the second and third. This contrasts with a decline of less than 33% in net issuance of dollar securities by North American borrowers over the last two quarters.

Trend towards smaller issue sizes continues

The first three quarters of 2001 witnessed a continuation of the general pattern towards smaller offerings of straight fixed rate issues (Graph 3.3). By region, the largest proportional decline over the 1997–2001 period took place in Europe, with the average announcement size for a European issue falling almost 50%. The average size of euro-denominated issues increased around the time of the introduction of the single currency, as some borrowers attempted to obtain benchmark status for their issues (see "The emergence of new benchmark yield curves" on page 48). However, more recently the size of euro offerings has declined. The average size of yen-denominated issues also fell sharply between 1997 and 2001, from $33 million to $16 million.

Average size of announced straight fixed rate international bond and note issues

Four-quarter moving average, in millions of US dollars



Sources: Bank of England; Dealogic Capital Data; Euroclear; ISMA; Thomson Financial Securities Data; BIS. Graph 3.3

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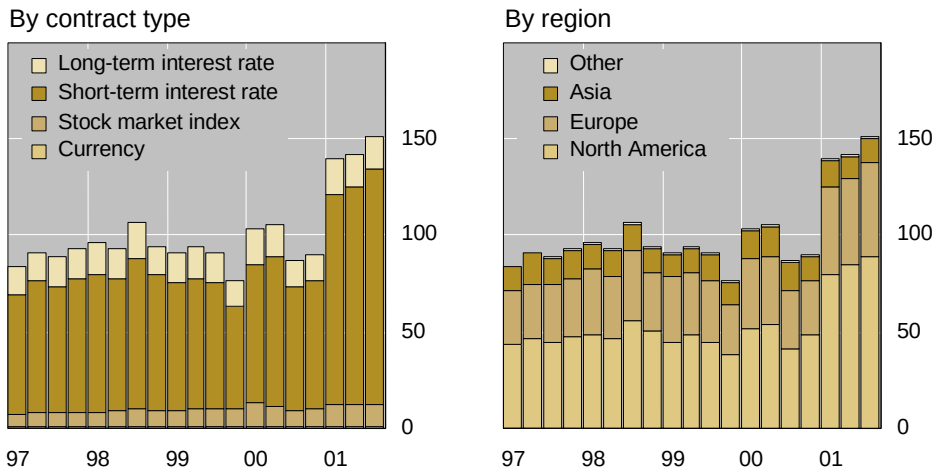
4. Derivatives markets

Aggregate turnover of exchange-traded derivatives contracts reached a new record in the third quarter of 2001, with the notional value of contracts monitored by the BIS rising by 6% to $150 trillion. Although overall business was somewhat subdued in July and August, the terrorist attacks of 11 September on landmark sites in the United States were followed by an upsurge in activity. Moreover, a number of trends observed in recent periods remained in evidence. Thus, trading in US money market contracts, which had been exceptionally buoyant in the previous two quarters against a background of monetary policy easing and changes in risk management practices, continued to be robust. By contrast, business in other types of contract, such as those on government bonds and stock indices, remained generally lacklustre.

The latest BIS semiannual data on aggregate positions in the global over-the-counter (OTC) derivatives market point to a modest rebound in business during the first half of 2001, with the stock of contracts rising by 4% to $98.8 trillion. While the pace of expansion of the OTC market has slowed over

Turnover of exchange-traded futures and options

Quarterly data, in trillions of US dollars



Sources: FOW TRADEdata; Futures Industry Association; BIS calculations. Graph 4.1

the past year, some segments, such as US dollar interest rate swaps, remain vigorous.

Money market business shifts to options as mortgage refinancing accelerates

The pace of activity in exchange-traded interest rate contracts accelerated in the third quarter of 2001. Total turnover expanded by 7% to $137.9 trillion, compared with an increase of 1% in the previous quarter. Once again, business in money market futures and options drove activity, with transactions rising by 9% to $122.1 trillion.

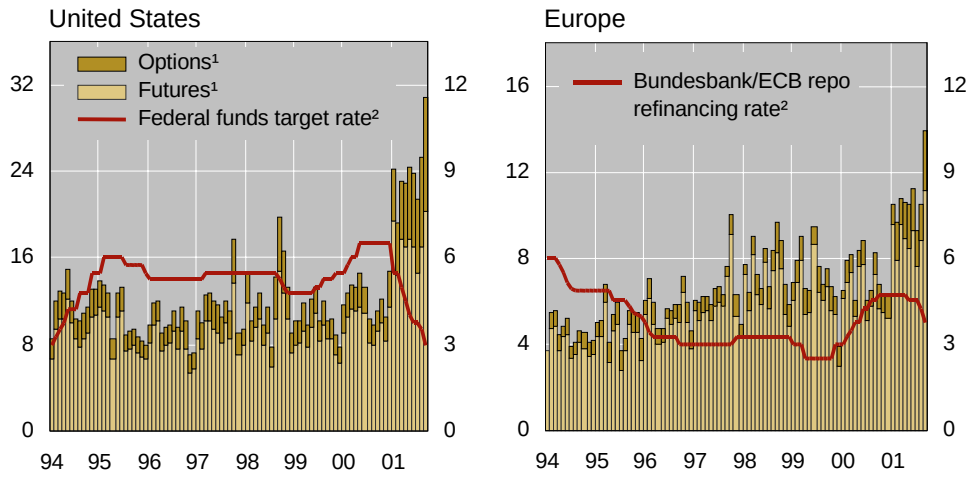
Activity in short-term futures is supported by policy rate cuts ...

Trading in money market futures increased by 2% to $88.5 trillion. The volume of transactions in such instruments, which has been exceptionally high since the beginning of the year, can be explained by a number of conjunctural and structural factors. One of the most significant conjunctural elements was the easing of US monetary policy. Fading hopes of a US recovery fostered increasingly strong expectations of policy rate cuts, sustaining business in short-term US instruments. At the same time, mounting signs of economic weakness in other regions encouraged similar expectations, lifting business in money market contracts. Indeed, the pattern of activity on euro zone and sterling short-term interest rates has been similar to, if less pronounced than, that on US short-term rates.

... and turmoil resulting from 11 September attacks

Trading in short-term instruments was also boosted by the terrorist attacks of 11 September, which led to pronounced market uncertainty. The ample injection of liquidity by central banks further intensified expectations of reductions in policy rates, fuelling money market business. With the major US futures exchanges being located in Chicago, fewer operational difficulties were experienced in futures markets than in cash markets, and some hedging and

Short-term interest rate contracts and central bank target rates



¹ Notional amounts; monthly turnover in trillions of US dollars (lhs). ² In percentages (rhs).

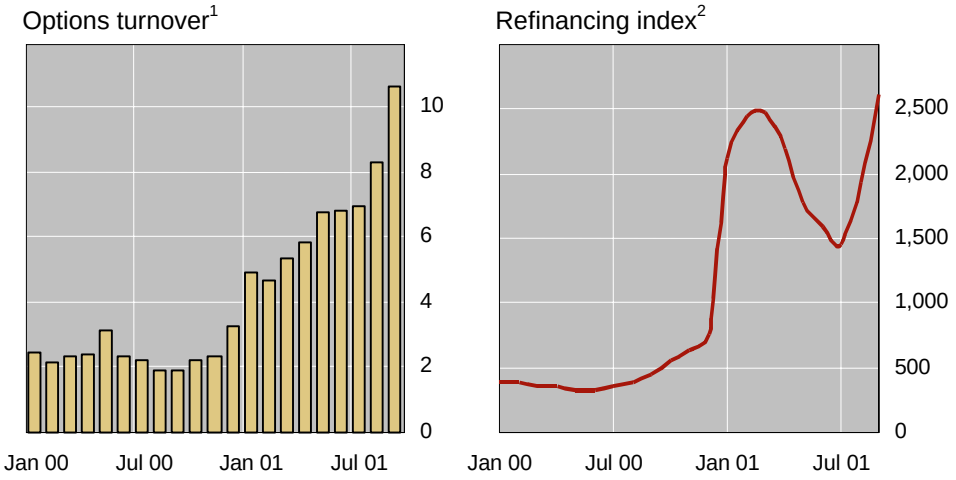
Sources: FOW TRADEdata; Futures Industry Association; BIS calculations. Graph 4.2

position-taking transactions on money market rates may even have shifted from the cash to the futures markets.[1]

Mortgage refinancing leads to robust trading in US money market options

Another notable development in the third quarter was the very rapid increase in the trading of options on money market futures (by 33%, to $33.6 trillion). Trading in such options, which has been particularly robust on US markets since the beginning of 2001, appears to have been driven by some of the same factors as those supporting money market futures. In addition, it seems to have been closely related to developments in the US mortgage market. Concerns among mortgage banks and holders of mortgage-backed securities (MBSs) that mortgage prepayments could accelerate in the event of a further decline in long-term rates had led to a gradual increase in the demand for receiver swaptions (options to receive fixed rate payments against floating rate payments in interest rate swaps) since the beginning of the year.[2] The intermediaries offering such swaptions then hedged their short option positions in the OTC and exchange-traded options markets. The pattern of activity in short-term interest rate options seems to have been broadly consistent with

Options turnover on US short-term interest rates and US mortgage refinancing index



[1] In trillions of US dollars. [2] Four-month moving average, 16 March 1990 = 100.

Sources: FOW TRADEdata; Futures Industry Association; Financial Oxygen, Mortgage Bankers Association; BIS calculations. Graph 4.3

[1] The CBOT and CME suspended trading in fixed income products on 11 September and closed their operations on 12 September. Trading resumed on 13 September but with shorter trading hours.

[2] Investors in MBSs face significant prepayment (or convexity) risks since the holders of the underlying mortgages enjoy certain prepayment privileges such as the ability to refinance the mortgages on more favourable terms when long-term interest rates decline. Such early repayments in turn lead issuers to call MBSs as the underlying pool of mortgages shrinks. In order to protect themselves from a shortening of their portfolios' duration and from a loss of interest income, holders of MBSs can purchase receiver (or call) swaptions enabling them to receive fixed rate payments on pre-agreed terms if their securities are called.

developments in the US mortgage market, where refinancing applications reached a record high towards the end of the third quarter.

Leveraged players are more active in short-term instruments ...

The high turnover of US money market instruments may also have reflected other temporary factors. Some market participants noted that leveraged players, particularly those following momentum trading strategies, had been highly active in the short-term segment in recent months as they purchased eurodollar contracts on market rallies.[3] Such players typically find futures more appealing than cash market securities since they enable them to (a) minimise their on-balance sheet exposures; (b) reduce the financing risks associated with possible cutbacks in credit lines on repurchase agreements; and (c) avoid the idiosyncratic risks related to the "specialness" of interest rates on repurchase agreements.[4]

... but buoyancy of short-term market also reflects deeper forces

The buoyancy of the short-term market probably also reflects deeper underlying factors, such as a movement of hedgers and traders away from the US Treasury yield curve and towards the Libor-based money market and swap curves (see "The emergence of new benchmark yield curves" on page 48). Earlier issues of the *BIS Quarterly Review* have emphasised the role played by the global issuance of fixed income securities in the expansion of the interest rate swap market and, in turn, in that of eurodollar futures. The ongoing buoyancy of eurodollar futures against a contraction in the global issuance of fixed income securities in the third quarter (see "The international debt securities market" on page 22) would seem to point to longer-term changes in the risk management behaviour of market participants or, perhaps, to the entry of new market participants.[5] In that context, market sources observed that mortgage banks and investors had recently become increasingly active users of interest rate swaps in managing the duration of their MBS portfolios.[6]

Overall trading in bond contracts sees another contraction

In contrast to the sustained buoyancy of money market business, aggregate activity in longer-term instruments declined for the second consecutive quarter, although only slightly. Trading in bond contracts fell by 2% to $15.9 trillion. The narrow range within which long-term rates evolved during the third quarter

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[3] These issues are discussed in detail in Gerald Lucas and Joseph Schatz, "Futures vs cash volumes", *Merrill Lynch Fixed Income Strategy*, 24 August 2001.

[4] The term "special" is used in the repo market to characterise below market overnight or term lending rates on loans collateralised by securities that are in short supply. Financial market participants willing to supply such securities can benefit from a significant reduction in funding costs.

[5] The issuance of fixed income securities is generally associated with a hedging demand for short-dated interest rate swaps. Weaker demand for such swaps would lead to a corresponding decline in the turnover of money market futures since such instruments are commonly used in the hedging of short-dated swaps.

[6] This issue is analysed in various issues of Credit Suisse First Boston's bimonthly review *The global credit strategist*.

probably explains this lacklustre evolution. Indeed, even in the weeks immediately after the 11 September attacks yields on government bonds declined by much less than those on money market liabilities. This probably reflected expectations of a recovery in the latter part of the year and concerns that US fiscal loosening would lead to higher budget deficits and, in turn, to a resumption of net government borrowing.

Turnover of US government bond contracts continues to decline ...

Whereas in the second quarter business on Eurex had experienced the most pronounced contraction (–14%), in the third quarter the CBOT accounted for much of the decline (–8%). US turnover was particularly weak in July but recovered somewhat in August on an increase in volatility. While the 11 September events boosted business in the second half of September, total turnover for the month was undercut by a two-day closure of the CBOT. Overall, except for the two-year Treasury note contract, which expanded by 5% during the quarter, all the other US government bond and note contracts witnessed a lower volume of transactions. The two-year Treasury note contract is widely used for position-taking on expected Federal Reserve actions.

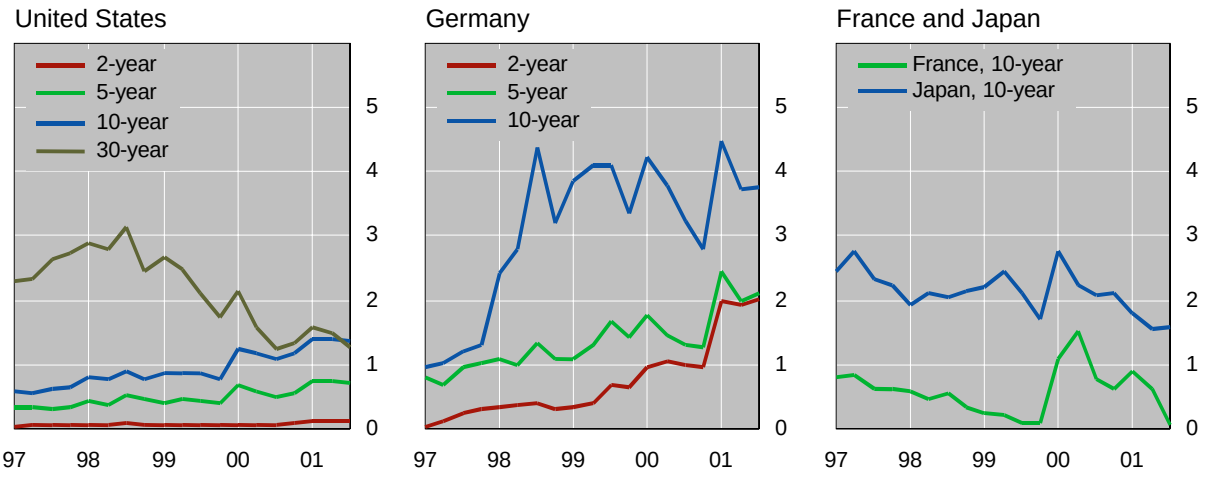
Despite the disruption faced by the US Treasury market, some of the trends seen in the market for longer-term US derivatives continued to assert themselves. Uncertainty concerning the status of 30-year Treasury bonds continued to affect trading in the cash and futures markets. Following a brief recovery in the first and second quarters, the Treasury bond contract resumed its descent (–15%). With activity in 10-year Treasury note futures declining by much less (–2%), that instrument displaced Treasury bond futures as the most actively traded long-term contract in the United States.

