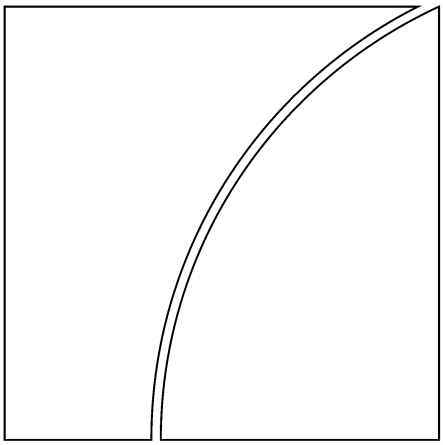
BANK FOR INTERNATIONAL SETTLEMENTS

BIS Quarterly Review

September 2002



International banking and financial market developments

BIS Quarterly Review
Monetary and Economic Department

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Special features

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: loss of confidence deepens and spreads

In the second quarter of 2002 and early in the third, global financial markets were buffeted by a series of disconcerting events that undermined investor confidence. The most significant event was a financial restatement in late June by WorldCom, a major US telecommunications firm. It was apparently the fear of more widespread corporate problems that deepened a slump in equity markets in July in both the United States and Europe. The negative sentiment even spilled over into the once resilient corporate bond market, where issuance slowed as credit spreads widened. In August, an absence of further bad news seemed to restore a degree of confidence. There were signs that investors were returning to the equity and corporate bond markets.

The financial sector did not fare as well in this latest bout of market weakness as it did in previous episodes. In July, share prices of European insurers fell below the levels reached in the wake of 11 September 2001. Banks in Europe and finance companies in the United States not only lost market value but also saw the credit spreads on their debt widen. For a time, even swap spreads began to reflect the concern of market participants over the counterparty risk of dealing with large US money centre banks. These developments threatened to constrain financial intermediation, possibly adding to the difficulties of non-financial firms in raising money.

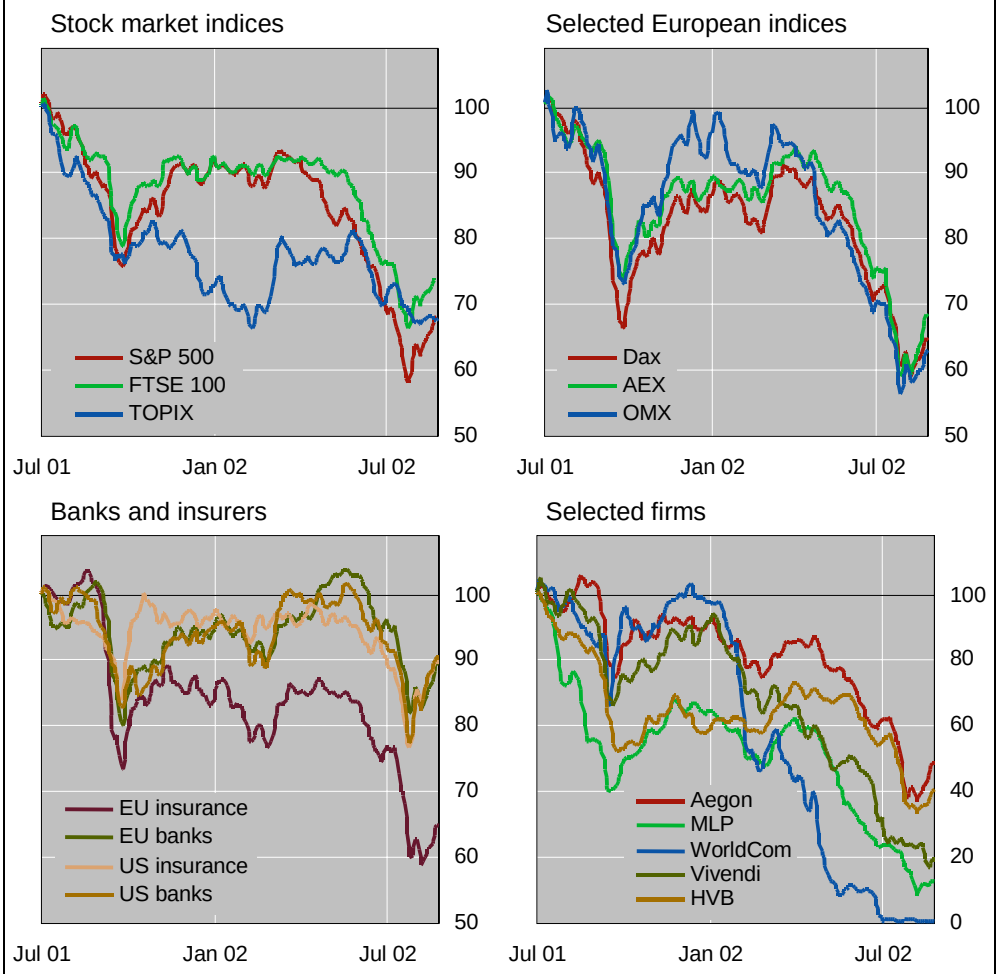
Several emerging market countries found their domestic economic and political problems exacerbated by the global rise in risk aversion. Investors punished most those countries for which questions about the sustainability of debt burdens coincided with political uncertainty. At the same time, sovereign debt spreads tended to widen with those on low-rated corporate bonds. Nonetheless, while bond issuance by emerging market borrowers slowed in July, the stronger credits among them maintained access to the market.

Equity markets slump in crisis of confidence

Just when market participants seemed to be getting over the accounting revelations surrounding the collapse of Enron, investor confidence suffered a series of blows from a diverse set of disconcerting events. In late May and early June 2002, warnings about further terrorist attacks and rising political

Equity markets

Beginning of July 2001 = 100, in common currency



Sources: Datastream; national data.

Graph 1.1

tensions between India and Pakistan led to a sell-off in equity markets in the United States and Europe (Graph 1.1). While the Tokyo market escaped the price declines in May, reports in June about investigations by US authorities of computer memory manufacturers adversely affected Japanese technology shares and served as one of the events that hitched the market to its US and European counterparts. The most telling blow to investor confidence worldwide appeared to be a $3.8 billion financial restatement on 25 June by WorldCom, a large US telecommunications company. Within days, the US copier maker Xerox also restated its financial reports, while a French newspaper alleged that the media company Vivendi Universal had tried to inflate profits.

Company's restatement is the biggest blow to confidence

These various events set global equity markets on their steepest two-month decline since September 2001. Between 21 May and 23 July, the S&P 500 fell in local currency terms by 26%, the FTSE 100 by 26%, the Dax by 30% and the TOPIX by 11%. By the end of that period, prices in the US equity market had sunk to levels last seen in April 1997. The appreciation of the euro during the period made the losses from US stocks to euro area-based investors even greater. Nonetheless, the loss of confidence did not turn into panic.

Investors continued to differentiate between sectors, inflicting the greatest punishment on the telecommunications sector.