... while trading in two- and five-year German bond contracts rises

Trading in German government bond contracts on Eurex increased by 5%. Turnover rose strongly in the wake of the attacks on the United States, with some market observers attributing part of the rise to a shift of trading on

Turnover in government bond contracts

Quarterly futures contract turnover, in trillions of US dollars



Sources: FOW TRADEdata; Futures Industry Association; BIS calculations. Graph 4.4

government bond rates from US benchmark contracts to German ones. The expansion was concentrated in the two-year and five-year maturities (Euro Schatz and Euro Bobl), furthering a trend that reflects the growing acceptance of intermediate German government securities as European benchmarks. At the same time, position limits set by Eurex on its government bond contracts combined with statements by Finanzagentur, the German government's new debt management agency, that it would act to prevent squeezes seem to have been successful in preventing the occurrence of such market disruption.

Trading in the French Euro Notional contract dries up

By contrast, Matif (Euronext Paris) saw a further drastic decline in the trading of the Euro Notional contract (–90%), for many years its flagship fixed income market instrument. Market commentators have attributed this contraction to the winding-down in September of Matif Intervention Bancaire (MIB), a market support operation established at the end of 1999. The introduction of MIB had led to a revival of trading in 2000 but the shift of liquidity to German government bond futures on Eurex made it increasingly difficult to trade in size on the French exchange. This once again confirms that liquidity tends to concentrate in a few instruments and that there is in general little room for more than one contract of a particular maturity in any time zone. Matif has set up a market-making structure for its revamped five-year government bond contract. This instrument is deemed to have better prospects in an environment where the maturity structure of French government debt is expected to shorten.

Lastly, trading in LIFFE's recently introduced euro-denominated Swapnote contracts continued to grow in the third quarter, with an expansion of nearly 30% (see the previous issue of the *BIS Quarterly Review* for a more detailed discussion). It should be noted, however, that activity in such contracts remains marginal, accounting for less than 2% of the value of turnover in German government bond futures.

Transactions in equity index contracts decline despite market turbulence

Stock index trading declines in the third quarter ...

The value of turnover in stock index contracts declined by 4% to $11.6 trillion in the third quarter of 2001. Business proceeded at a brisk pace in Europe and the Asia-Pacific region (up by 13% and 18% respectively) but dropped sharply in North America (–15%). For the second consecutive quarter, options on stock market indices traded more actively than related futures.

Trading largely reflected the prevailing pattern of market volatility, gradually rising over the course of the quarter as disappointing macroeconomic announcements and profit warnings took their toll on equity markets. Market volatility increased significantly at the end of August, when warnings from Sun Microsystems and Corning brought the Dow Jones Industrial Index below 10,000 for the first time since April. The attacks on 11 September then created profound uncertainty. As activity in US equity index contracts was interrupted for the remainder of the week, turnover in other countries jumped abruptly, with

... despite record activity following the events of 11 September

several European exchanges reaching new daily trading records. The resumption of trading on US derivatives markets on the morning of 17 September led to an unprecedented burst of activity as the overhang of sell orders worked its way through the markets. The 15% quarterly drop in business on North American exchanges did not result solely from the hiatus that followed the 11 September attacks since turnover in July and August was well below that seen in the second quarter. Had US equity markets not been closed for four days, transactions in equity index contracts would have reached a higher quarterly volume but it is unlikely that this would have prevented an overall contraction of business.

OTC market expands slightly in the first half of 2001

Preliminary data from the BIS semiannual survey on positions in the global OTC derivatives market point to a slight rebound in market activity in the first half of 2001. The total estimated notional amount of outstanding OTC contracts stood at $98.8 trillion at end-June 2001, a 4% increase over end-December 2000. The OTC market has expanded at a slower pace over the past year but some of its segments remain highly active.

Divergence between OTC and exchange-traded activity

In terms of broad risk categories, the stock of foreign exchange and interest rate contracts expanded by 8% and 4% respectively, while that of equity-linked contracts remained stable. A comparison of activity on OTC markets with that on exchange-traded markets shows a divergence in the pace of business on the two in the first half of 2001. Open interest in interest rate and stock index contracts, the most active financial contracts traded on derivatives exchanges, increased by 39% and 28% respectively relative to end-December 2000. If sustained, such a rapid increase would represent a significant departure from previous patterns of activity since the growth of OTC business has generally outpaced that on exchanges for much of the last decade.

Financial industry consolidation affects distribution of transactions across users

The most recent numbers also suggest that financial industry consolidation is having a less significant impact on overall business than on the distribution of activity across counterparties. Indeed, some market participants had expected the merger of JP Morgan and Chase at the end of 2000 to have a contractionary effect on the total stock of US dollar positions.[7] This has not been the case, with outstandings involving the US currency rising sharply. However, financial industry consolidation probably accounts for the weaker growth of inter-dealer exposures in both the interest rate and foreign exchange market segments.

Interest rate swaps return to growth ...

The market for *interest rate products* expanded by 4% to $67.5 trillion in the first half of 2001. Three significant developments are worth highlighting.

[7] Mergers and acquisitions lead to a consolidation of bilateral transactions and, consequently, to a reduction in outstanding contracts.

The global over-the-counter (OTC) derivatives markets[1]

Amounts outstanding, in billions of US dollars

	Notional amounts				Gross market values			
	End-Dec 1999	End-Jun 2000	End-Dec 2000	End-Jun 2001	End-Dec 1999	End-Jun 2000	End-Dec 2000	End-Jun 2001
Grand total	88,202	94,008	95,199	98,835	2,813	2,572	3,180	3,114
A. Foreign exchange contracts	14,344	15,494	15,666	16,910	662	578	849	773
Outright forwards and forex swaps	9,593	10,504	10,134	10,582	352	283	469	395
Currency swaps	2,444	2,605	3,194	3,832	250	239	313	314
Options	2,307	2,385	2,338	2,496	60	55	67	63
B. Interest rate contracts[2]	60,091	64,125	64,668	67,465	1,304	1,230	1,426	1,573
FRAs	6,775	6,771	6,423	6,537	12	13	12	15
Swaps	43,936	47,993	48,768	51,407	1,150	1,072	1,260	1,404
Options	9,380	9,361	9,476	9,521	141	145	154	154
C. Equity-linked contracts	1,809	1,645	1,891	1,884	359	293	289	199
Forwards and swaps	283	340	335	329	71	62	61	49
Options	1,527	1,306	1,555	1,556	288	231	229	150
D. Commodity contracts[3]	548	584	662	590	59	80	133	83
Gold	243	261	218	203	23	19	17	21
Other	305	323	445	387	37	61	116	62
Forwards and swaps	163	168	248	229	...	...	...	...
Options	143	155	196	158	...	...	...	...
E. Other[4]	11,408	12,159	12,313	11,986	429	392	483	486
Gross credit exposure[5]					1,023	937	1,080	1,019

[1] All figures are adjusted for double-counting. Notional amounts outstanding have been adjusted by halving positions vis-à-vis other reporting dealers. Gross market values have been calculated as the sum of the total gross positive market value of contracts and the absolute value of the gross negative market value of contracts with non-reporting counterparties. [2] Single currency contracts only. [3] Adjustments for double-counting estimated. [4] Estimated positions of non-regular reporting institutions. [5] Gross market values after taking into account legally enforceable bilateral netting agreements.

Table 4.1

First, activity was driven by a return to growth of the interest rate swaps market, by far the largest segment of the OTC market, with outstandings rising by 5% to $51.4 trillion. By contrast, business in forward rate agreements and interest rate options continued to be lethargic, barely increasing over the review period. Second, the market for interest rate products appears to be accommodating a widening range of financial market participants, as illustrated by the steady growth in positions held by non-reporting financial institutions since 1998. Such a growth pattern should be set against weakening activity by reporting dealers and lacklustre business involving non-financial customers. Third, instruments involving the US dollar are rapidly catching up with euro-denominated ones (see the graph on page 55).

... with a widening range of participants

Indeed, activity in the US dollar-denominated swap market was particularly brisk in the first half of 2001, with the stock of contracts rising by 22% to $15.9 trillion. The US dollar swap market has grown at a rapid pace in

US dollar swap market grows rapidly as hedging and trading practices evolve

recent years on the back of a shift in hedging and trading practices. The reduced liquidity of long-term US government bonds encouraged market participants to search for alternative hedging and trading instruments, such as interest rate swaps. In addition, the range of participants active in the swaps market has broadened to include, for example, US mortgage banks and investors in mortgage-backed securities (as discussed in the section on exchange-traded activity). US monetary easing also fuelled hedging and position-taking in the dollar swap market.

Slower growth in euro-denominated swap market

The market for euro-denominated interest rate swaps returned to expansion following a marked contraction in the second half of 2000, with the outstanding stock of contracts rising by 7% to $17.6 trillion. Euro-denominated swaps had expanded rapidly after the introduction of the single currency, as swaps became an attractive benchmark for European fixed income markets. The slowdown in market growth since mid-2000 suggests that this stock adjustment process may be reaching completion.

The outstanding stock of yen-denominated interest rate swaps contracted by 12% to $9.7 trillion. This contraction probably reflects the view at the time that Japanese interest rates would evolve in a narrow range. Moreover, it does not seem consistent with recent press reports of Japanese banks taking large one-sided fixed rate receiver positions.

In the area of *currency instruments*, the value of contracts outstanding rose by 8% to $16.9 trillion. The stock of outright forwards and forex swaps, the largest currency market segment, expanded by 4%, that of currency options by 7% and that of cross-currency swaps by 20%. Cross-currency swaps have expanded steadily since the BIS began collecting data on the OTC market. Business has been fuelled by the large global volume of syndicated loans and securities issues.

Activity in the *equity-linked sector* remained stable at $1.9 trillion, following rapid expansion in the previous reporting period. Business in *commodity contracts*, the smallest market segment, contracted by 11% to $0.6 trillion.

Estimated *gross market values* declined marginally, to $3.1 trillion, following an unusually large increase of 24% in the second half of 2000. The ratio of gross market values to notional amounts declined from 3.3% to 3.1%.

Additional results of triennial survey to be released

More detailed results on the global stock of OTC contracts from the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity will be released separately later in December 2001. The new triennial series, which cover a broader universe of market participants, will also provide information on credit derivatives.[8]

[8] Such instruments are not included in the regular semiannual survey of OTC derivatives markets.

Central bank survey of foreign exchange and derivatives market activity

Gabriele Galati and Serge Jeanneau

In April this year, 48 central banks and monetary authorities participated in the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity. They collected data on turnover in traditional foreign exchange markets – spot, outright forwards and foreign exchange swaps – and in over-the-counter (OTC) currency and interest rate derivatives.[①] In October, the BIS and participating central banks released preliminary global statistics from the survey.[②] The BIS plans to publish the final global results on foreign exchange market turnover and the final statistics on OTC derivatives market turnover and amounts outstanding in early 2002.

The survey shows that in April 2001 foreign exchange market turnover stood at $1,210 billion, compared to $1,490 billion in April 1998, a 19% decline at current exchange rates. This contrasts with the findings of previous surveys, which had reported a rapid rise in forex market activity. Among the different instruments, the decline was most pronounced in spot trading. In terms of activity between different counterparties, trading in the interbank market and between banks and non-financial customers fell markedly, while transactions between banks and financial customers rose. A special feature on page 39 examines factors that may have contributed to the decline in foreign exchange market turnover.

In the OTC derivatives market, average daily turnover amounted to $575 billion, exceeding that in April 1998 by 53%.[③] The survey showed a contrast between interest rate and foreign exchange contracts, with the former continuing to grow at a rapid pace (by 85%, to $489 billion) and the latter contracting (by 31%, to $67 billion). Expansion in the interest rate segment was largely driven by the buoyancy of interest rate swaps, with turnover rising by 114% to $331 billion. This rapid expansion mainly reflected a deepening of the US dollar- and euro-denominated swap markets.

Global foreign exchange and OTC derivatives market turnover[1]

Daily averages in April, in billions of US dollars

	1995	1998	2001
A. Foreign exchange turnover	1,190	1,490	1,210
Spot transactions	494	568	387
Outright forwards	97	128	131
Foreign exchange swaps	546	734	656
B. OTC derivatives turnover	200	375	575
Currency swaps	4	10	7
Currency options	41	87	60
FRAs	66	74	129
Interest rate swaps	63	155	331
Interest rate options	21	36	29

[1] Adjusted for local and cross-border double-counting.

① Data on outstanding amounts of OTC derivatives were collected at end-June 2001. Preliminary results will be published in December 2001. ② National results are adjusted for local inter-dealer double-counting while global results are adjusted for both local and cross-border inter-dealer double-counting and for estimated gaps in reporting. ③ The OTC market consists of "non-traditional" foreign exchange derivatives – such as cross-currency swaps and options – and all interest rate derivatives contracts.

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Why has global FX turnover declined? Explaining the 2001 triennial survey[1]

Global FX turnover declines between 1998 and 2001

The 2001 Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity showed that foreign exchange market turnover declined substantially between 1998 and 2001.[2] In April 2001, average daily turnover in traditional foreign exchange markets was $1,210 billion, compared to $1,490 billion in April 1998. This represented a 19% decline at current exchange rates and a 14% fall when volumes are measured at constant exchange rates (Table 1). The decline in turnover over the last three years contrasts with the findings of previous surveys, which had reported a rapid rise in forex market activity.[3]

Global foreign exchange market turnover[1]

Daily averages in April, in billions of US dollars

	1989	1992	1995	1998[2]	2001
Spot transactions	317	394	494	568	387
Outright forwards	27	58	97	128	131
Foreign exchange swaps	190	324	546	734	656
Estimated gaps in reporting	56	44	53	60	36
Total "traditional" turnover	590	820	1,190	1,490	1,210
Memorandum item:					
Turnover at April 2001 exchange rates[3]	570	750	990	1,400	1,210

[1] Adjusted for local and cross-border double-counting. [2] Revised since the previous survey. [3] Non-US dollar legs of foreign currency transactions were converted from current US dollar amounts into original currency amounts at average exchange rates for April of each survey year and then reconverted into US dollar amounts at average April 2001 exchange rates.

Table 1

[1] Les Skoczylas and Paola Gallardo provided excellent research assistance. The views expressed in this special feature are those of the author and not necessarily those of the BIS.

[2] The survey was conducted in April this year by 48 central banks and monetary authorities. They collected data on turnover in traditional foreign exchange markets – spot, outright forwards and foreign exchange swaps – and in over-the-counter currency and interest rate derivatives.

[3] The fall in aggregate turnover did not surprise market participants (see Leven (2001)).

Reported foreign exchange market turnover by counterparty[1]

Daily averages in April, in billions of US dollars

	1992	1995	1998[2]	2001
Total	776	1,137	1,430	1,173
With reporting dealers	541	728	909	689
With other financial institutions	96	230	279	329
With non-financial customers	137	179	241	156
Local	316	526	658	499
Cross-border	391	613	772	674

[1] Adjusted for local and cross-border double-counting. Excludes estimated gaps in reporting. [2] Revised since the previous survey.

Table 2

Among the different instruments, the decline was most pronounced in spot markets, where average daily turnover fell from $568 billion to $387 billion. Trading volumes in foreign exchange swaps dropped from $734 billion to $656 billion. By contrast, trading in outright forwards slightly increased to $131 billion. In terms of activity between different counterparties, interbank trading fell markedly, from $909 to $689 billion and its share declined from 64% to 59% (Table 2). Transactions between banks and non-financial customers also fell, from $241 billion to $156 billion. By contrast, trading between banks and financial customers increased from $279 billion to $329 billion.

Four main forces at work

The main factors underlying these changes appear to have been the introduction of the euro, consolidation in the banking industry, the growing share of electronic broking in the spot interbank market and consolidation in the corporate sector.[4] This special feature analyses how these factors have affected foreign exchange markets in recent years, focusing on the influence on trading volumes, volatility, the tightness of bid-ask spreads and liquidity.

The introduction of the euro

Shrinkage through elimination of intra-EMS trading

The introduction of the euro appears to have been an important factor in the reduction in turnover, because it eliminated intra-EMS trading. Admittedly, trading among EMS currencies had started to decline well ahead of EMU: between 1995 and 1998, intra-EMS trading had fallen by some 5% of global turnover (BIS (1999)). However, on 1 January 1999, the consolidation of the 11 legacy currencies eliminated roughly a further 6% of total turnover (Table 3).[5]

The euro's role matches that of its predecessors

This decline was not subsequently reversed by any increase in trading in the euro compared to that in its predecessor currencies.[6] In April 2001, the

[4] While exchange rate volatility is generally seen as a primary determinant of forex market turnover, it is difficult to reconcile the changes in trading volumes with the patterns of exchange rate volatility observed across currency pairs and between April 1998 and 2001.

[5] After elimination of double-counting.

[6] This finding is consistent with the conjecture of McCauley (1997) and the conclusion reached by Galati and Tsatsaronis (2001) using informal estimates by market participants.

Foreign exchange markets and EMU

In billions of US dollars

	Turnover in 1995[1]			Turnover in 1998[1]		
	Total	vs US dollar	vs EMU currencies[2]	Total	vs US dollar	vs EMU currencies[2]
US dollar	1,313.4	–		1,728.9	–	
EMU currencies[2]	*869.8*	*551.4*	*201.1*[3]	*956.5*	*704.1*	*110.2*[3]
Deutsche mark	583.8	364.9	*106.1*	602.5	413.1	*63.4*
French franc	127.2	72.5	*51.7*	102.6	82.6	*16.8*
Other EMS currencies	...	...	...	223.1	185.8	*24.7*
ECU	36.2	25.2	*10.9*	28.2	22.7	*5.3*
Japanese yen	371.4	329.9		396.5	353.1	
Pound sterling	139.7	102.8		211.6	159.1	
Swiss franc	116.3	85.7		138.8	108.7	
Total	1,571.8	1,313.4		1,968.9	1,728.9	

Note: Estimates shown in italics.

[1] Average daily turnover, net of local inter-dealer double-counting. The table reports the turnover in which a given currency appears on one side of a transaction; consequently, each transaction is counted twice. To take this into account, the total (which also includes other and unallocated currencies) is divided by two. [2] Among EMS currencies, decompositions are available only for the Deutsche mark, French franc, pound sterling, ECU and the sum of all other EMS currencies. In order to estimate turnover for EMU currencies, the sum of other EMS currencies is decomposed using figures on local currency trading based on the methodology used in Table V.5 of the 67th Annual Report. [3] Before the start of EMU, foreign exchange transactions between prospective members' currencies were sometimes carried out using the US dollar as a vehicle. As a result, an estimation of the current importance of the euro, the dollar and the yen based on the subtraction of intra-EMU turnover in 1998 leads to an overestimation of the importance of the euro, an underestimation for the yen and a correct estimation for the dollar.

Sources: *Central Bank Survey of Foreign Exchange and Derivatives Market Activity* (1995, 1998); BIS calculations. Table 3

euro entered on one side of 38% of all foreign exchange transactions (Table 4).[7] This is higher than the Deutsche mark's share in 1998 (30%) but lower than that of all euro constituents taken together in 1998 (52%) and in 1995 (60%). Most of this difference can be explained by the disappearance of intra-EMS foreign exchange trading.

The relative importance of other currencies seems not to have changed substantially since 1998. The dollar's share in foreign exchange markets edged up from 87% in 1998 to 90% in 2001. The yen's share increased slightly to 23% in 2001. Dollar/euro was by far the most traded currency pair in 2001 and captured 30% of global turnover (Table 5). It was followed by dollar/yen with 20% and dollar/sterling with 11%.

Consolidation in the banking industry

Consolidation has accelerated in recent years

A second factor that has contributed to the decline in foreign exchange market turnover is the continuing consolidation trend in the banking industry. Bank mergers, in part spurred by EMU, have led to a fall in the number of market

[7] This share refers to turnover in which a given currency appears on one side of a transaction; consequently, each transaction is counted twice.

Currency distribution of reported global foreign exchange market turnover[1]

Percentage shares of average daily turnover in April

	1989	1992	1995	19982	2001
US dollar	90.0	82.0	83.3	87.3	90.4
Euro	.	.	.	.	37.6
Deutsche mark[3]	27.0	39.6	36.1	30.1	.
French franc	2.0	3.8	7.9	5.1	.
ECU and other EMS currencies	4.0	11.8	15.7	17.3	.
Japanese yen	27.0	23.4	24.1	20.2	22.7
Pound sterling	15.0	13.6	9.4	11.0	13.2
Swiss franc	10.0	8.4	7.3	7.1	6.1
Canadian dollar	1.0	3.3	3.4	3.6	4.5
Australian dollar	2.0	2.5	2.7	3.1	4.2
Swedish krona[4]	…	1.3	0.6	0.4	2.6
Hong Kong dollar[4]	…	1.1	0.9	1.3	2.3
Singapore dollar[4]	…	0.3	0.3	1.2	1.1
Emerging market currencies[4, 5]	…	0.5	0.4	3.0	5.3
Other	22.0	8.5	7.9	9.3	10.0
All currencies	200.0	200.0	200.0	200.0	200.0

[1] Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%. The figures relate to reported "net-net" turnover, ie they are adjusted for both local and cross-border double-counting, except for 1989 data, which are available only on a "gross-gross" basis. [2] Revised since the previous survey. [3] Data for April 1989 exclude domestic trading involving the Deutsche mark in Germany. [4] For 1992–98, the data cover local home currency trading only. [5] For 1992 and 1995, South African rand; for 1998 and 2001, Brazilian real, Chilean peso, Czech koruna, Indian rupee, Korean won, Malaysian ringgit, Mexican peso, Polish zloty, Russian rouble, Saudi riyal, South African rand, Taiwan dollar and Thai baht. Table 4

participants. This trend had already developed between 1995 and 1998 but has accelerated over the last three years. This is evident from the overall decline in the number of reporting banks for the 26 countries that participated in the last three surveys: 1,945[8] in 2001 compared to 2,205 in 1998 and 2,417 in 1995.[9] There is also evidence of a broad trend towards a contraction in the number of banks accounting for 75% of local turnover since the mid-1990s (Table 6). In the United States, 75% of forex market transactions were conducted by only 13 banks in 2001 compared to 20 banks in 1998 and about 20 banks in 1995. In the United Kingdom, 17 banks captured 75% of the market in 2001 compared to 24 banks in 1998 and about 20 banks in 1995. The consolidation in the banking sector has led to a reduction in the number of trading desks and in turnover, in particular in the interbank market.

Decline in resources devoted to market-making

Moreover, consolidation has contributed to a marked shrinkage in the number of banks that quote two-way prices on a wide range of currency pairs. There are currently not more than 20 global players in foreign exchange markets that can provide such services, a noticeable decrease compared to the mid-1990s. Market commentary suggests that the contraction in resources

[8] Preliminary.

[9] The numbers refer to reporting offices rather than the number of banking organisations.

Reported foreign exchange turnover by currency pair[1]

Daily averages in April, in billions of US dollars and percentages

	1992		1995		1998[2]		2001	
	Amount	% share	Amount	% share	Amount	% share	Amount	% share
US dollar/euro	.	.	.	.	.	.	352	30
US dollar/mark	192	25	254	22	291	20	.	.
US dollar/French franc	19	2	51	4	58	4	.	.
US dollar/ECU	13	2	18	2	17	1	.	.
US dollar/other EMS	43	6	104	9	176	12	.	.
US dollar/yen	155	20	242	21	257	18	230	20
US dollar/sterling	77	10	78	7	118	8	125	11
US dollar/Swiss franc	49	6	61	5	79	5	57	5
US/Canadian dollar	25	3	38	3	50	3	50	4
US/Australian dollar	18	2	29	3	42	3	47	4
US dollar/other	48	6	72	6	172	12	197	17
Euro/yen	.	.	.	.	.	.	30	3
Euro/sterling	.	.	.	.	.	.	24	2
Euro/Swiss franc	.	.	.	.	.	.	12	1
Euro/other	.	.	.	.	.	.	22	2
Mark/yen	18	2	24	2	24	2	.	.
Mark/sterling	23	3	21	2	31	2	.	.
Mark/Swiss franc	13	2	18	2	18	1	.	.
Mark/French franc	10	1	34	3	10	1	.	.
Mark/ECU	6	1	6	1	3	0	.	.
Mark/other EMS	21	3	38	3	35	2	.	.
Mark/other	20	3	16	1	18	1	.	
Other EMS/other EMS[3]	3	0	3	0	5	0	.	.
Other currency pairs	25	3	30	3	31	2	24	2
All currency pairs	778	100	1,137	100	1,430	100	1,173	100

[1] Adjusted for local and cross-border double-counting. [2] Revised since the previous survey. [3] The data cover local home currency trading only. Table 5

devoted to market-making has accelerated over the last few years.[10] This might explain why the impact of consolidation in the banking industry on forex market turnover became visible only in 2001.

The growing role of electronic broking

The expansion of electronic broking

Another factor that may have contributed to the contraction in turnover is the growing share of electronic broking in the interbank market at the expense of direct dealing and voice broking. The advance of electronic broking owes much to its lower costs, higher efficiency and, most importantly, greater transparency compared to traditional means of dealing. According to market sources, in the major currency pairs about 50–70% of turnover is now conducted through electronic brokers, up from 40% in 1998 and roughly 10% in 1995. Two brokers, EBS and Reuters, currently dominate this market segment, with EBS

[10] See also CGFS (2001a).

mostly covering trading in the US dollar, euro, yen and Swiss franc, and Reuters being used predominantly for transactions involving the pound, the Swedish krona, the Australian, Canadian and New Zealand dollars, and some emerging market currencies.

Impact on the price discovery process ...

The growing role of electronic broking has contributed to a contraction in turnover in the spot interbank market through two channels. First, it has reduced trading by simplifying the price discovery process.[11] Before the advent of electronic broking, dealers typically had to enter a number of transactions to obtain information on prices available in the market. Traders operating through electronic brokers, by contrast, are able to know instantly the "best" price available in the market and to them, depending on their and their counterparties' credit limits, without having to go through an uncertain price discovery process. This implies that foreign exchange dealers generally need to enter into a significantly lower number of transactions when they use electronic brokers than with traditional means of trading. This is particularly true for small and medium-sized banks, which do not have to go through bigger banks for some of their trades.

... and leveraged trading

Second, the expansion of electronic trading has reduced the scope for so-called "leveraged trading", through which forex market dealers try to maximise profitability. To illustrate this point, suppose that a customer requests a bank to sell $100 million against yen. The dealer would decide how to trade based on his market views. If he anticipated that the dollar would depreciate, he would probably sell more than $100 million through the direct dealing relationships and then seek to buy the excess balance back by market-making on a reciprocal basis or through the existing voice broker network. As a result, the initial trade for $100 million would result in turnover amounting to more than $100 million. Market commentary suggests that the growing share of electronic broking altered this trading mechanism once the share reached a critical threshold. The concentration of liquidity with electronic brokers seems to imply

Concentration in the banking industry

	1992	1995		1998		2001	
	Number of participants	Number of participants	Number of banks covering 75%	Number of participants	Number of banks covering 75%	Number of participants	Number of banks covering 75%
United Kingdom	352	313	20[1]	293	24	257	17
United States	180	130	20[2]	93	20	79	13
Japan	330	345	24	356	19	342	17
Singapore	208	218	25	206	23	192	18
Germany	81	80	10	57	9	33	5
Switzerland	105	114	5	64	7	42	6
Hong Kong	375	376	13–22[3]	366	26	272	14

[1] 68%. [2] 70%. [3] Depending on the market segment. Table 6

[11] See also CGFS (2001b).

that the same $100 million order now tends to be channelled through electronic brokers, and traders are less willing to leverage customer orders. As a result, the amount of interbank trading for a given customer order has fallen. Why traders have tended to make less use of leveraged trading in recent years remains an open question.

Changing composition of market players

Contraction in bank to non-financial customer trading ...

A further factor that explains the decline in global forex market turnover is the sharp decline in trading between banks and non-financial customers (Table 2). While its share in total trading had remained constant around 17% between 1992 and 1998, it dropped to 13% in 2001. The contraction in such activity was fairly uniform across forex centres and currencies. A possible factor explaining this result is the ongoing concentration in the corporate sector in international markets. One conjecture is that this trend may have accelerated in recent years and led to a significant reduction in the need for foreign exchange on the part of corporate treasurers.

... but expansion of activity between banks and financial customers

In contrast to the decline in activity involving non-financial customers, trading between banks and financial customers, which include pension funds, mutual funds and hedge funds, rose sharply in absolute terms and increased its share in total trading from 20% to 28%. Market commentary suggests that this rise could be attributed mainly to the increasing role that asset managers have been playing in foreign exchange markets over the last few years. This trend has been most visible in Sweden and Canada, where a relaxation of restrictions on institutional investors boosted activity.