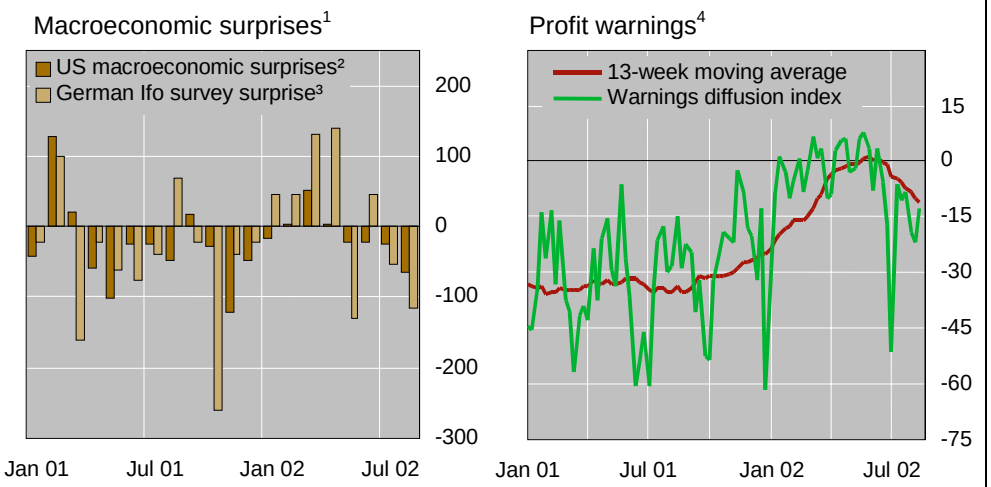
US and European investors react to a common fear

The equity market plunge in July was notable for the degree to which investors in European markets seemed to react in concert with those in US markets to what might have appeared to be largely US accounting events. For both classes of investors, the immediate reaction to the WorldCom restatement on 25 June was not particularly dramatic. In both cases, the steepest market declines took place on certain trading days between 10 July and 23 July, a period when the S&P 500 decreased by 13% and the Dax by 16%, and two other markets in Europe by even more: the Dutch AEX by 19% and the Swedish OMX by 17% (Graph 1.1). In July, unpleasant surprises did emerge about some European firms, including reports of large loan losses at the German bank HVB and a profit warning by the Dutch insurer Aegon. The day-to-day market movements would suggest that the loss of confidence by both American and European investors reflected a common fear of more widespread corporate problems. Each piece of bad news served to reinforce this fear, whether the news was about a US firm or a European one.

The financial sector is hit hard

A significant aspect of the July episode was the fact that to a greater extent than before share prices indicated a loss of confidence in the financial sector. Without having fully recovered from claims arising from the 11 September terrorist attacks, share prices of European insurers fell below the levels reached in the wake of the attacks. This time, the losses came from the assets side of their balance sheets, with returns on their equity and corporate bond investments turning negative. Indeed, stop-loss selling by these insurers as solvency limits were reached reportedly contributed to the wider market declines. Banks in both Europe and the United States also suffered

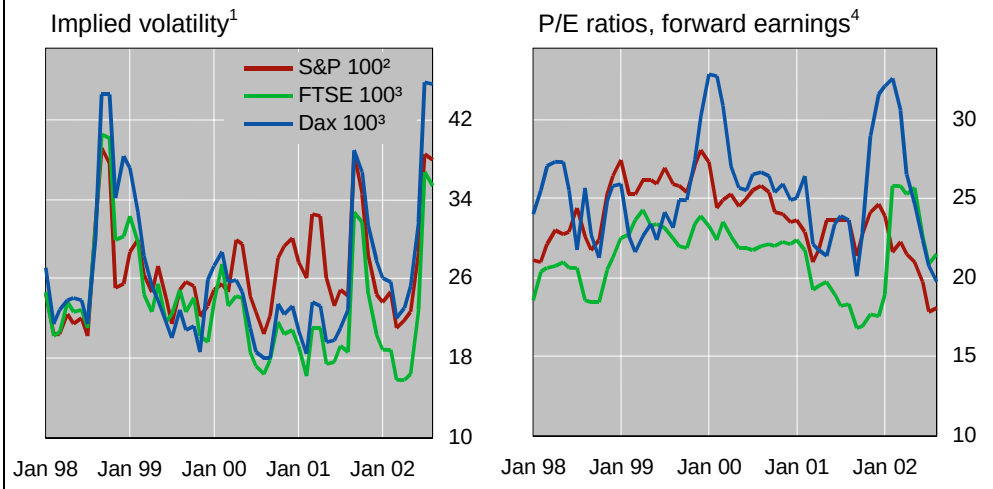
Closely watched public information



[1] Normalised announcement surprises (with unit variances), based on the difference between released numbers and consensus forecasts. [2] Weighted sum of normalised surprises of ISM survey, non-farm payroll, retail sales, producer price and consumer price announcements. [3] The German Ifo survey is a business climate index derived by the Institut für Wirtschaftsforschung from survey responses. [4] Number of positive minus negative warnings as a percentage of number of positive plus negative profit warnings.

Sources: Bloomberg; BIS calculations. Graph 1.2

Volatility and valuations



[1] Monthly averages. [2] Based on implied volatility of S&P 100 (VIX) options. [3] Based on implied volatility of index call options. [4] For the United States, based on the S&P 500.

Sources: Chicago Board Options Exchange; Bloomberg; BIS calculations. Graph 1.3

considerable losses in market capitalisation (Graph 1.1), in part because of their exposures to Argentina and large corporate defaults. Among US banks, Citigroup and JP Morgan Chase saw their share prices drop in late July when they were called to testify before the US Congress about whether they had played a role in disguising Enron's debt.

US and European markets recover in August

In August, equity markets began to recover, albeit in a tentative fashion. At first, the markets slid as participants turned their attention back to data on the economy and corporate earnings. The data were less than encouraging. In particular, the US non-farm payrolls figure released on 2 August portrayed a surprisingly weak economy (Graph 1.2). The number of negative profit warnings had also started to rise again. The lack of further bad news during the rest of the month, however, seemed to bring reassurance. Investors also apparently took comfort from the swift action by business leaders, legislators and policymakers on the issue of corporate governance (see the box on the Sarbanes-Oxley Act on page 11). Significantly, 14 August – the date by which executives of the largest US publicly listed firms had to certify their financial statements – passed without incident. Between 24 July and 23 August, in terms of the euro, the S&P 500 rose by 14% and the Dax by 5%.

By August, valuations in terms of forecasted earnings had returned to ranges closer to historical averages. In June and July, these lower valuations had been driven largely by increases in the equity risk premium, which were also reflected in the heightened volatilities implied by prices of equity index options (Graph 1.3). Revisions in expectations about future earnings growth seemed to play less of a role in these valuation adjustments. To the extent that uncertainty about corporate accounting continues to subside, the risk premium is likely to decline and valuations to recover. However, for the S&P 500, for example, the one-year-ahead earnings estimates remain 50% above current earnings. It remains to be seen whether valuations will further adjust to changes in expectations about earnings growth.