Smaller role of hedge funds in forex markets

By contrast, market sources suggested a reduction in the number and activity of hedge funds, and in particular macro hedge funds. Macro funds, which typically take directional positions in expectation of an appreciation or depreciation of a currency, played an important role in foreign exchange markets in the 1990s. Following the LTCM episode in autumn 1998, leverage opportunities for these funds diminished sharply as a result of changing risk preferences and their creditors' drastically reducing their exposure. As a result, macro funds are reported to have withdrawn to a large extent from foreign exchange markets since end-1998 (Tsatsaronis (2000)). This trend is also evident from the fact that two families of funds that had played a key role in foreign exchange markets in the 1990s, the Tiger funds and the Quantum funds, had to liquidate or downsize their operations in the course of 2000. While there is evidence that hedge funds have been returning to foreign exchange markets in the course of 2001, their role currently appears much less important than in 1998.

Conclusions

Four factors at work

This special feature has identified four factors that may have contributed to the decline in foreign exchange market turnover. The first factor in order of

Volatility in the major foreign exchange markets[1]			
	Yen/dollar	Euro[2]/yen	Euro[2]/dollar
1980–89	10.2	7.3	10.9
1990–99	11.2	10.7	9.5
1997	11.5	11.4	8.6
1998	17.5	15.4	8.2
1999	12.6	14.2	9.3
2000	9.2	16.1	13.6
2001 January–October	10.1	14.1	11.6

[1] Standard deviations of annualised daily returns computed over calendar months. [2] Prior to 1999, Deutsche mark.

Sources: ECB; BIS calculations. Table 7

importance appears to be consolidation in the banking industry, which influenced mainly interbank trading. While the trend towards concentration has been rising since the mid-1990s, it seems to have accelerated over the last three years. Second, the introduction of the euro has gradually led to a reduction in forex turnover by eliminating intra-EMS trading. It led to a decline in trading of about 5% of total turnover between 1995 and 1998, and by another 6% on 1 January 1999. Third, the growing role of electronic broking has caused a shrinkage of the spot interbank market by simplifying the price discovery process and reducing the incentives for leveraged trades. While this trend has been in place since the early 1990s, it is possible that in recent years the share of electronic broking in the interbank market has reached a critical level, at which an impact on turnover could become visible. The fourth factor explaining lower turnover is the sharp decline in trading between banks and non-financial customers. One conjecture is that it reflected increasing international concentration in the corporate sector. This trend has not been compensated by the rapid rise in activity between banks and financial customers, which appears to have been driven by the growing role of asset managers at the expense of hedge funds.

The role of concentration in the corporate sector

While these four factors have certainly contributed to a decline in foreign exchange turnover, their overall impact on market liquidity so far has not been straightforward. Since no data are available to measure liquidity directly for foreign exchange markets, indirect measures such as trading volumes, bid-ask spreads and volatility need to be considered.

Overall impact on liquidity not straightforward

In terms of the tightness of market spreads, the introduction of the euro appears not to have changed market conditions significantly. Market commentary suggests that bid-ask spreads for trading euros against other major currencies in 2001 generally matched those on Deutsche mark trading in 1998. One notable exception appears to be the euro/yen market, where spreads were reported to be wider than those on mark/yen transactions in 1998. There is also no discernible change in the pattern of volatility of exchange rates of the euro (Table 7). In addition, market participants suggest that the introduction of the euro in most cases appears not to have led to

significant changes in market liquidity. Taken together, these findings imply that the euro has not altered market conditions significantly.

The growing market share of electronic broking has certainly lowered trading volumes and narrowed spreads but its influence on liquidity appears less clear-cut. It is also difficult to see any appreciable effect of consolidation on liquidity. Nevertheless, the latter two trends do seem to imply that the interbank market is functioning more efficiently now than in the mid-1990s. However, narrower spreads and hence lower profit opportunities have led to a reduction in resources devoted to market-making. This suggests that while liquidity may have improved under normal conditions, market participants' inability or unwillingness to provide liquidity under circumstances of stress may have increased, as hinted by the fair-weather hypothesis.[12]

The fair-weather liquidity hypothesis

References

Bank for International Settlements (1999): *69th Annual Report*, Basel.

Bank for International Settlements: "Market functioning and central bank policy", *BIS Papers* (forthcoming).

Borio, Claudio (2000): "Market liquidity and stress: selected issues and policy implications", *BIS Quarterly Review*, November.

Committee on the Global Financial System (2001a): "Structural aspects of market liquidity from a financial stability perspective", *CGFS Discussion Notes*, no 1, June.

Committee on the Global Financial System (2001b): "The implications of electronic trading in financial markets", *CGFS Publications*, no 16, January.

Galati, Gabriele and Kostas Tsatsaronis (2001): "The impact of the euro on Europe's financial markets", *BIS Working Papers* no 100.

Leven, Rob (2001): "The shrinking FX market", *Lehman Brothers Global Foreign Exchange Strategies*, 4 January.

McCauley, Robert (1997): "The euro and the dollar", *BIS Working Papers*, no 50.

Tsatsaronis, Kostas (2000): "Hedge funds", *BIS Quarterly Review*, November.

[12] For an analysis of liquidity under stress, see Borio (2000) and BIS (forthcoming).

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The emergence of new benchmark yield curves[1]

To properly guide decisions to borrow and invest in an economy, capital markets should incorporate all available information about the future prospects of borrowers and the willingness of investors to postpone consumption and take risks. The process by which prices in fixed income markets adjust to new information and move towards their equilibrium value is more efficient when market participants agree on certain instruments that can serve as references – or benchmarks – for pricing other securities. In recent decades, market participants have relied on government yield curves to assess the cost of funds at different borrowing horizons; price discovery about inflation prospects and other macroeconomic fundamentals occurred mainly in government securities markets. But private sector debt instruments, in particular collateralised obligations and interest rate swaps, also have the potential to serve as benchmark yield curves, and indeed are increasingly being used as such.

The benchmark role of government securities

Government securities are unique in financial markets

The benchmark status of government debt derives from a number of features that, when taken together, make government securities unique in financial markets. First, governments in most of the industrial countries are perceived to be the most creditworthy of borrowers; their securities are considered to be essentially free of the risk of default. For this reason, the government yield curve is widely regarded as the best proxy for the nominal risk-free rate. Second, the large amount of government debt outstanding and the fungibility of issues facilitate trading. Therefore, government paper, especially the most recently issued ("on-the-run") securities, tends to be more liquid than non-government paper. Third, owing to their large borrowing needs and long life, governments are able to offer a wider range of maturities than many other borrowers. This facilitates the construction of yield curves. Finally, the existence of well developed repo and derivatives markets for government

[1] This special feature draws extensively on a study undertaken by economists from six central banks plus the BIS on recent changes in the world's major fixed income markets. See *The changing shape of fixed income markets: a collection of studies by central bank economists*, *BIS Papers*, no 5, October 2001. The views expressed in this special feature are those of the author and not necessarily those of the BIS.

securities enables market participants to take short and long positions that reflect their views of future interest rate movements.

The usefulness of a yield curve as a benchmark for price discovery about macroeconomic fundamentals depends on the determinants of the term structure. The term structure should at any given time represent the market's current expectations of future short-term interest rates. In other words, no factors other than expected future spot rates should systematically affect forward interest rates. Empirical studies of the government yield curve tend not to support the pure expectations theory of the term structure. The forward rates embedded in government yields are affected by, in addition to expected future short-term rates, time-varying liquidity and term premia. In addition, different bonds have different convexities, and these convexity differences give rise to yield differences across maturities. Furthermore, idiosyncratic factors such as supply of and demand for specific securities appear to influence yields. For example, Hattori et al (2001) find that yields in the yen market vary with relative supplies of corporate and government bonds. Other studies find that absolute supply also matters (see below). Consequently, forward rates in government securities tend to be biased estimates of expected future spot rates.

Government yields are affected by a decline in arbitrage activity ...

In recent years, the importance of idiosyncratic factors in the determination of government yields has seemingly increased. The global financial market crisis of 1998 led many market participants, especially market-makers, to reassess their risk management practices (CGFS (1999b)). In particular, increased sensitivity to liquidity risk and to correlations across risks made dealers and other major players in bond markets less willing to engage in arbitrage activity. The demise of global macro hedge funds in the wake of the 1998 crisis – three of the most celebrated funds (Long-Term Capital Management, Tiger and Quantum) closed or restructured – is indicative of this change in investment philosophy (Graph 1 and Tsatsaronis (2000)). One consequence is that the pricing anomalies recorded in the right-hand panel of Graph 1, which had previously tended to disappear quickly, now last longer.

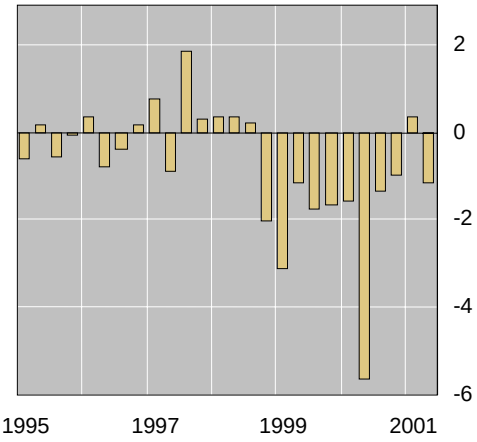
... a deterioration in liquidity ...

The 1998 crisis also highlighted the risks inherent in the use of government bonds and related derivatives to hedge positions in non-government securities – a routine strategy among dealers up until that time. Periodic breakdowns in the normally stable relationship between government and non-government yields had earlier forced market participants to re-examine their use of US Treasury bills as hedging instruments for private instruments in the dollar money market, eventually leading participants to reference the eurodollar rate instead (McCauley (2001)). The events of August–October 1998 triggered a similar process in bond markets. Among euro-based investors, the introduction of the single currency and squeezes in German government bond futures contracts reinforced this search for new hedging vehicles.[2] Each market participant who gives up using government

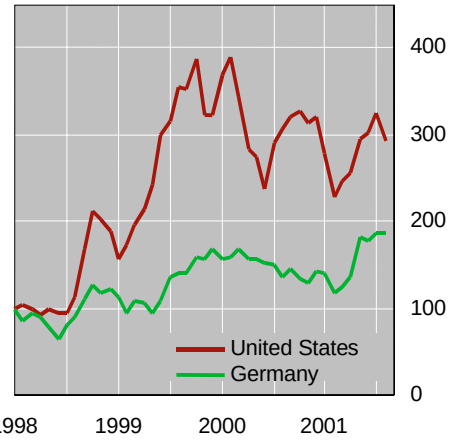
[2] Schulte and Violi (2001) analyse changes in European derivatives markets since the introduction of the euro and concerns about squeezes in bund and bobl futures contracts.

Yield curve arbitrage

Flows into global macro hedge funds[1]



Government yield deviations[2]



[1] In billions of US dollars. [2] Standard deviation of static spreads of all non-callable government bonds over a zero coupon yield curve; January 1998 = 100.

Sources: TASS Research; Datastream; BIS calculations. Graph 1

securities to hedge private instruments subtracts liquidity from the government debt market and adds it to non-government markets. In the self-reinforcing process whereby liquid markets become more liquid, this raises the incentive for other participants to do likewise. Various indicators confirm that liquidity has declined in the US Treasury and UK gilt markets (BIS (2001), Fleming (2001)). Government securities markets in the euro area and Japan, however, have retained, if not gained, liquidity.

... and supply shocks

Actual and prospective declines in the supply of government securities have further amplified idiosyncratic movements in government yields and impaired liquidity conditions. Since the mid-1990s, most industrial countries, with the exception of Japan, have made considerable progress towards fiscal balance. This has resulted in a substantial decline in government bond issuance, and even the retirement of debt in those countries with fiscal surpluses. For example, the outstanding stock of US Treasury securities fell by 15% between December 1998 and June 2001. Using swap spreads as a measure of the possible divergence between government bond yields and true risk-free interest rates, Cooper and Scholtes (2001) find some evidence that such declines depressed US Treasury and UK gilt yields below risk-free rates. Reinhart and Sack (forthcoming) decompose movements in 10-year US Treasury yields into several unobserved factors, including an idiosyncratic component to capture supply and other effects that impact only Treasury securities. They conclude that this idiosyncratic component has increased in recent years, and that as a result Treasury yields have become increasingly divorced from risk-free interest rates.

Corporate bonds compete for benchmark status

A benchmark yield curve need not be a risk-free curve

While government yields were, at least until recently, synonymous with nominal risk-free rates, a benchmark yield curve need not be a risk-free curve. Price discovery about macroeconomic prospects need not centre on an instrument that is itself devoid of risk. Liquidity is certainly crucial. Movements in benchmark yields should not be driven by order imbalances but rather should exclusively reflect new information about fundamentals. But the absence of a credit risk premium is not a prerequisite. To derive market expectations about macroeconomic developments, the risk premia embedded in forward rates need only be predictable.

Corporate bonds used to be benchmarks ...

In the past, when government securities markets were less developed than they are today, private sector debt instruments were commonly used to assess market expectations of future short-term interest rates and inflation. In the US dollar market in the 1950s and 1960s, market participants referred to bonds issued by top-grade corporations, in particular American Telephone and Telegraph, to gauge expectations of future interest rates. Similarly, in Japan during the same period, bank debentures and telegraph and telephone bonds effectively served as benchmarks. These bonds were not necessarily default-free instruments, but at the time the stable (regulated) nature of the issuer's business activities limited the volatility of any associated credit spreads.

In today's more liberalised commercial and financial environment, the credit ratings of even the highest-quality borrowers are occasionally downgraded. Issuers can employ various mechanisms to demonstrate their resolve to maintain the quality of their assets. Bond covenants might restrict significant alterations in the operational or financial risk characteristics of a firm, or coupon payments might be linked to the issuer's credit rating. Still, it seems unlikely that a market consensus will emerge that elevates the status of bonds issued by a particular private entity to that of a benchmark.

... and could be again

An index of yields on similarly rated bonds is more promising. Yield curves constructed from a population of comparable bonds are already the benchmark for pricing credit risk in the primary market. Furthermore, many asset managers benchmark their performance against an index. In principle, the benchmark role of fixed income indices could also extend to yield curves for pricing interest rate risk. A wide range of corporate bond indices has long been available, but to date none has gained broad acceptance among market participants in this latter role. Further improvements in their pricing and liquidity are necessary before they can become viable benchmark yield curves. To this end, consideration is being given to the construction of a futures contract based on a basket of corporate bonds.