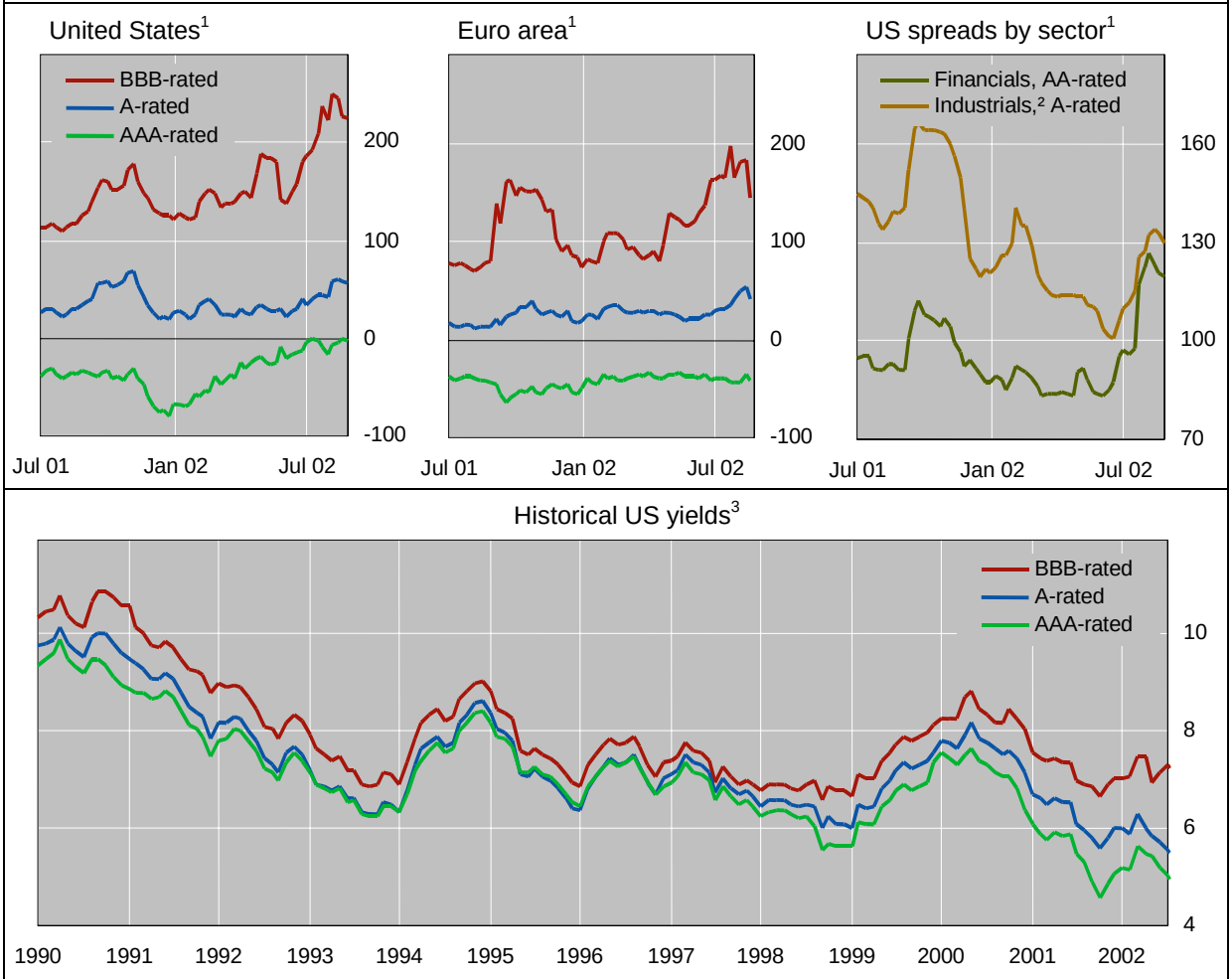
The corporate bond market also succumbs

The once resilient corporate bond market joined the equity market in succumbing to a loss of confidence. For most of 2001 and early 2002, the corporate bond market had been the bright spot of the global financial system. Corporations unable to raise funds from banks or in equity and commercial paper markets had been able to tap the bond market, where investors had appeared unfazed by rising default rates and an increasing frequency of rating downgrades. Spreads on investment grade corporate bonds had largely narrowed over the period, even as equity markets had continued their descent.

The price of credit risk rises sharply in July ...

The tone, however, began to change in February 2002, first with the revelations surrounding the collapse of Enron, and then more dramatically in July following the corporate governance improprieties noted above. In the US dollar market, spreads of triple-B rated bonds over swaps widened by 57 basis points from February to June 2002 and shot up a further 35 basis points in July alone (Graph 1.4). As indicated in "The international debt securities market" on page 23, international issuance of corporate bonds by US residents slackened

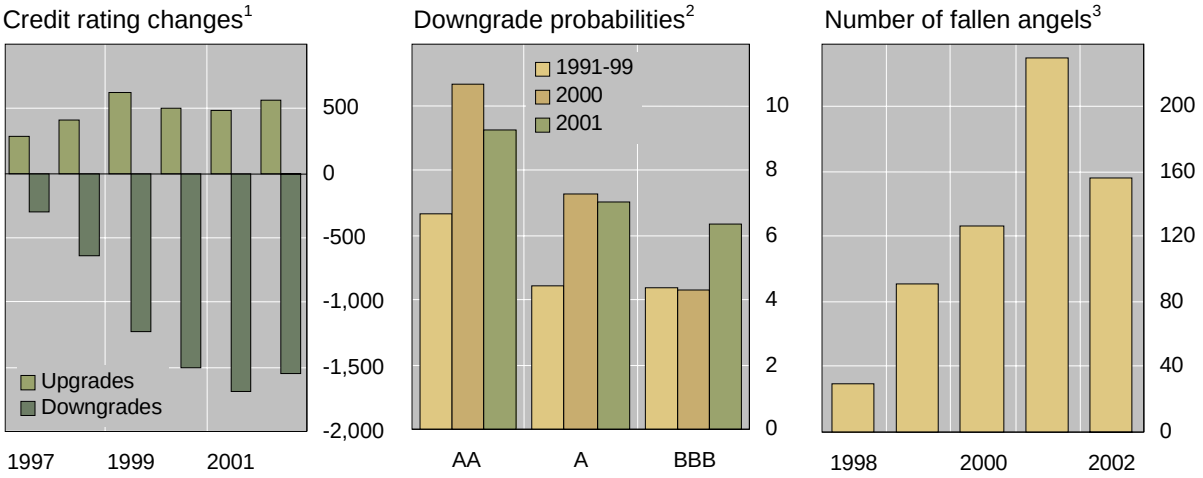
Corporate bond spreads and US yields



[1] Bond index yields against 10-year swap rates. End-week data, in basis points. [2] Corporate industrials, excluding technology bonds. [3] In percentages.

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

Credit ratings and downgrade risk



[1] Number of companies that underwent a credit rating change during the year; 2002 estimate is based on annualised data up to June. [2] Probability, in percentages, of a downgrade within a year; includes all issues covered by Standard & Poor's CreditPro. [3] Number of issues falling below investment grade; 2002 estimate is based on annualised data for the first quarter.

Sources: Standard & Poor's; Moody's; Bloomberg; CSFB. Graph 1.5

significantly during June and July. Corporate bond spreads for Europe, which had begun to rise gradually early in the year, also widened sharply in July, though the slowdown in issuance was less pronounced. As in the equity markets, August brought signs of a return of confidence, and the consequent narrowing of spreads promptly attracted borrowers back to the market.

... even with fewer downgrades

Ironically, corporate spreads started to widen at a time when the incidence of credit rating downgrades had begun to subside. The number of companies affected by debt downgrades from rating agencies had reached its peak in 2001 (Graph 1.5). In fact, downgrades by then tended to be concentrated in triple-B rated debt. Such downgrades had led to an unusual number of "fallen angels", debt issues that have lost their investment grade status. Until mid-2002, the risk appetite of investors in the corporate bond market had seemed largely unaffected by the losses from such downgrades. When triple-B spreads widened in June, the number of new fallen angels was apparently already declining. Investors in the market were evidently responding more to the general concerns about corporate governance that were weighing heavily on the equity markets than to downgrades and defaults.

Credit concerns spread to financial firms

Significantly, large financial institutions were among those worst hit by credit concerns, and this came at a time when the stock market was also weakening their equity capital. Throughout 2001 and early 2002, investors had focused credit concerns on telecommunications firms in both Europe and the United States. In mid-2002, however, they increasingly turned their attention to insurance companies and large banks. In Europe, some of these financial firms revealed surprisingly heavy losses on equity and corporate bond holdings. In the United States, investors were surprised by the exposure of banks to large bankruptcies. As a consequence, by July 2002 credit spreads on double-A rated financial institutions had become nearly as wide as those on single-A rated industrial firms (Graph 1.4). Since financial firms operate with high

leverage and compete on the basis of narrow interest margins, the higher cost of funds following a downgrade can weaken their ability to profitably intermediate credit. In the past, downgraded US finance companies would try to recover their credit ratings by raising equity capital. This avenue, however, has recently been closed to them.

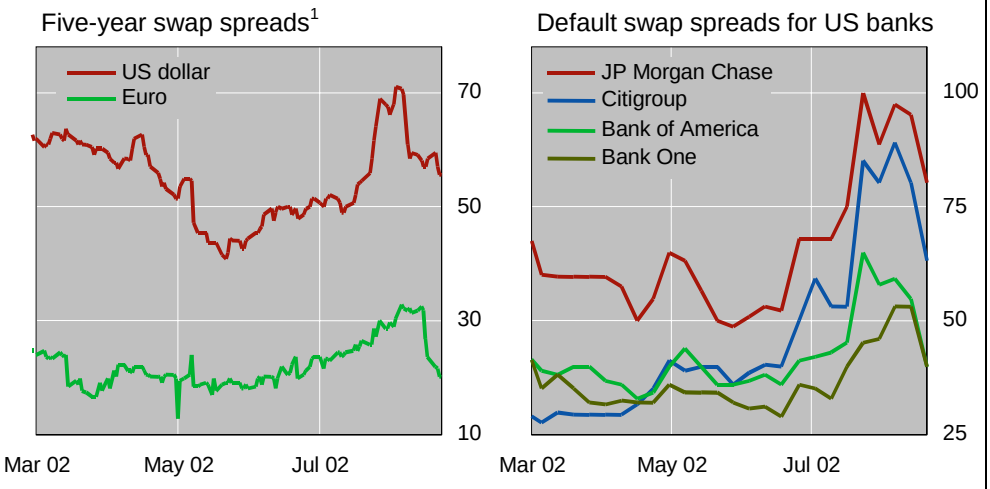
Counterparty risk returns

For a brief period, counterparty risk became a significant concern in the swap market. Spreads of US dollar swap yields over US Treasury yields widened sharply to reflect a perception of heightened risk in dealing with major US derivatives dealers. Such spreads had also widened in August and September 1999, but this had been driven largely by temporary liquidity pressures induced by a shift in hedging activity from US Treasury securities to swaps. During the fourth week of July 2002, five-year US dollar swap spreads widened by 20 basis points (Graph 1.6), a move that coincided with an intensification of investigations by the US Congress, Securities and Exchange Commission and Justice Department into the role of financial institutions in the financial dealings of Enron. Spreads on credit default swaps for US money centre banks rose during the same period, with those for the two banks under investigation widening the most. By August, swap spreads had returned to previous levels, although some default spreads remained relatively wide.

Even the ABCP market slows

Adding to the difficulties faced by borrowers in the corporate bond market, the market for asset-backed commercial paper (ABCP), which had been one of the last remaining resilient credit markets, began to shrink for the first time since its inception. The traditional CP market had already been contracting since 2001; downgrades and reluctance by banks to provide backup liquidity facilities had made borrowing difficult for firms with less than A1/P1 short-term debt ratings. As a market for collateralised instruments, the ABCP market had been immune to credit concerns. In 2002, however, moves by the US Financial

Swap spreads and bank credit spreads



[1] Against government yields, in basis points.

Sources: Datastream; Deutsche Bank.

Graph 1.6

Accounting Standards Board to change the accounting consolidation rules for special purpose vehicles discouraged the major sponsors of ABCP from increasing the deals they undertook.

Risk aversion spreads to investors in emerging economies

Emerging markets are shaken by local events and risk aversion

In tandem with the increase in spreads on US non-investment grade corporate bonds, sovereign spreads on emerging market debt rose markedly in June and July (Graph 1.7). Financial markets in several emerging market economies, most notably Brazil, were shaken by a combination of local events and increasing risk aversion among global investors. In Brazil and Turkey, political uncertainty coupled with mounting concerns over the sustainability of debt burdens weighed heavily on asset prices and the value of the currency. A banking crisis in Uruguay was precipitated by capital outflows as liquidity-constrained Argentines withdrew savings from their neighbour country's banks. The effect of these events was to raise risk premia throughout emerging markets, in particular among those countries with large fiscal deficits or heavy debt servicing requirements. Nevertheless, for many strong or improving credits, borrowing conditions remained favourable because wider spreads were offset by lower US dollar and euro yields.

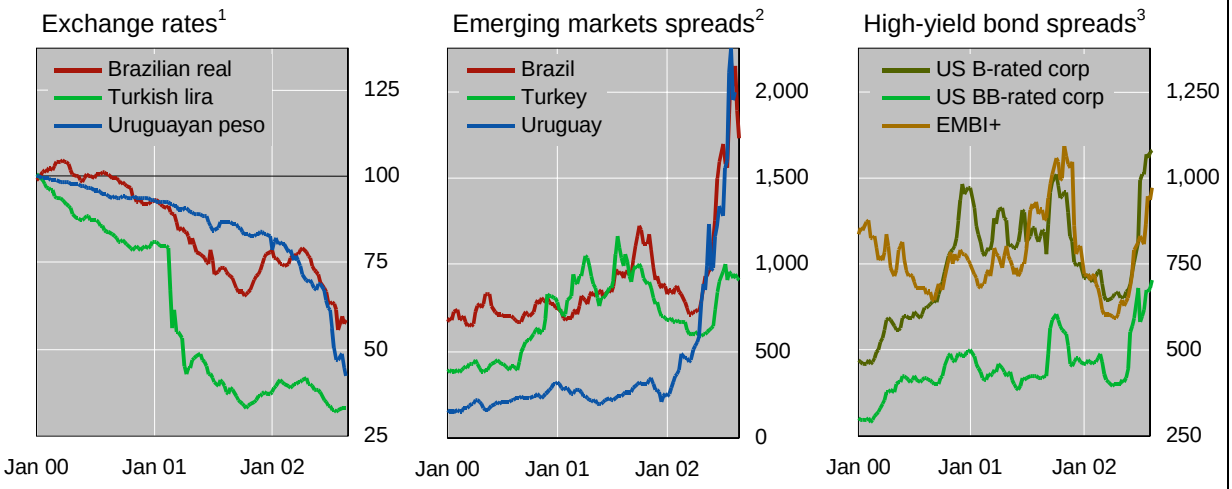
Unease over the health of Turkey's prime minister and the abrupt resignation of several senior cabinet ministers led to a flight from Turkish assets in June and early July. The exchange value of the Turkish lira fell almost 15% over the period and the country's sovereign spread on its dollar-denominated debt rose by over 400 basis points to nearly 11%. A political compromise stabilised the current government, at least until elections in November, and a disbursement of promised IMF funds then stabilised the lira and Turkish debt prices.

Investors worry about Brazilian elections

Uncertainty over the upcoming presidential election in Brazil and the sustainability of the country's fiscal deficits brought Brazilian assets under similar pressure, but structural features of Brazil's sovereign debt worsened the problem. Investors started selling off Brazilian assets as the governing coalition's presidential candidate lost ground to candidates from other parties in national opinion polls. The sell-off forced down the exchange value of the Brazilian real and put upward pressure on the rates at which the government could refinance its domestic debt. With a large portion of the country's domestic debt indexed to the exchange value of the real, the size of the country's sovereign debt and servicing burden increased rapidly. A vicious circle soon developed, with the real losing half its value from mid-April to late July. The sovereign spread on Brazil's dollar-denominated debt nearly quadrupled over this period, to almost 2,400 basis points.

The announcement of an IMF loan package with a headline value of $30 billion brought some temporary respite to Brazil in early August. However, the back-loaded nature of the package and market scepticism over the ability of any of the current presidential candidates to meet its fiscal terms quickly reversed much of the post-announcement gains. Adding to the renewed

Emerging markets



[1] End-December 1999 = 100. An increase represents an appreciation of the local currency against the US dollar. [2] In basis points; weighted spread of sovereign debt instruments of emerging markets over US Treasury notes as calculated by JP Morgan Chase. For Uruguay, stripped spread of a sovereign Uruguayan bond. [3] In basis points; against five-year US Treasury notes for the US corporate bonds.