Debt instruments issued by government-sponsored enterprises (GSEs) and supranational institutions are possible candidates for elevation. GSEs and supranationals are often as highly rated as the governments that support them. In an effort to improve the liquidity of their securities, several now mimic the US Treasury's issuance strategy of large, regular bond offerings at key maturities. Fannie Mae and Freddie Mac of the United States, Kreditanstalt für

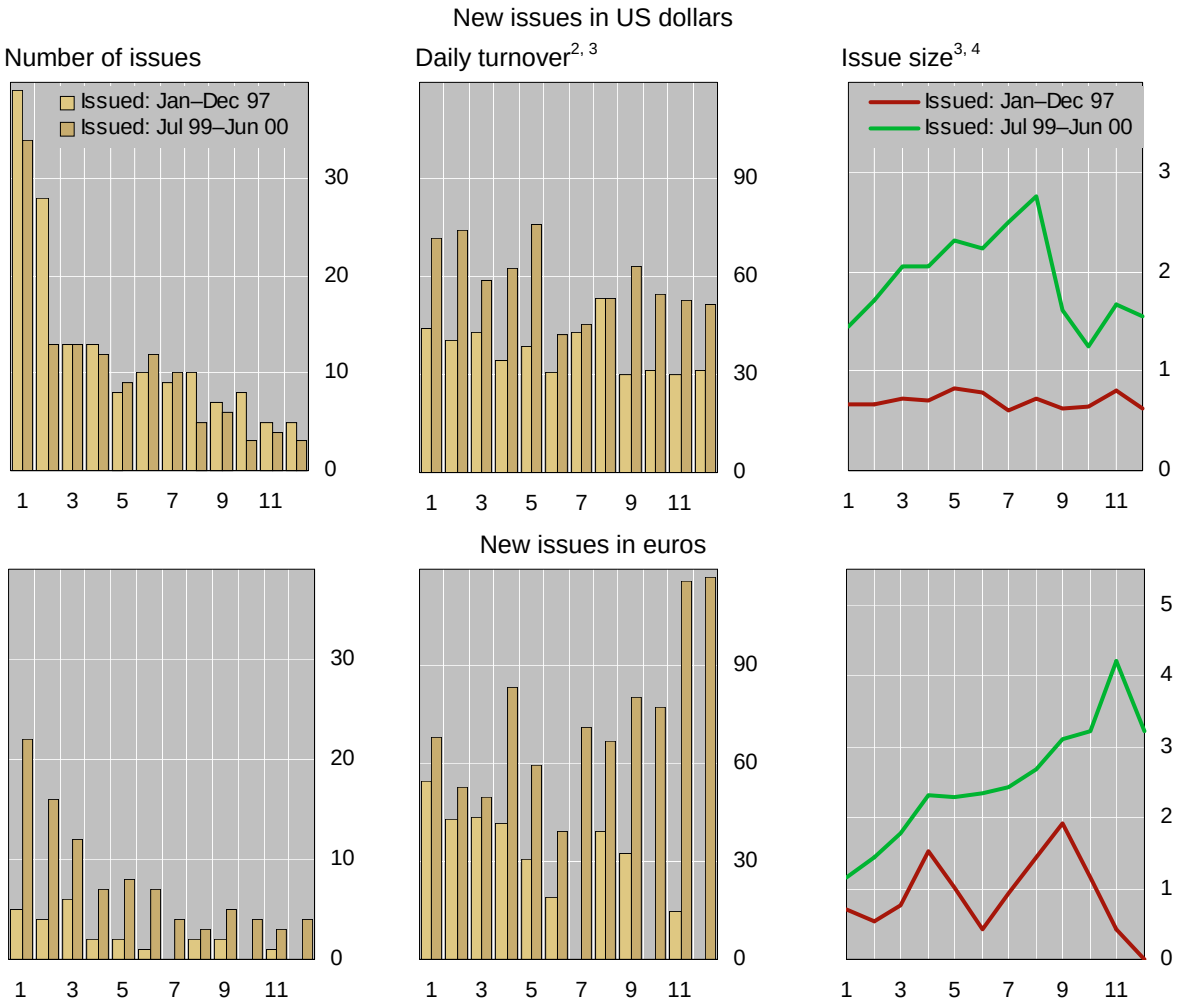
Wiederaufbau (KfW) of Germany, and the European Investment Bank (EIB) have all established so-called "benchmark" programmes in recent years.

Liquidity is concentrating in large, regularly offered bonds ...

There are some signs that such programmes are having the desired effect of concentrating liquidity. Graph 2 shows the trading cycle on Euroclear of newly issued US dollar- and euro-denominated bonds during successive months following the one in which they were issued. A relatively large number of bonds trade actively on Euroclear in the first month after they are issued. The number of bonds that trade actively in subsequent months rapidly diminishes, probably reflecting the unloading of inventories by underwriters. The trading cycle in the dollar market was already well developed in 1997, and there are no signs of a deterioration in the persistence of turnover in 2000. In the euro market, relatively few bonds issued in 1997 traded actively more than

Trading cycle of non-government bonds

New bond issues traded actively on Euroclear following the month of issuance[1]



[1] Excluding bonds issued under medium-term note programmes. Euroclear stopped publishing turnover data in January 2001 and so the July 1999 to June 2000 sample underestimates trading activity beyond seven months. [2] In millions of US dollars. [3] Average of all new issues traded actively during the month. [4] In billions of US dollars.

Sources: Euroclear; BIS (2001). Graph 2

a month after issuance. However, by 2000, several bonds were still trading actively up to 12 months after issuance, and the average daily turnover of such bonds had approximately doubled. Moreover, trading in the dollar and euro markets had concentrated in issuers who tapped the market on a regular basis for large amounts. The size of new dollar and euro issues that still traded actively several months after issuance was approximately twice as large in 2000 as in 1997: $2 billion versus $1 billion. The mix of names that traded actively was more clearly dominated by issuers with large borrowing requirements: in the US dollar market, Ford Motor Credit, the Inter-American Development Bank and the World Bank; in the euro market, Pfandbrief issuers (Depfa and Dexia), the Caisse d'Amortissement de la Dette Sociale, the EIB and KfW.

... but they have not yet gained acceptance as benchmarks

Despite these favourable trends in cash markets, activity in futures markets suggests that GSE securities have yet to gain broad market acceptance as benchmark instruments. After an initial period of rapid growth, the turnover of futures contracts traded on Fannie Mae and Freddie Mac securities quickly peaked at little more than 1% of the turnover of US Treasury futures. Furthermore, whereas the turnover of US government bond contracts picked up noticeably in the first quarter of 2001 following a surprise rate cut by the Federal Reserve, trading in agency futures stagnated. Futures contracts traded on Pfandbriefe met with a similar experience after their (short-lived) introduction in 1998.

The greater liquidity of government bond contracts partially explains the reluctance of market participants to switch from using Treasury futures to agency futures. Owing in part to the existence of liquid repo and securities lending markets, transaction costs for positioning and hedging with government securities are frequently lower than the costs associated with other instruments, and so government securities remain attractive positioning and hedging vehicles. Another reason for the reluctance to switch is the continuing debate about the scope of government involvement in the activities of GSEs and supranationals.[3] Such debate contributes to uncertainty about future credit spreads on their securities.

Collateralised debt is the benchmark at short maturities

Averages of yields on collateralised obligations could be used to construct benchmark yield curves. In the major debt markets, interest rates in the general collateral repo market are already widely regarded as the benchmark yield curve at very short maturities (CGFS (1999a)). The importance of repos is evidenced by their use as monetary policy instruments by many central banks.

[3] For example, concerns had emerged in the early part of 2000 about the credit standing of Fannie Mae and Freddie Mac after proposals were introduced in the US Congress to remove their government credit lines and local tax exemptions. This legislative pressure abated towards the end of the year when Fannie Mae and Freddie Mac undertook to raise their capital ratios and improve their disclosure practices.

Repo rates are benchmark yields at very short maturities ...

Risk-free instruments, in particular government securities, have historically been the preferred form of collateral in repo transactions. However, in principle, other instruments could substitute for government securities. In a report on the uses of collateral in wholesale financial markets, the Committee on the Global Financial System (2001) suggests that securitisation techniques could be applied to develop substitute instruments with high credit quality and liquidity. Furthermore, the steps that non-government issuers such as Fannie Mae and Freddie Mac are taking to enhance the transparency and liquidity of their securities could make them more attractive as collateral. Improvements in risk management and market structure could also ease the use of collateral bearing higher issuer and liquidity risks.

The primary difficulty with using repo rates as benchmarks is their illiquidity beyond the very short term. Repo markets in the industrial countries are typically liquid out to about three months (12 months in the United States), and so expectations extracted from the term structure of repo rates are unlikely to be accurate at longer maturities. In the euro market, there is the added difficulty that an integrated repo market does not yet exist. National repo markets have become more closely connected since the launch of the euro, but types of collateral, prices and liquidity conditions still differ in each market (ECB (2001); Schulte and Violi (2001)).

... and ABSs and MBSs could fulfil a similar role at longer maturities

Features of the broader collateralised debt market might argue in favour of using yields on asset- and mortgage-backed securities as benchmarks. First, ABSs and MBSs are among the most liquid non-government securities available: for example, Mastroeni (2001) finds that bid-ask spreads for Jumbo Pfandbriefe compare favourably with those of German government bonds. Second, maturities can extend out to 30 years or more. Third, ABSs and MBSs are often structured such that the risk of default is minimal. Finally, repo markets for Pfandbriefe and other forms of collateralised debt are beginning to develop. The US Federal Reserve's decision in 1999 to expand the pool of collateral eligible for use in repo operations to include agency MBSs should accelerate this process.

A significant drawback of using ABSs or MBSs as benchmark instruments, however, is that prepayment risk and other embedded options can make it difficult to back out interest rate expectations. Furthermore, market participants sometimes disagree about how to assess the credit risk of these instruments. Pfandbriefe are the most prominent example. When rating Pfandbriefe, Standard & Poor's focuses principally on the quality of the collateral. Moody's, on the other hand, also stresses the creditworthiness of the issuing bank. Moody's argues that because of the dynamic nature of the pool backing the security – new assets are added to replace loans that are repaid – it is not possible to monitor the collateral without also monitoring the bank managing the assets.

Interest rate swaps are increasingly used as benchmarks

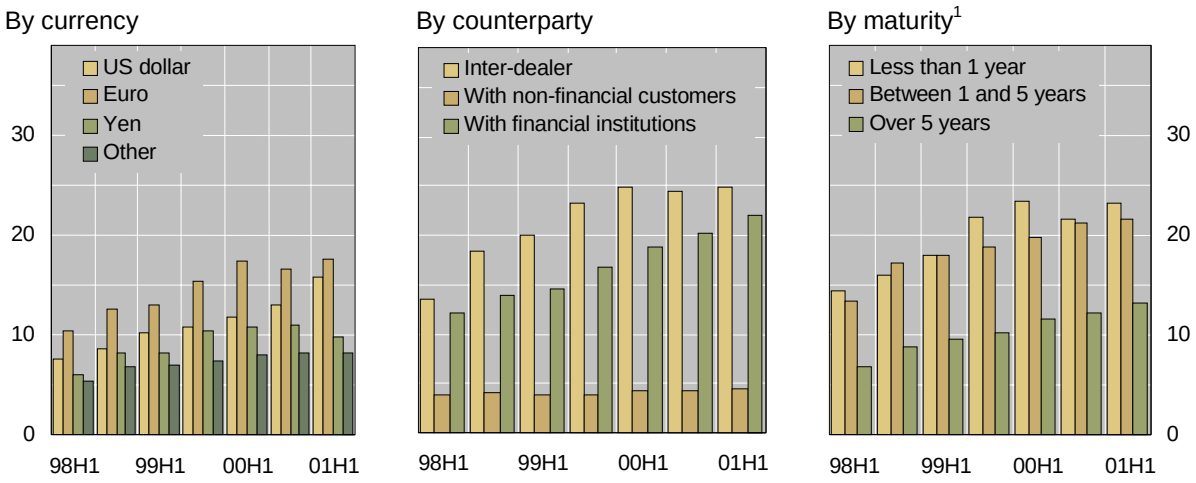
Liquidity and credit premia in swaps have declined ...

Another possible benchmark yield curve is the fixed rate leg of interest rate swaps. Historically, the credit risk of swap dealers was a concern, and liquidity conditions beyond short maturities were relatively poor. Since the mid-1990s, the establishment of AAA-rated derivatives subsidiaries and various risk mitigation techniques, including margining and collateralisation, have allayed many of the concerns about counterparty credit risk (Remolona et al (1996)). The liquidity premia embedded in interest rate swaps have also declined, with tighter bid-ask spreads and greater market depth accompanying the rapid growth of the swaps market in the late 1990s. Liquidity is still greatest at the short end of the curve. Indeed, swaps referenced to the euro overnight index average rate (EONIA) are now the most liquid segment of the euro money market (ECB (2001)). But as is evident in the right-hand panel of Graph 3, the longer-term segment is becoming more widely traded.

The range of players using interest rate swaps continues to expand. This can be seen from the growth of the dealer-customer segment (financial institutions and non-financial customers) depicted in the centre panel of Graph 3. Commercial and investment banks were perhaps the first investors to make greater use of swaps as benchmark yield curves. The liabilities of most banks are based on a short-term interbank rate such as Libor or Euribor. Therefore, banks tend to benchmark prices against the swap curve, which embodies expectations of future Libor or Euribor. End investors with investment portfolios in multiple currencies and large borrowers with funding programmes in multiple currencies have also gradually started to talk in terms of yield spreads relative to swaps rather than government paper. Whereas differences in government securities markets complicate cross-country comparisons of government yield curves, swap curves offer a reasonably simple way of comparing returns

Interest rate swaps

Notional amounts outstanding, in trillions of US dollars



[1] Includes forward rate agreements, which account for approximately 15% of the total notional amount outstanding.

Source: BIS. Graph 3

or borrowing costs across markets. Today even governments are beginning to use swaps to manage their risk exposures. The shift towards swaps is farthest advanced in the euro market, where investors quickly realised the advantages of referencing one euro swap curve instead of choosing from among 12 government yield curves. The dollar swaps market is quickly catching up.

... but further declines could depend on the migration of swaps trading to an organised exchange

Nevertheless, the attractiveness of the interest rate swap curve as a benchmark yield curve is diminished by the structure of the market. Trading in the interest rate swap market – indeed, in all over-the-counter markets – is dominated by a few highly rated dealers. The swap market thus probably labours under higher transaction costs and remains less liquid than it might be if swaps were traded on an organised exchange (McCauley (2001)). Steps have been taken in this direction, but at present exchange-traded activity accounts for an insignificant fraction of global swaps trading. Also, because they are based on unsecured interbank deposit rates, swap rates remain susceptible to changes in the credit quality of banks. For example, the low credit standing of Japanese banks adds to uncertainty about the future path of yen swap rates, and so deters market participants from using yen swaps as benchmark yields.