Sources: Merrill Lynch; JP Morgan; Bloomberg; BIS calculations. Graph 1.7

pressure on Brazilian assets was a downgrade of its external credit rating by Moody's to B2, five notches below investment grade, a few days after the announcement of the IMF package. Towards the end of August, Brazilian spreads narrowed again on the back of growing support for the governing coalition's presidential candidate, the apparent stabilisation of the exchange rate and the global decline in risk aversion.

Contagion hits Uruguay

Neighbouring Uruguay was forced to close its banks in early August due to spillovers from events in Argentina. In June, Uruguay floated its currency as both the Argentine peso and Brazilian real tumbled to new lows. Uruguay's central bank reserves began to drop precipitously in July as Argentine depositors, unable to tap deposits in their own country, began to withdraw their savings from Uruguayan banks. Shortly thereafter, the United States made available an emergency $1.5 billion loan to be replaced by an IMF-led package.

Borrowing costs for higher-quality credits remain low

Reflecting the continued ability of investors to differentiate between emerging market borrowers, higher-quality credits were relatively less affected by contagion from Brazil. International bond and equity issuance out of non-Japan Asia was strong in the second quarter of 2002, boosted by the largest ever corporate bond from the region, a $2.7 billion issue by the Malaysian oil firm Petronas (see "The international debt securities market" on page 23). Issuance appears to have slowed early in the third quarter, but strong or improving credits maintained favourable access to international markets. While spreads widened modestly in July and August even for investment grade borrowers such as Korea, the large fall in US dollar and euro yields effectively reduced borrowing costs for many issuers. Moreover, markets were receptive to first-time issuers. Iran tapped the international bond market for the first time since the 1979 revolution, with the central bank raising €625 million at the end of July.

Yield curves indicate long-term optimism

Movements in yield curves indicated increased pessimism about the near-term prospects of the global economy. In June and July, while investors in the equity and corporate bond markets were focusing on event risk, investors who take positions on movements in yield curves continued to pay attention to data on the underlying economy. The data showed quite a reversal between the early months of the year and the summer months, turning high hopes for a strong recovery into concerns about a possible "double dip" in real activity. The data disappointments culminated in a weak preliminary US GDP estimate for the second quarter announced on 31 July and a surprisingly negligible US non-farm payrolls figure released on 2 August. While swap yield curves had remained relatively stable until mid-May, they shifted down significantly between then and mid-August (Graph 1.8). With investors watching US data more closely, the shift in the US dollar curve was more pronounced than that in the euro curve. Meanwhile, a lack of movement in the yen curve suggested largely unchanged expectations about the Japanese economy.

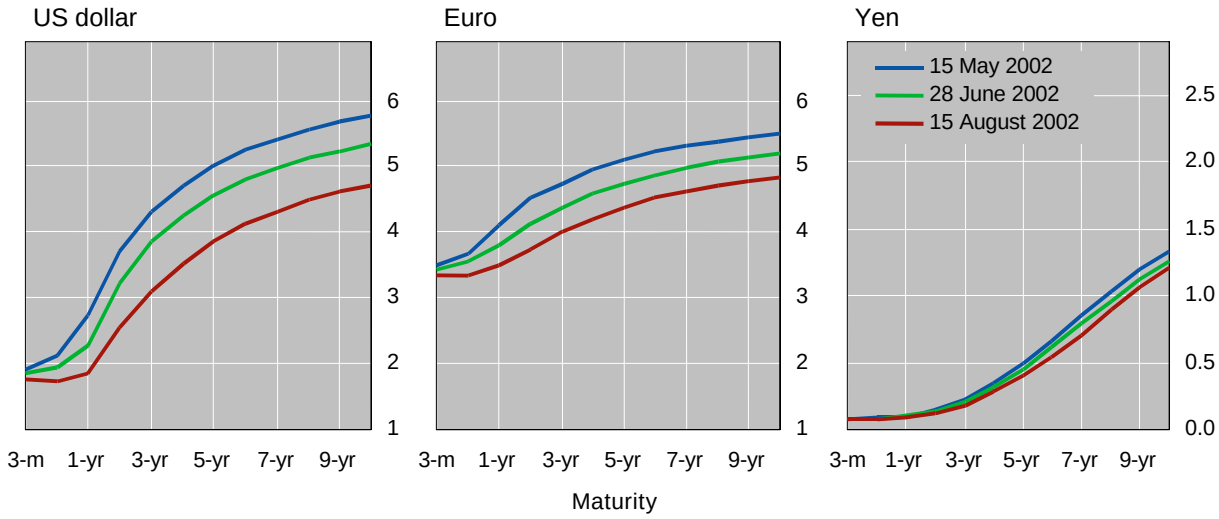
Yield curves shift down on disappointing data

The shapes of the US dollar and euro yield curves near the short end showed a reversal of expectations about monetary policy. Early in the year, relatively steep slopes at short maturities had indicated expectations of likely increases in policy rates. By August, these slopes had become unusually flat, pricing in expectations of monetary easing rather than tightening. The Federal Open Market Committee (FOMC) meeting on 13 August was an unusually anxiously awaited event for what it would reveal about the course of US monetary policy. In the event, the FOMC decided not to lower the policy rate just then. A day later, the yield on two-year US dollar swaps fell to 2.3%, its historically lowest point, with market participants seemingly convinced that the

Expected monetary easing flattens the curves at the short end ...

Yield curves for interest rate swaps

In percentages



Source: Bloomberg.

Graph 1.8

Federal Reserve would cut rates before the end of 2002. In Europe, the rising exchange value of the euro helped to allay market concerns that the ECB might raise rates in the near future.

... while longer-term optimism keeps them steep at longer maturities

Even as market participants became more sceptical about the chances for near-term economic recovery, they seemed to harbour optimism about longer-term prospects. The slopes of the US dollar and euro yield curves beyond the one-year maturity remained relatively steep. While a decline in long-term yields immediately after the FOMC meeting in August implied that market participants were initially disappointed at the lack of a rate cut, these yields rose sharply two days later to reflect a more positive assessment. As of mid-August, the differential between 10-year and one-year yields stood at 281 basis points for US dollar swaps and 135 basis points for euro swaps. The flatness of the curves near the short end and their steepness at longer maturities indicated a belief that the expected monetary easing would be sufficient to support a robust recovery down the road.

Keeping the record straight: the Sarbanes-Oxley Act of 2002

On 30 July, the Sarbanes-Oxley Act of 2002 was signed into law in the United States. The Act represents a response to the series of accounting irregularities that have shaken the confidence of investors in US stock markets. Its main objectives are to ensure the provision of timely and reliable corporate information to investors, to improve the accountability of corporate officers and to promote the independence of audit systems. The passage of the law recognises the importance of sound information about individual firms for the proper functioning of markets in the allocation of capital.[①]

The Act makes far-reaching changes to the existing legislation and introduces a number of new requirements that are applicable to the executive boards and managements of US public companies. It will have profound implications for companies listed on US markets and for a number of professions. The US Securities and Exchange Commission (SEC) will be responsible for enforcement of the new rules. This note summarises the main elements of the new law.[②]

Public disclosure. The Act emphasises that financial statements filed with the SEC will have to present fairly the financial condition and operational results of listed companies (including all material accounting adjustments made in accordance with Generally Accepted Accounting Principles (GAAP) and/or rules and regulations of the SEC). One of the most significant provisions requires the chief executive officer (CEO) and chief financial officer (CFO) to certify each annual and quarterly financial report filed with the SEC.[③] Their signatures will indicate that they have reviewed the report and that it presents fairly the financial conditions and operational results of the company and fully complies with the relevant provisions of the Securities Exchange Act of 1934. A new criminal law will subject to fines and/or imprisonment any CEO or CFO who knowingly certifies a non-complying or false report.