Conclusions

Price discovery is shifting from a single (government) market to a range of (non-government) markets

As a result of changes in fixed income markets triggered by the events of 1998, shifts in supply and the introduction of the euro, government securities are no longer the pre-eminent benchmark instrument that they were just a few years ago. Over time, market participants will settle on only one benchmark yield curve; the market saves on resources if price discovery is concentrated in only one homogeneous instrument. But at the present juncture, a multiplicity of instruments are competing for benchmark status, and no single yield curve has yet emerged as the locus for positioning and hedging in interest rate risk.

As the long-dominant benchmark, government securities retain many advantages. Foremost among these is their tremendous liquidity. Even if liquidity conditions in some government securities markets have deteriorated, they remain better than in most other fixed income markets. But repo rates have already displaced government yields as benchmark yields at the very short end of the yield curve. Further improvements in the liquidity and structure of collateralised obligations and interest rate swaps could enhance the attractiveness of these instruments as benchmarks at longer maturities too.

References

BIS study group on fixed income markets (2001): "The changing shape of fixed income markets", in *The changing shape of fixed income markets: a collection of studies by central bank economists*, *BIS Papers*, no 5, Basel, October, pp 1-43.

Committee on the Global Financial System (1999a): *Implications of repo markets for central banks*, BIS, Basel, March.

Committee on the Global Financial System (1999b): *A review of financial market events in autumn 1998*, BIS, Basel, October.

Committee on the Global Financial System (2001): *Collateral in wholesale financial markets: recent trends, risk management and market dynamics*, BIS, Basel, March.

Cooper, N and C Scholtes (2001): "Government bond market valuations in an era of dwindling supply", in *The changing shape of fixed income markets: a collection of studies by central bank economists*, *BIS Papers*, no 5, Basel, October, pp 147-69.

European Central Bank (2001): *The euro money market*, ECB, Frankfurt, July.

Fleming (2001): "Measuring Treasury market liquidity", *Federal Reserve Bank of New York staff reports*, no 133, July.

Hattori, M, K Koyama and T Yonetani (2001): "Analysis of credit spread in Japan's corporate bond market", in *The changing shape of fixed income markets: a collection of studies by central bank economists*, *BIS Papers*, no 5, Basel, October, pp 113-46.

Mastroeni, O (2001): "Pfandbrief-style products in Europe", in *The changing shape of fixed income markets: a collection of studies by central bank economists*, *BIS Papers*, no 5, Basel, October, pp 44-66.

McCauley, R N (2001): "Benchmark tipping in the money and bond markets", *BIS Quarterly Review: International banking and financial market developments*, March, pp 39-45.

Reinhart, V and B Sack (forthcoming): "The changing information content of market interest rates", in *Market functioning and central bank policy*, *BIS Papers*, Basel.

Remolona, E M, W Bassett and I S Geoum (1996): "Risk management by structured derivative product companies", *Federal Reserve Bank of New York Economic Policy Review*, no 2, April, pp 17-38.

Schulte, W and R Violi (2001): "Interactions between cash and derivatives bond markets: some evidence for the euro area", in *The changing shape of fixed income markets: a collection of studies by central bank economists*, *BIS Papers*, no 5, Basel, October, pp 67-112.

Tsatsaronis, K (2000): "Hedge funds", *BIS Quarterly Review: International banking and financial market developments*, November, pp 61-71.

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The impact of transatlantic M&A activity on the dollar/euro exchange rate[1]

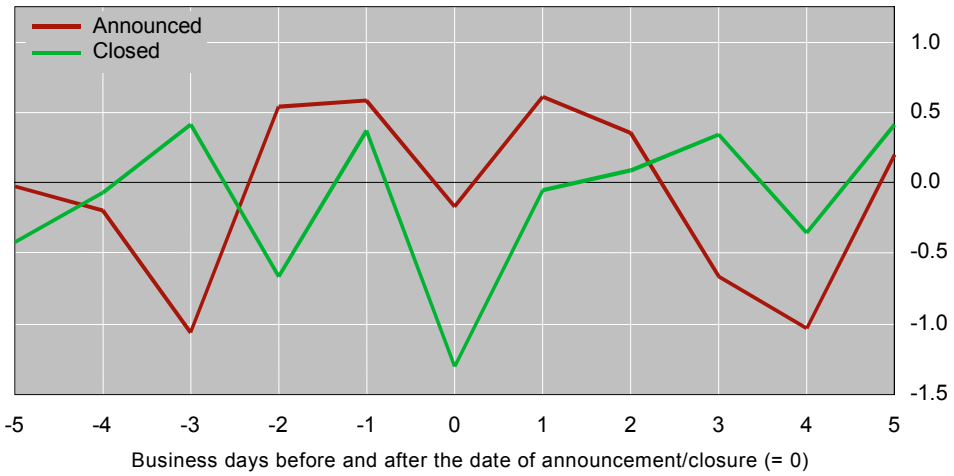
High-profile transatlantic M&A deals

On 19 July 2000, following breaking news about an imminent $53 billion cash-and-shares acquisition of US wireless operator VoiceStream by Germany's Deutsche Telekom, the euro depreciated against the dollar by 1.06% – a significant move for a single day. On the day of the official announcement, 24 July, the euro lost another 0.17%, and further depreciated by a total of 2.94% over the 10 trading days that followed. By the time the deal was finally closed, on 31 May 2001, the euro had lost some 1.30% of its value against the dollar (Graph 1).

News about cross-border mergers and acquisitions (M&As) has figured quite prominently in the public debate. This is due partly to the huge size of a

Dollar/euro changes around Telekom merger dates[1]

In percentages



[1] Exchange rate movements around the announcement/closure of the Telekom-VoiceStream deal.

Graph 1

[1] The authors would like to thank Angelika Donaubauer and Marian Micu for excellent research assistance. The views expressed in this special feature are those of the authors and not necessarily those of the BIS.

number of high-profile deals, like the aforementioned takeover of VoiceStream, but also to their possible impact on exchange rates.[2] In recent years, market commentary has pointed to the continuous stream of M&A-related capital flows from the euro zone towards the United States as a factor weighing on the euro. However, it is still not clear what impact these M&A deals actually had in practice, given that daily turnover in the FX markets is measured in trillions of dollars.[3] Moreover, quite a few takeovers are, at least partially, paid for with shares, not cash, and thus have no direct implications in terms of FX cash transactions.

FX effect can occur through three channels

This special feature explores the extent to which transatlantic M&A deals[4] are associated with movements in the dollar/euro exchange rate over the period 1 January 1999 to 30 September 2001. Three hypotheses are typically put forward to explain the potential impact of cross-border mergers on the exchange rate: the transactions effect, the portfolio effect and the announcement effect. In this paper, we test whether the last of these effects shows up in transatlantic M&A data and also provide some evidence on the first hypothesis.

The remainder of this special feature is organised as follows. The first section provides some background on transatlantic M&A activity and the development of the dollar/euro exchange rate over the period 1999–2001, while the second section describes the basic mechanics of cross-border M&A deals. The third section implements the empirical methodology and produces evidence in favour of a statistically significant impact of M&A announcements on the dollar/euro exchange rate. It is also shown that the size of a deal's impact is independent of its financing, a finding that is inconsistent with the transactions effect.

Overall, it is concluded that the direction and magnitude of transatlantic M&A activity are consistent with the strengthening of the dollar between 1999 and 2000. However, with average monthly volumes of newly announced cross-border M&A transactions down considerably from last year's record levels, it seems that the recent slowdown in M&A activity could be associated with a weakening of the dollar.

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[2] Large M&A deals, like the Telekom-VoiceStream transaction, can matter a lot in terms of current account financing. In its financial accounts for May 2001, the ECB registered relatively large net outflows of direct investment, valued at €40.4 billion. Final execution of the Telekom-VoiceStream deal, valued at $27.1 billion (€31.9 billion), thus amounted to about 78% of net outflows in May 2001. See ECB (2001).

[3] The latest triennial central bank survey puts average daily turnover in traditional foreign exchange markets at an estimated $1.21 trillion in April 2001. See BIS (2001b).

[4] We define transatlantic M&A deals to include cross-border M&A activity involving companies domiciled in the euro area and the United States.

Some background on M&A activity and the dollar/euro rate

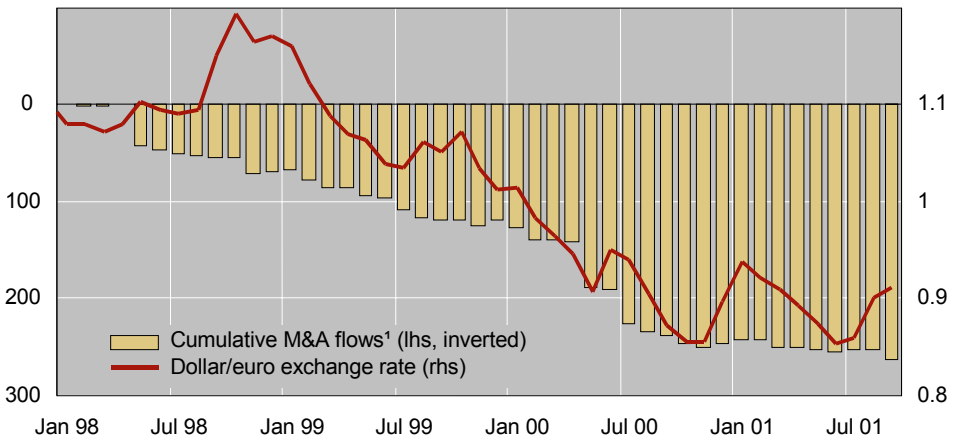
Relative growth prospects underpin net portfolio flows ...

The strength of the dollar between the mid-1990s and mid-2001 has usually been attributed to the perception of superior relative growth prospects of the United States vis-à-vis other economies over the medium term. In line with this view, revisions in expectations of growth differentials across the three main currency areas one to two years ahead seem to be broadly consistent with movements in exchange rates.[5] In 1999, and even more so in 2000, these expectations seem to have underpinned sustained portfolio inflows to the United States, which supported the dollar.

... and net M&A flows into the United States

In addition, expectations of superior medium-term performance also tended to show up in the large FDI inflows experienced by the United States, which reflected strong cross-border M&A activity. Indeed, over the last few years, M&A-related activities have become an important source of international financial flows. In 2000, total cross-border M&A activity rose to $1.1 trillion, nearly 50% higher than in 1999. Net announced M&A inflows to the United States totalled $217 billion, equivalent to 2.3% of US GDP. Over the same period, the euro area experienced net outflows from announced M&A deals worth $278 billion, with gross outflows at $395 billion.[6] The protracted weakness of the euro vis-à-vis the dollar in 1999 and 2000 is thus consistent with the continuous stream of M&A-related capital flows from the euro zone towards the United States (Graph 2).[7]

Mergers and acquisitions and the dollar/euro exchange rate



[1] Cumulative net flows from the euro area to the United States since January 1998 (completed and pending deals), in billions of US dollars. Observations are assigned to the announcement date of the deal.

Graph 2

[5] See BIS (2001a).

[6] See Montgomery et al (2001).

[7] See BIS (2001a) and *Economist* (2000).

The mechanics of cross-border M&A activity

Three hypotheses are typically put forward to explain the potential effect of cross-border mergers on exchange rates: the transactions effect, the portfolio effect and the announcement effect. In what follows, we will test whether the third hypothesis, the existence of an M&A announcement effect, is supported by the data.

Transactions effect ...

The first hypothesis relates to the transactions effect of M&A deals and states that only actual foreign exchange market flows should matter in terms of exchange rate movements. Due to this flow effect, the acquisition of a US corporate by a European firm will increase the demand for dollars relative to euros and, hence, affect the exchange rate.

For the transactions hypothesis to hold M&A-related payments have to be exchanged in cash and channelled through (spot) foreign exchange markets. Thus, any effect of a given M&A deal on the exchange rate will crucially depend on the financing of the deal, which can be arranged from available cash, by issuing debt instruments or obtaining bank loans and by issuing and/or transferring shares as well as combinations thereof.[8] And while all but the last of the above sources of financing entail cash payments, use of any of these sources will not necessarily imply foreign exchange transactions if firms finance their M&As in the target company's currency.[9]

... portfolio balance effect ...

The second hypothesis, which works in parallel to the influence of cash flows, invokes a portfolio balance (or stock) effect, claiming that transatlantic M&As generate an increase in the net desired stock of dollar exposure relative to euros. If dollar- and euro-denominated assets are imperfect substitutes, investors must be compensated with a higher expected return. This, in turn, will require the exchange rate to adjust in order to bring expected returns in line with the new portfolio composition. The effect of M&A flows on exchange rates through this channel depends crucially on the extent to which the foreign currency positions are hedged. However, since there is little information available on hedging, it is very difficult to test this hypothesis empirically.

... and announcement effect

The third hypothesis of how cross-border M&As might affect exchange rates centres around the idea that the mere announcement of the deal, rather than its finalisation and settlement, will influence exchange rates. This channel could work in two ways. First, the exchange rate might react to an announcement as currency dealers scramble to take positions in anticipation of future upward pressure on the currency (expectations effect). In addition, M&A announcements might be seen to convey signals as to the expectations of businesses about future growth prospects in the currency areas involved

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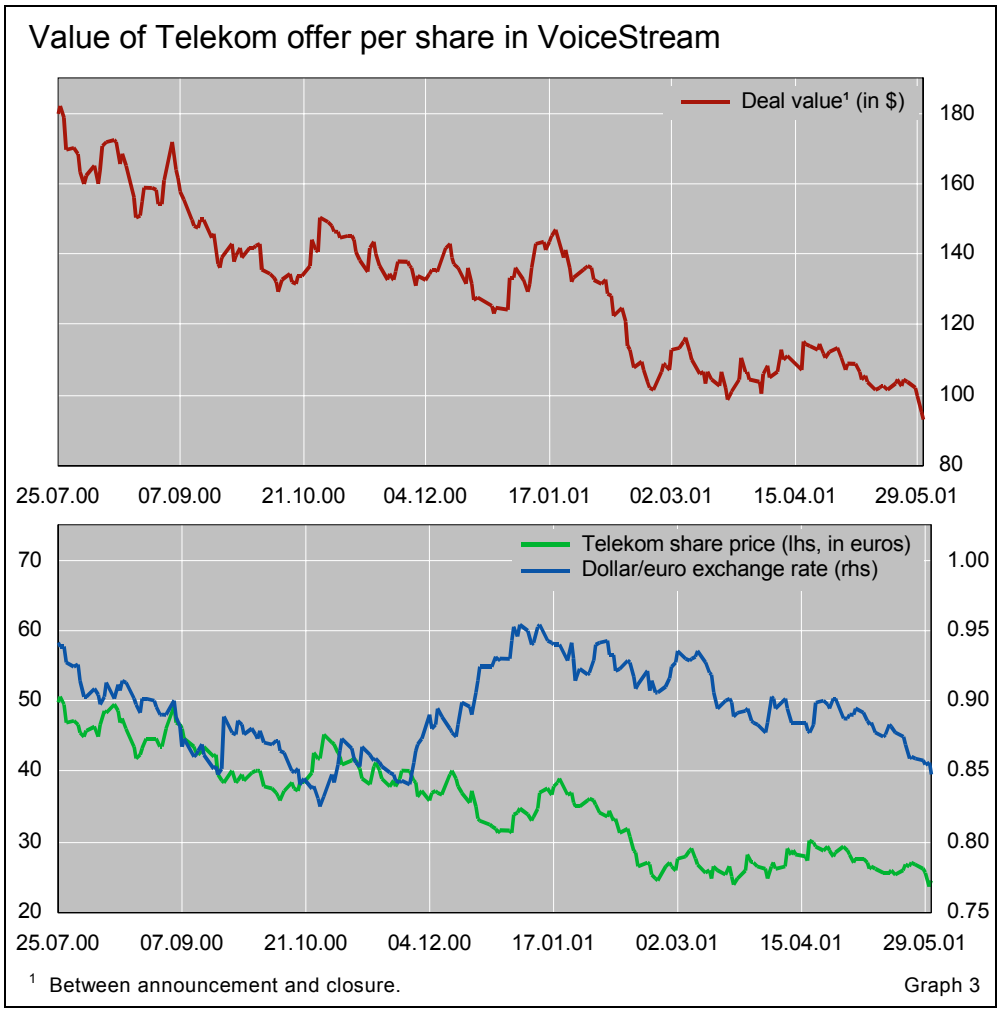
[8] Equity swap components of M&A deals may have indirect effects through this channel. While not involving an immediate cash payment, they are bound to potentially have exchange rate effects, if only indirectly via the so-called flowback of shares. The flowback will, in turn, depend on investors' portfolio adjustments and on whether and to what degree the proceeds from sold equity holdings are repatriated.

[9] This is particularly important for the United States and the euro area, due to their liquid corporate debt markets.

(signalling effect), that is, as a symptom of the strength of one economy versus the other – particularly if the stream of new deals consistently moves in the same direction (Graph 2). Due to these two elements of the announcement effect, exchange rates might move even when a newly announced deal does not involve immediate FX transactions and regardless of the precise financing strategies.

Deal size and financing may change over time

As far as the expectations effect is concerned, attempts to anticipate future FX transactions are complicated by considerable uncertainty, as the headline figures at the time of deal announcement might deviate substantially from actual deal size. The takeover of US wireless operator VoiceStream by Deutsche Telekom is, again, a case in point. When the terms of the planned deal first emerged, the offer valued the US company at about $53 billion (€57.6 billion), of which $7.8 billion was offered in cash. When the deal was finally closed, it was valued at $27.1 billion (€31.9 billion), some 49% below the original headline figure, of which an amount of $4.6 billion was settled in



cash (Graph 3).[10] Even so, while at the time of settlement the actual deal size and cash component of the deal were down substantially from the original figures, the deal still mattered a lot in terms of current account financing.[11] The Telekom example thus highlights the scope for significant effects of large M&A transactions, as huge acquisitions tend to generate flows that might influence the exchange rate. However, it also suggests that information about total deal size and the cash component of a given transaction can vary significantly over time. This will affect traders' ability to correctly anticipate the volume of M&A-related capital flows and may influence the announcement effects generated by M&A deals.

Empirical methodology and estimation

Data availability complicates the empirical investigation of the three M&A-related FX effects mentioned above, particularly as accurate information on the actual financing of a given M&A deal and on related hedging operations is not necessarily obtainable. Lack of detailed portfolio data, therefore, precludes any attempt to thoroughly test the relevance of separate stock and flow effects. By contrast, data on the announcement of transatlantic M&A deals can be drawn upon to test the third hypothesis, ie to establish the existence of an announcement effect. In addition, a degree of indirect evidence on the role of the transactions hypothesis can be provided by investigating whether announcement effects vary depending on the way the deals are financed, ie whether a given deal includes a cash component.

M&A flows between the United States and the euro area[1]

	Capital flows into the United States				Capital flows into the euro area			
	Number of deals		Deal size		Number of deals		Deal size	
	Total	Of which: with cash payment (%)	Average ($ m)	Total ($ bn)	Total	Of which: with cash payment (%)	Average ($ m)	Total ($ bn)
1999	154	51.3	715	89.2	147	42.9	240	40.0
2000	234	44.0	778	176.4	133	31.6	330	50.1
2001	111	49.5	360	35.2	92	50.0	195	18.9

[1] All deals completed and pending. For 2001, January to end-September.

Source: Bloomberg. Table 1

[10] On 20 July 2000, when the terms of the planned deal emerged, the takeover offer of 3.2 Telekom shares and $30 in cash for each share in VoiceStream valued the US company at about $53 billion. By 24 July, the day of the official announcement, total deal size was down to $46.5 billion as Telekom shares had fallen by some 15% from their close at €60.4 on 19 July. Shortly before the deal was completed, the offer was changed to around 3.7 Telekom shares plus $15.90 per share in VoiceStream, which put total deal size at $27.1 billion on 31 May 2001. See *Financial Times* (2000, 2001).

[11] See above and ECB (2001).

M&A data from January 1999 to end-September 2001 are investigated

The empirical investigation of the relationship between the dollar/euro rate and the announcement of transatlantic M&As is based on a data set with daily observations on M&A transactions data between the United States and the euro area. The data, which are taken from Bloomberg, cover announced cross-border M&A deals from January 1999 to end-September 2001. M&A volumes are measured in US dollars and the data set includes volumes and financing information for all transactions greater than $100 million. Table 1 provides some background information about the deals included in our data set. Between January 1999 and end-September 2001, 499 deals involved US companies as targets and euro area companies as acquirers, compared to 372 deals in which euro area companies were targeted. In addition, the table presents some summary statistics on the size of transatlantic M&A deals.

The empirical methodology involves regressing log differences of the dollar/euro rate (*XR*) on its past changes, the logarithm of current and lagged M&A deal volumes (*M*) and a set of other explanatory variables (*X*).[12] The applied specification differentiates M&A flows according to their direction. To distinguish the effect of the announcement of M&A deals from the effect of news about relevant macroeconomic variables that may arrive on the same day, an additional variable was included for each of the two economic areas to capture news about macroeconomic data releases. The chosen variable was the unanticipated component of announcements of the NAPM and Ifo indices, which are closely watched by forex market traders.[13] Finally, to control for day-of-the-week effects, dummies for each weekday were included among the explanatory variables.

$$\Delta logXR_t = \alpha_0 + \sum_{i=1}^{5} \alpha_{1,i} \Delta \log XR_{t-i} + \sum_{i=0}^{5} \left(\beta_{EUR,i} \log M_{t-i} + \beta_{US,i} \log M_{t-i} \right) + \sum_{i=0}^{5} \gamma_i X_i + \varepsilon_t$$

Statistical significance of announcement effects

The equation was estimated with data on daily spot exchange rates in New York at noon local time. Table 2 reports the main results. The coefficients of M&A flows into and out of the United States were found to have the correct signs. Thus, the announcement of a takeover of a US corporate by a European acquirer lifted the dollar vis-à-vis the euro, while the acquisition of a European target tended, on average, to support the euro. However, while the contemporaneous impact on the dollar/euro exchange rate of transatlantic M&A deals with a US target was found to be statistically significant at the 6% level, M&A flows into the euro area were not found to have any statistically significant exchange rate effects. In addition, the cumulative coefficients for the current

[12] Throughout the special feature, the dollar/euro exchange rate is defined in terms of dollars per euro.

[13] The number of macro variables was limited in order to avoid problems of near-collinearity that arise because of the large number of explanatory variables. Specifications with other variables did not change the main findings. For an analysis of the role of news about macroeconomic developments on the euro/dollar rate, see Galati and Ho (2001).

Estimates of the effect of M&A flows on the dollar/euro exchange rate

January 1999–September 2001

	Lag	Coefficient	t-stat	Sig level	Lag	Coefficient	t-stat	Sig level
M&A flows into euro area	0	0.118	1.23	0.22	0 to 5	0.346	1.55	0.12
M&A flows into United States	0	– 0.157	– 1.89	0.06	0 to 5	– 0.481	– 2.52	0.01
NAPM manufacturing	0	– 0.972	– 1.36	0.17	0 to 5	0.377	0.22	0.82
German Ifo	0	4.551	5.04	0.00	0 to 5	7.857	3.28	0.00

The dependent variable enters the regression equation in log difference form, M&A values enter in log levels, and news variables enter in their original form X_k. Coefficient = $\beta^* 10^3$. Adjusted R^2 = 0.09. Table 2

M&A volumes and five lags were highly statistically significant for M&A flows into the United States. The comparable effect of acquisitions of euro area targets by US companies, while having the correct sign, was again not statistically significant. The regression results suggest that the economic significance of the impact of M&A announcements is small on average. However, the estimated effect of very large deals on the euro/dollar rate can be sizeable.[14]

Seen together, these results suggest a degree of asymmetry in how announced M&A deals affected the dollar/euro market, and point to a degree of persistence of the effect of announcements of M&A deals with US target companies on the exchange rate.

Deal financing does not seem to matter ...

As a next step, the content of M&A announcements was investigated in more detail. M&A mechanics, as indicated above, suggest that the size of any announcement effect should depend on the deal's specifics, including deal size and financing. Using information on the cash/shares component of each deal in our data set, it was first tested whether the reaction of the exchange rate to M&A announcements depended on the type of payment, ie whether or not cash transfers were involved. To do this, the regression equation was augmented with two dummy variables (one for each direction of M&A flows) that took the value of one whenever a deal involved the exchange of cash and zero otherwise. As an alternative, a second specification included interaction variables that took values equal to the amount of the deal whenever there was a transfer of cash and zero otherwise. Empirical results for both specifications suggest that the choice of the means of payment on average did not affect the impact of M&As on the dollar/euro rate in a statistically significant way.[15]

[14] Table 2 suggests that $1 billion worth of transatlantic M&A deals involving US targets imply a 0.11% appreciation of the dollar vis-à-vis the euro. Deutsche Telekom's offer for VoiceStream, worth $46.5 billion on the day of announcement, thus implies a dollar appreciation of 0.169% – corresponding to the 0.17% change in the dollar/euro rate observed on 24 July 2000.

[15] The results are not reported here for reasons of space, but are consistent with those in Breedon and Fornasari (2000), who find non-cash deals to affect the exchange rate, although their effect is not statistically significant.

Estimates of the effect of M&A flows on the dollar/euro exchange rate

September 2000–September 2001

	Lag	Coefficient	t-stat	Sig level	Lag	Coefficient	t-stat	Sig level
M&A flows into euro area	0	0.494	2.85	0.00	0 to 5	1.089	2.63	0.01
M&A flows into United States	0	– 0.483	– 3.23	0.00	0 to 5	– 0.616	– 1.45	0.15
NAPM manufacturing	0	– 2.159	– 1.94	0.05	0 to 5	3.699	1.08	0.28
German Ifo	0	1.595	0.93	0.35	0 to 5	9.007	2.25	0.02

The dependent variable enters the regression equation in log difference form, M&A values enter in log levels, and news variables enter in their original form X_k. Coefficient = $\beta^* 10^3$. Adjusted $R^2 = 0.18$. Table 3

... nor do megadeals have any additional impact

In addition, it was tested whether the impact of transatlantic M&A deals varied according to the size of the transaction, that is, whether so-called megadeals generated any additional effect. To this end, another augmented regression was estimated, with dummy variables for each direction of M&A flows that took values equal to one whenever the amount of the deal exceeded $1 billion and zero otherwise.[16] In an alternative setup, interaction variables were used. Here too, neither specification produced evidence in favour of statistically significant size effects.

Finally, it was investigated whether the impact of news on M&A flows changed at the end of 2000, when net cross-border flows into the United States declined markedly.[17] As Chow tests pointed to the existence of a structural break at end-August 2000, the main regression equations were re-estimated for the period from September 2000 to end-September 2001. The results, presented in Table 3, suggest that, in contrast to the whole period January 1999–September 2001, news about acquisitions of euro area companies by US firms on average had a positive, statistically significant impact on the euro vis-à-vis the dollar over that sub-period.

Conclusion

This special feature investigated the extent to which announcements of transatlantic M&A deals are associated with movements in the dollar/euro spot exchange rate over the period January 1999–September 2001. It was found that announcements of M&A deals that involved the acquisition of a US target by a euro area company did indeed have a statistically significant impact on exchange rates and that the size of this impact was independent of the financing of the deal. Deals involving euro area targets, however, were not found to have a statistically significant impact on the exchange rate. In addition, there were no indications of added effects for so-called megadeals.

[16] The findings are robust to thresholds of $2 or 5 billion. The results are not reported here for reasons of space but are available upon request from the authors.

[17] See *Economist* (2001).

The strong net M&A inflows from the euro area to the United States are therefore consistent with the downward trend of the euro vis-à-vis the dollar.

These results are taken to imply that announcement effects do not seem to fully reflect the specifics, ie financing, of any given individual deal. That is, announcement effects do not necessarily reflect traders' reaction to the anticipated FX flows generated by individual deals. The absence of statistically significant size and financing effects rather seems to suggest that the exchange rate reaction to an M&A announcement might be driven by the level of cumulative net flows, ie market perception as to the general trend of M&A flows. This might be taken as evidence for the existence of signalling effects, where the announcement of an M&A deal is seen as an indicator of the relative strength of growth prospects in the two economies involved in the deal and, thus, future M&A activity. This interpretation of the announcement effect is also supported by the finding that news about acquisitions of euro area companies by US acquirers started to support the euro towards the end of 2000, effectively putting an end to the previous asymmetry in the reaction of the exchange rate to announced deals with European as opposed to US targets.

Overall, it is concluded that cross-border M&A activity supported the strengthening of the dollar between 1999 and 2000. However, it is also noted that the pace of M&A activity has slowed markedly, beginning in the fourth quarter of 2000. Average monthly net volumes of newly announced transatlantic M&A transactions slumped, according to the data set used, to $1.8 billion over the first three quarters of 2001, down from about $10.5 billion per month in 2000. This is taken as indicative of a change in the relative strength of growth prospects in the two economies involved, which might, in turn, have weighed negatively on the dollar.

References

Bank for International Settlements (2001a): *71st Annual Report*, Basel, June, pp 81-100.

Bank for International Settlements (2001b): *Central bank survey of foreign exchange and derivatives market activity in April 2001: preliminary global data*, Basel, October.

Breedon, F and F Fornasari (2000): "FX impact of cross-border M&A", Lehman Brothers, *Global Economics Research Series*, April.

Economist (2000): "Bouncing back", 2 November.

Economist (2001): "The great merger wave breaks", 25 January.

European Central Bank (2001): "Euro area balance of payments", *ECB Statistical Press Release*, 30 July.