Regulation of trading and other activities by corporate officers and directors. Company insiders will now be required to report any changes in their ownership of their firms' shares within two business days of a transaction. Companies will also be prohibited, with limited exemptions, from lending company funds to any of their directors or executive officers.

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① See Chapter VI in Bank for International Settlements, *72nd Annual Report*, July 2002, Basel. ② This note draws in part on the Wilmer, Cutler and Pickering newsletter *Corporate and Securities Law Developments*, 31 July 2002. ③ All of the 14,000 firms listed on US stock markets had until 29 August to certify their accounts.

Audit committees. The new legislation stipulates that the audit committees of companies should be comprised solely of independent members of the board (ie that such members should not accept any advisory or consulting fees or be affiliated with persons related to the companies). Moreover, the law will also require audit committees to have direct responsibility for the appointment and overseeing of auditors and for the establishment of procedures for receiving and dealing with complaints related to accounting (including anonymous employee submissions regarding questionable accounting matters). Audit committees will also have authority to hire independent counsel and advisers to carry out their duties.

Auditor independence and obligations. Auditing firms will have to comply with a number of obligations in order to be able to certify a company's financial statement. These include a prohibition on the provision to the audited firms of certain non-auditing services, such as bookkeeping, the design of financial information systems, actuarial services, investment advice and legal services. Moreover, the lead auditor will not be able to perform audit services for a given firm for more than five consecutive fiscal years.

New criminal penalties and strengthening of existing ones. The Act creates several new criminal offences that are penalised by fines and/or prison terms. These offences include the knowing or wilful certification of non-complying or inaccurate financial statements, fraud related to a public company's securities and the destruction or alteration of records with intent to impede any investigation by a federal government agency. The Act also increases existing penalties for corporate crimes and fraud. Moreover, corporate retaliation or harmful action against "whistleblowers" will become a crime punishable by imprisonment.

Other provisions of the Act. The Act also creates the Public Company Accounting Oversight Board (PCAOB), giving it extensive powers to set professional standards and regulate the conduct of audits by accounting firms, subject to ultimate SEC oversight. The PCAOB will also be charged with considering whether GAAP should be changed from a rules-based system to a principles-based one and will study several accounting-related topics, such as special purpose entities. The Act also directs the SEC to address conflicts of interest by security analysts.[4]

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[4] In May 2002, the SEC had already approved proposals made by the National Association of Securities Dealers and the New York Stock Exchange to address such conflicts. The new rules will require institutions to disclose both the distribution of their ratings (ie "buy", "sell" or "hold") and investment banking relationships with rated firms, and will ensure the segregation of their research and investment banking functions. The SEC may introduce additional rules after the completion of an enquiry on market practices.

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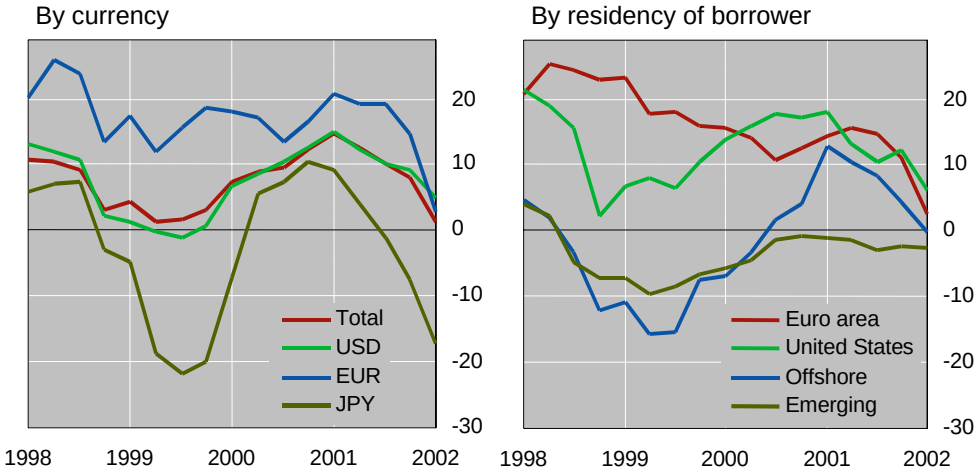
2. The international banking market

The slowdown in international banking activity evident throughout much of 2001 became more pronounced in the first quarter of 2002. Activity in virtually all segments of the international banking market was weak. Whereas a drop-off in credit to other banks had been largely responsible for the deceleration in cross-border banking activity during 2001, reductions in credit to banks' own foreign offices and non-bank borrowers exacerbated the slowdown in the first quarter. Subdued demand for bank credit appears to explain much of the slowdown, but a retrenchment of Japanese banks also made a significant contribution from the supply side.

With the exception of Latin America, aggregate lending to emerging markets was little affected by the global slowdown in credit growth. Banks broadly maintained their positions in Asia and Europe, even increasing them on selected countries. However, they reduced their claims on Latin America, especially Argentina. In addition, residents of Latin America and the Middle East repatriated funds placed abroad, resulting in the second successive quarter of net flows into emerging markets from banks in the reporting area.

Cross-border claims of BIS reporting banks

Annual percentage changes[1]

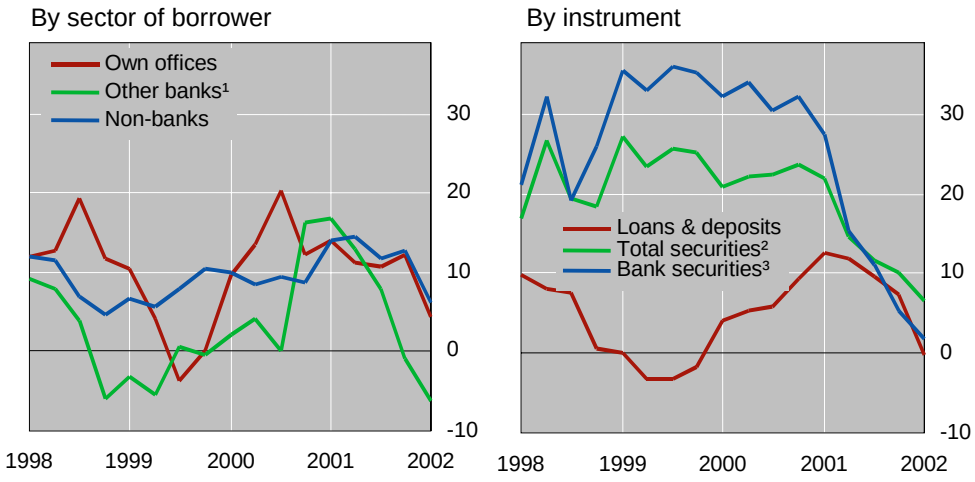


[1] Year-over-year changes in amounts outstanding, calculated as the sum of exchange rate adjusted changes in amounts outstanding between periods *t*–3 and *t*, divided by the amount outstanding in period *t*–4.

Graph 2.1

Cross-border claims of BIS reporting banks

Annual percentage changes



[1] Excluding claims on central banks and other official monetary authorities. [2] Mainly debt securities. [3] Banks' holdings of securities issued by banks' own foreign offices and other banks.

Graph 2.2

Cross-border credit to all sectors slows

Slowest growth rate of cross-border bank credit since mid-1999

The growth of cross-border bank credit fell to 1% year over year in the first quarter of 2002 from 8% in the fourth quarter of 2001 (Graph 2.1). This is the sharpest fall-off in growth since the end of 1998, and the slowest pace of expansion since mid-1999. In seasonally unadjusted terms, the outstanding stock of cross-border claims booked by banks in the BIS reporting area increased by $31 billion between end-December 2001 and end-March 2002, to $11.6 trillion (Table 2.1).

Credit to most regions and all sectors is weak

Credit to most regions was weak. Cross-border claims on the euro area decelerated especially sharply, increasing by only 3% year over year in the first quarter of 2002 compared to 12% in the fourth quarter of 2001. The annual growth rate of cross-border claims on the United States held up better than claims on other regions but still slowed, to 6% in the first quarter from 12% in the fourth.

Moreover, credit to all sectors decelerated (Graph 2.2). Credit to unrelated banks had already begun to weaken during 2001 and contracted by 6% between end-March 2001 and end-March 2002. The growth of cross-border claims on other sectors had remained steady during 2001, but in the first quarter the slowdown spread beyond the interbank market. The annual rate of growth of inter-office claims – a substantial share of which arise from round-tripping through international banking centres – fell to 4% in the first quarter from 12% in the fourth. The growth of claims on corporations and other non-banks decelerated to 6% from 13%.

Despite the slowdown in credit growth, banks continued to issue sizeable amounts of securities. The outstanding stock of certificates of deposit (CDs) and other securities placed with non-residents by banks in the reporting area

Cross-border claims of BIS reporting banks

Exchange rate adjusted changes in amounts outstanding, in billions of US dollars[1]

	2000	2001	2001				2002	Stocks at end-March 2002
	Year	Year	Q1	Q2	Q3	Q4	Q1	
Total claims	1,221.9	858.9	729.2	–79.9	–25.3	234.8	31.1	11,562.9
By instrument								
Loans and deposits	738.1	613.3	603.4	–89.6	–64.0	163.5	–19.7	8,774.4
Securities[2]	483.8	245.6	125.8	9.7	38.7	71.3	50.8	2,788.4
By currency								
US dollar	513.3	432.1	231.0	–5.3	18.5	187.9	37.0	5,282.8
Euro	455.6	438.1	396.9	8.2	45.7	–12.6	45.8	3,322.9
Japanese yen	94.6	–65.3	–6.0	–14.9	–51.0	6.6	–81.3	626.3
Other currencies[3]	158.4	54.1	107.3	–67.8	–38.4	52.9	29.5	2,330.8
By sector of borrower								
Own offices	408.3	443.4	185.3	–63.2	89.8	231.5	–95.4	3,679.3
Other banks[4]	524.8	–31.1	270.5	–92.1	–115.8	–93.7	70.5	3,930.2
Non-banks	288.8	446.5	273.5	75.4	0.7	97.0	55.9	3,953.3
By residency of borrower								
Advanced economies	1,133.3	800.8	661.9	–51.3	–14.5	204.6	22.5	8,967.6
Euro area	389.0	368.4	332.3	34.4	–6.6	8.2	50.3	3,577.5
Japan	–12.0	–23.3	–1.6	–25.1	–24.6	28.0	–51.8	462.8
United States	309.2	251.7	129.5	16.7	23.9	81.6	11.0	2,361.6
Offshore centres	51.4	55.2	50.5	–23.3	3.2	24.9	–6.7	1,460.7
Emerging economies	–7.8	–20.6	–1.5	–4.9	–16.9	2.7	–4.7	858.8
Unallocated[5]	45.0	23.5	18.3	–0.3	2.9	2.6	19.9	275.7
Memo: Local claims[6]	*207.5*	*93.5*	*122.3*	*–30.8*	*2.1*	*–0.1*	*63.0*	*1,624.4*

[1] Not adjusted for seasonal effects. [2] Mainly debt securities. Other assets account for less than 5% of total claims outstanding. [3] Including unallocated currencies. [4] Borrowers other than own offices, official monetary authorities (eg central banks) and non-banks. Owing to errors and omissions, claims on other banks reported above may differ from data reported in Table 8 in the Statistical Annex. [5] Including claims on international organisations. [6] Foreign currency claims on residents of the country in which the reporting bank is domiciled. Table 2.1

Banks cut purchases of securities

increased by 11% year over year in the first quarter, in line with the increase in the previous quarter. Banks had in the past purchased a large portion of this issuance, but in recent quarters banks' cross-border purchases of securities issued by other banks have dropped substantially. The annual growth rate of banks' cross-border holdings of bank-issued securities fell to 2% in the first quarter of 2002 from nearly 30% a year earlier. As banks' purchases slowed, institutional investors and corporations which had previously invested short-term funds in the commercial paper (CP) market increased their holdings of CDs in response to the decline in CP issuance and growing concerns about corporate credit risk.

Japanese banks retrench again

The slowdown in cross-border bank credit in the first quarter of 2002 was exacerbated by further declines in Japanese banks' international positions. Japanese banks' cross-border claims contracted by 13% year over year in the

first quarter, fully reversing the gradual expansion in their claims following the recapitalisation of the banking system in early 1999 (Graph 2.3). Sales of foreign securities and cutbacks in interbank activity accounted for most of the retrenchment but, unlike in 1998–99, Japanese banks' inter-office positions remained more or less unchanged.

Japanese banks take profits on foreign bond holdings ...

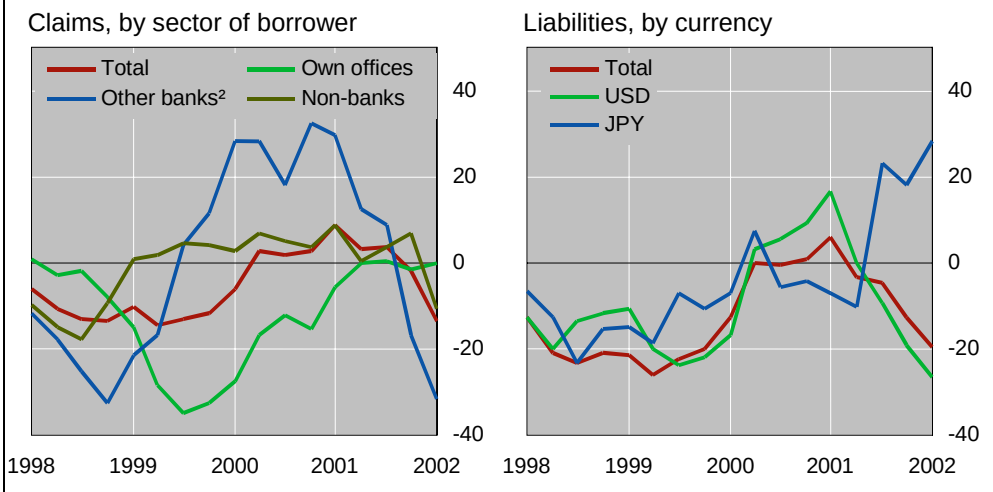
Credit to non-banks was especially weak. Japanese banks took profits on their foreign bond holdings in the first quarter. They had purchased European and US government and agency securities in the second half of 2001 in anticipation of a decline in interest rates, and in the early part of 2002 they sold some of these securities. The restructuring of Japanese institutional investment funds also contributed to the decline in claims on non-banks. In the first quarter, some institutional investors closed their partnerships located abroad and transferred the accounts to Japan. Given that these partnerships were held through bank trust accounts, their closure resulted in a large fall in Japanese banks' claims on non-banks, in particular claims on non-bank residents of offshore centres.[1]

... reduce their interbank activity ...

Furthermore, Japanese banks continued to unwind their claims on other unrelated banks. Their cross-border interbank claims contracted by 32% year over year in the first quarter, a rate of decline last experienced in early 1999 prior to the recapitalisation of the Japanese banking system. However, even while scaling back their interbank activity, during the most recent retrenchment Japanese banks maintained their inter-office positions. By contrast, in 1998–99 their inter-office claims fell precipitously owing to the closure of many overseas offices.