Financial Times (2000): "Deutsche Telekom and VoiceStream approve $50bn deal", 24 July.

Financial Times (2001): "Deutsche Telekom deals give big US presence", 1 June.

Galati, G and C Ho (2001): "The effect of macro news on the euro/dollar exchange rate", *BIS Working Papers* (forthcoming).

Montgomery, J, A Freiheit-Kinch and R McCaughrin (2001): *Global linkages: cross-border M&A prospects*, Morgan Stanley Dean Witter, Global Equity Research, July.

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Structural and regulatory developments

Initiatives and reports concerning financial institutions

July

BCBS publishes industry submissions on New Capital Accord

The Basel Committee on Banking Supervision (BCBS) published on the BIS website all the non-confidential submissions made by the financial industry on its January 2001 proposals for a New Basel Capital Accord.[1] Various working groups and committees of the BCBS are conducting an extensive review of the comments with the aim of refining the proposals.

BCBS publishes working paper on IRB treatment of expected losses and future margin income

The BCBS published a working paper prepared jointly by the Accounting Task Force and the Models Task Force on the internal ratings-based (IRB) treatment of expected losses and future margin income.[2] The IRB approach as outlined in the January 2001 consultative package involves calculating regulatory capital charges to cover both unexpected and expected credit losses in loan portfolios. Although a capital charge for unexpected losses (UL) is uncontroversial, the banking industry's reaction to a capital charge for expected losses (EL) has generally been negative. In its paper, the working group presents a pragmatic approach in which capital requirements would continue to be calibrated towards the sum of UL and EL, albeit in combination with a recognition of provisions actually made and, for the retail portfolio, also of future margin income.

European Commission launches new consultation on capital adequacy

The European Commission launched a round of consultation with the banking industry concerning the application of new capital adequacy rules.[3] In the first few months of 2002, in parallel with the consultation organised by the BCBS, the Commission will publish a document setting out the details of how the new capital adequacy regime should be applied in the framework of EU law.

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1 See www.bis.org/bcbs/index.htm. In addition, the box on pages 61-2 of the March 2001 issue of the *BIS Quarterly Review* contains a summary of the proposals.

2 See *Working paper on the IRB treatment of expected losses and future margin income*, BCBS, Basel, July 2001. Available at www.bis.org.

3 See www.europa.eu.int.

August

BCBS publishes working paper on equity exposures

The BCBS published a working paper prepared by the Models Task Force on the IRB treatment of equity exposures in the banking book.[4] The paper develops a number of issues contained in a supporting document on the IRB approach published in January 2001, taking into account further discussions with industry participants.[5]

BCBS issues paper on internal audit

The BCBS issued a paper on internal audit in banking organisations and the relationship of the supervisory authorities with internal and external auditors.[6] The principles set forth in the paper, which are of general application, state that adequate internal controls within banking organisations must be supplemented by an effective internal audit function that independently evaluates internal control systems.

September

FSF discusses international financial issues at sixth meeting

The Financial Stability Forum (FSF) held its sixth meeting on 6-7 September 2001 in London. It reviewed how key financial systems and markets were responding to the world economic slowdown. Members generally considered that most major markets and financial institutions, which had earlier built up strong financial positions, had absorbed well the financial strains associated with the slowdown. In addition, many of the efforts made in recent years to strengthen the international financial system were helping to mitigate contagion effects. Nevertheless, the interaction of slower economic growth and possible financial vulnerabilities called for vigilance, as pressures tended to build over time. Members agreed that continued intense supervisory oversight and cooperation would be important. The FSF also discussed a range of other international financial issues, including those relating to accounting and provisioning at financial institutions, market dynamics and large and complex financial institutions. Moreover, participants highlighted a number of potential issues linked to the increased use of mechanisms for risk transfer, including across financial sectors, and looked forward to further exploration of the supervisory and systemic implications of these innovations. The FSF discussed the final reports of two working groups, one on incentives to foster the implementation of international standards for stronger financial systems and

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[4] See *Working paper on risk sensitive approaches for equity exposures in the banking book for IRB banks*, BCBS, Basel, August 2001. Available at www.bis.org.

[5] The document had set out key issues in developing capital approaches to equity exposures for banks implementing the IRB approach to credit risk, inviting feedback on ways of implementing market-based and probability-of-default/loss-given-default approaches to equity exposures.

[6] See *Internal audit in banks and the supervisor's relationship with auditors*, BCBS, Basel, August 2001. Available at www.bis.org.

the other on the provision of guidance for the development of effective deposit insurance systems.[7]

BCBS abandons plans for additional capital charge for residual risk ...

The Capital Group of the BCBS, which is responsible for the development of the standardised approach to capital adequacy and the treatment of credit risk mitigation techniques, released an update about work under way on the New Basel Capital Accord.[8] Following an analysis of comments received from the financial industry, the group announced that it was abandoning plans to impose an additional capital charge on collateral, credit derivatives and bank guarantees. Under the original blueprint for a New Capital Accord, the BCBS had envisaged the imposition of a 15% charge (the so-called "W" factor), meaning that such instruments would have received an 85% recognition for credit risk mitigation. The imposition of such a charge was to account for residual risks arising from the possibility that the process by which credit protection was realised might not function as the protection buyer expected. The Capital Group said that the most effective way forward would be to treat this residual risk under the proposed framework's second pillar (ie the supervisory review process) rather than under the first pillar (ie minimum capital risk requirements).[9]

... and proposes reduction in capital charge for operational risk

The Risk Management Group of the BCBS released a working paper on the regulatory treatment of operational risk.[10] The paper contains an overview of the Group's work, which refines proposals for a minimum regulatory capital requirement for operational risk under the first pillar. This work has resulted in a number of significant changes to the January 2001 proposals, including a reduction in the overall level of the operational risk charge, an extension of the "internal measurement approach" to include a variety of advanced measurement techniques and a consideration of the role of insurance as a risk mitigant. Concerning the first element, a review of the data submitted by banks has led the BCBS to propose a reduction in the minimum capital charge from 20% to 12%. The BCBS believes that this lower level would produce capital amounts more in line with the operational risks actually faced by large and complex banking organisations.

BCBS publishes new set of disclosure requirements

The Transparency Group of the BCBS published a revised set of disclosure requirements under the third pillar of the New Basel Capital

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[7] See *Final Report of the FSF Follow-Up Group on Incentives to Foster Implementation of Standards*, and *Guidance for developing effective deposit insurance systems*, FSF, Basel, September 2001. Both reports are available on the FSF website at www.fsforum.org. A special feature discussing international standards was published in the March 2001 issue of the *BIS Quarterly Review*.

[8] See *Update on work on the New Basel Capital Accord – Basel Committee Newsletter no 2*, Basel, September 2001. Available at www.bis.org.

[9] The New Basel Capital Accord is based around three complementary elements or "pillars". Pillar 3 recognises that market discipline has the potential to reinforce minimum capital standards (Pillar 1) and the supervisory review process (Pillar 2).

[10] See *Working paper on the regulatory treatment of operational risk*, BCBS, Basel, September 2001. Available at www.bis.org.

Accord.[11] The new proposals, which are grouped in three broad categories (scope of application of the Accord, capital adequacy, and risk exposure and assessment), significantly reduce the amount of disclosure relative to the document published in January 2001.

Initiatives and reports concerning financial markets and their infrastructure

July

European Commission launches ISD consultation

The European Commission launched an open consultation on potential adjustments to the Investment Services Directive (ISD). The three-month consultation period was driven by the need to clarify and amplify existing provisions, guarantee a homogeneous and high level of protection for investors and reinforce existing ISD provisions. The ISD, which came into force in 1996, introduced a "single licence" for investment firms and regulated markets. Although it did much to create an EU-wide level playing field, further harmonisation is required to reach a fully integrated securities market. This was the second open consultation undertaken by the Commission since the publication of the Lamfalussy Report in February 2001 (see the box on page 69 of the June issue of the *BIS Quarterly Review*).

European Parliament rejects directive on takeovers

The European Parliament rejected a proposed directive on common rules for takeovers in the European Union. The proposed legislation, introduced for the first time in 1989, would have guaranteed legal certainty for takeovers by setting minimum guidelines for corporate conduct. One of the objectives of the legislation was to ensure an adequate level of protection for minority shareholders throughout the European Union when control of a company changed hands.

ESF abandons plans for European central counterparty

The European Securities Forum (ESF), a grouping of leading investment banks, announced in a statement that it had made little progress with its plan to build a central counterparty and netting facility for all European equities. The ESF chairman noted that profound legal, regulatory, technological and commercial obstacles had made immediate progress towards a single European counterparty unlikely. In particular, the ESF said that taking the project forward would have required an injection of resources that banks were not prepared to make in the current climate. Moreover, the demutualisation of stock exchanges had also become an obstacle since a significant share of their revenues was now derived from their clearing and settlement activities.

The world's principal clearing organisations announced the formation of a new association, CCP 12, dedicated to improving global clearing, netting and central counterparty services. Member organisations identified a broad range of issues that they will informally try to address. These include improved information sharing, enhancement of collateral usage, development of

[11] See *Working paper on Pillar 3 – market discipline*, BCBS, Basel, September 2001. Available at www.bis.org.

collaborative opportunities and identification of minimum standards for risk management practices.

Financial institutions aim to ensure integrity of research

In the wake of guidelines issued by the Securities Industry Association in June 2001 (see page 69 of the September issue of the *BIS Quarterly Review*), two financial institutions announced measures aimed at ensuring the integrity of securities research. The measures, which impose a number of restrictions on the holding by analysts of stocks that they also cover, come in response to concerns that the work of analysts is subordinated to the need to win underwriting mandates or corporate finance business.

August

CTFC and SEC adopt joint rules on trading of security futures

The US Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC) adopted the first joint rules permitting the trading of security futures products in the United States. The rules, which implement provisions of the Commodity Futures Modernization Act of 2000, lift the 19-year ban on the trading of single stock and narrow-based stock index futures. They also establish a method for deciding whether an index is narrow- or broad-based. Futures on indices that are narrow-based are considered as security futures products and therefore regulated jointly by the CFTC and the SEC. Futures on broad-based indices are regulated solely by the CFTC.

September

FATF makes public its discussions on non-cooperative jurisdictions

The Financial Action Task Force on Money Laundering (FATF) made public the results of its discussions on "non-cooperative" jurisdictions since the publication of its second report on non-cooperative countries and territories (NCCTs) in June 2001.[12] The FATF announced that sanctions on Russia would not be necessary following passage by that country of legislation addressing deficiencies in the fight against money laundering but that effective implementation of the new legislation would be required for a removal of the country from the list of NCCTs. However, it noted that countermeasures would be taken against Nauru if it did not remedy deficiencies in its legislation and against the Philippines if it did not adopt adequate legislation. Lastly, the FATF added Grenada and Ukraine to the list of NCCTs because of their failure to implement comprehensive money laundering legislation.

CFTC and SEC propose margin rules for security futures

The CFTC and SEC proposed rules on the implementation of further provisions of the Commodity Futures Modernization Act of 2000. The rules govern the collection of customer margins for security futures and eliminate duplicative and conflicting regulations relating to the protection of customer property.

[12] The FATF is an independent international body and its secretariat is housed at the OECD. More information is available at www.fatf-gafi.org.

Fight against money laundering intensifies following the 11 September attacks

In the wake of the terrorist attacks that took place against targets in New York and Washington on 11 September, the US and other governments took a number of measures aimed at identifying the sources of funding used to underwrite such attacks and at dismantling the financial infrastructure of suspected terrorist groups.

The President of the United States signed an Executive Order under the authority of various statutes, including the International Emergency Economic Powers Act, blocking the US assets of terrorist organisations, specific individuals and certain charitable, humanitarian and business organisations that finance or support terrorism. The US assets of any foreign financial institution that provides services to the designated organisations or individuals anywhere in the world could be frozen.

Recent legislation also gives the US government greater law enforcement powers to prevent terrorism financing, such as expanded wire-tapping and asset seizure authority. The legislation provides the government with the authority to mandate increased reporting and record-keeping by financial institutions. Moreover, it imposes heightened due diligence requirements when dealing with institutions or accounts that could be used to conceal transactions connected with terrorist activities.

The US government also took steps to secure international cooperation in the freezing of terrorism-linked accounts in other jurisdictions. Following such steps, many countries in the industrialised and developing world announced plans to block the assets of terrorists and their associates. Of note, the G7 finance ministers issued a statement stressing the importance of a more vigorous implementation of UN sanctions on terrorism financing and called on the FATF to encompass such financing in its activities. At an extraordinary plenary session at the end of October, the FATF expanded its mission beyond money laundering and issued a number of new recommendations aimed at countering the financing of terrorism.

The Department of the Treasury, in consultation with the Department of Justice, announced the implementation of the 2001 Money Laundering Strategy, a comprehensive plan that will focus on the prosecution of major money laundering organisations and terrorist groups moving funds into the United States for illicit or terrorist purposes. The strategy calls inter alia for the organisation of two new specialised money laundering task forces located in Chicago and San Francisco. The US Treasury also established the Foreign Terrorist Asset Tracking Center, a unit that will be dedicated to the identification and curtailment of the financial infrastructure of terrorist organisations worldwide.

Chronology of major structural and regulatory developments

Month	Body	Initiative
July 2001	Basel Committee on Banking Supervision	Publishes on its website submissions by the financial industry on the January 2001 proposals for a New Basel Capital Accord
	Joint Accounting Task Force and Models Task Force of the BCBS	Publish a working paper on the internal ratings-based treatment of expected losses and future margin income
	European Commission	Launches a new round of consultation on the application of new capital adequacy rules
	European Commission	Launches an open consultation on adjustments to the Investment Services Directive
	European Parliament	Rejects a proposed directive on common rules for takeovers in the European Union
	European Securities Forum	Announces that it has made little progress with its plans to build a European central counterparty and netting facility for European equities
	Major clearing organisations	Announce the formation of CCP 12 to improve global clearing, netting and CCP services
	Private financial institutions	Announce measures aimed at ensuring the integrity of securities research
August 2001	Models Task Force of the BCBS	Publishes a working paper on the internal ratings-based treatment of equity exposures in the banking book
	Basel Committee on Banking Supervision	Issues a paper on internal audit in banking organisations
	US Commodity Futures Trading Commission and Securities and Exchange Commission	Adopt the first joint rules on US security futures products
September 2001	Financial Stability Forum	Holds its sixth meeting in London
	Capital Group of the BCBS	Releases an update about work under way on the New Basel Capital Accord
	Risk Management Group of the BCBS	Publishes a working paper on the regulatory treatment of operational risk
	Transparency Group of the BCBS	Publishes a revised set of disclosure requirements
	Financial Action Task Force on Money Laundering	Makes public the results of its discussions on "non-cooperative" jurisdictions
	US Commodity Futures Trading Commission and Securities and Exchange Commission	Publish proposed rules on the implementation of provisions of the Commodity Futures Modernization Act of 2000