Cross-border positions of Japanese banks[1]

Annual percentage changes



[1] Unconsolidated, on-balance sheet positions, including positions vis-à-vis own offices. For data on the consolidated claims of Japanese banks (ie after netting out inter-office positions), see Tables 9B and 9C in the Statistical Annex. [2] Excluding claims on central banks and other official monetary authorities.

Graph 2.3

[1] Japan includes trustee business when reporting the international assets and liabilities of banks in Japan. Most other reporting countries exclude trustee business. See Bank for International Settlements, *Guide to the international banking statistics*, July 2000, p 23.

Japanese banks' sales of foreign securities, coupled with their withdrawal from the interbank market, contributed to a 26% contraction in the outstanding stock of Japanese banks' cross-border US dollar liabilities between end-March 2001 and end-March 2002. Dollar liabilities were further depressed by a shift from uncollateralised borrowing through the interbank market to what was in effect collateralised borrowing through the foreign exchange swap market. In recent quarters, declines in Japanese banks' cross-border foreign currency liabilities have coincided with increases in their overseas offices' yen liabilities. Yen funds appear to have been channelled to Japanese banks' overseas offices, where they were swapped for dollars or other foreign currencies. Notably, unlike in 1998–99, when a sharp increase in the premium charged by international banks on loans to Japanese banks – the so-called "Japan premium" – had forced Japanese banks to cut back their dollar borrowing, the Japan premium remained stable in the early part of 2002.

… and turn to FX swaps to borrow dollars

Differences in the most recent banking cycle

In addition to differences in the factors behind the retreat of Japanese banks from the international banking market, the latest cycle in cross-border banking activity differs in several other important respects from the previous slowdown. These differences include the precipitating forces, purchases of securities, and lending to emerging markets.

Latest banking cycle is precipitated by the global economic downturn …

Whereas the 1997–99 slowdown had been precipitated by financial crises in emerging markets and Japan, the latest cycle appears to have been driven largely by the downturn in the global economy. The drop-off in the growth rate of cross-border bank credit in 2001–02 was more or less contemporaneous with the emergence of signs of economic weakness in the major economies. As corporate demand for inventory and investment financing declined, credit growth – both domestic and cross-border – decelerated. The collapse in merger and acquisition activity and telecoms borrowing in 2001 further depressed demand for bank financing. On the supply side, the slowdown in credit growth was exacerbated by a deterioration in the credit quality of banks' loan portfolios and the consequent tightening of lending standards.[2]

Furthermore, in contrast to the earlier slowdown, banks' purchases of securities decelerated in tandem with lending activity during the most recent cycle. In the run-up to and months following the introduction of the single European currency in January 1999, the tremendous growth of banks' euro-denominated securities' holdings had partially offset weaker loan growth. By the end of 2000 the portfolio adjustment process triggered by monetary union had run its course. Consequently, following several years of increases of 20% or more, the annual growth rate of banks' cross-border holdings of securities began to slow in early 2001 and fell to 7% by the first quarter of 2002 (Graph 2.2). Purchases of government bonds helped to support the growth of

[2] See Bank for International Settlements, *72nd Annual Report*, July 2002, pp 122–40.

cross-border holdings of non-bank securities, but, as discussed above, purchases of bank-issued securities fell sharply.

... and, unlike in 1997–99, lending to emerging markets is little affected

Another notable difference between the latest cycle in cross-border banking activity and the previous slowdown is that whereas in the 1997–99 period credit to emerging markets had fallen significantly, in recent quarters banks have been more willing to maintain their positions. In the first quarter of 2002, outstanding claims on emerging markets as a group contracted at approximately the same rate as in the previous few quarters, by 3% year over year. The relative stability of claims on emerging markets partly reflects the fact that many banks had already sharply curtailed their exposures.

Withdrawals again boost bank flows to emerging markets

While cross-border bank claims on most emerging markets did not follow the cycle in global activity, some countries, particularly in Latin America, did face increasingly difficult financing conditions. Nevertheless, in the first quarter of 2002 bank flows to emerging markets continued to be dominated by shifts in deposits rather than cutbacks in claims. After growing steadily between mid-1999 and mid-2001, placements by emerging markets with banks in the BIS reporting area had begun to contract in the third quarter of 2001 (Graph 2.2 and Table 2.2). Residents of emerging Asia resumed deposits of funds abroad in the first quarter of 2002, but residents of Latin America and the Middle East again withdrew substantial amounts.

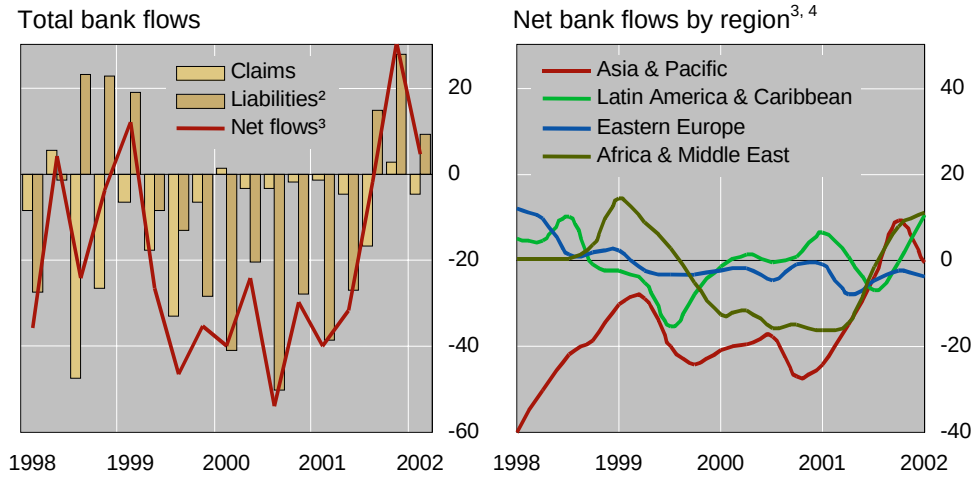
Many emerging economies maintain access to the international banking market

Many emerging economies in Asia and eastern Europe, as well as oil-exporting countries, maintained ready access to the international banking market in the first quarter of 2002. Banks continued to increase their claims on Malaysia and the Philippines. Repo activity boosted claims on Korea. Cross-border credit to Poland and Russia remained strong. And lending to Iran and the United Arab Emirates surged. More recent data on syndicated lending suggest that borrowers from a number of these countries remained active in the second quarter too (see “International syndicated credits in the second quarter of 2002” on page 22).

In the Asia-Pacific region, new lending to some countries was offset by further repayments by others and, moreover, renewed deposit outflows (Graph 2.4). Net flows (claims less liabilities) from banks in the reporting area to the region, which had turned positive in the latter part of 2001, reversed direction again in the first quarter of 2002: outflows equalled $11 billion in the first quarter, compared to inflows of $10 billion in the fourth. Banks in Korea, Taiwan (China) and Pakistan placed large amounts with banks abroad. By contrast, banks in mainland China continued to withdraw deposits, after having placed significant sums abroad between mid-1999 and mid-2001 (see “Rising foreign currency liquidity of banks in China” on page 67). In the first quarter, banks in mainland China also paid down their external bank debt, resulting in a sizeable contraction in cross-border bank claims on mainland China. Claims on Indonesian residents fell again in the first quarter, and banks in Indonesia withdrew funds from banks in the reporting area to meet some of these repayments.

Cross-border bank flows to emerging economies[1]

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



[1] A positive value represents an inflow into emerging economies from banks in the BIS reporting area, and a negative value an outflow from emerging economies. [2] A positive value indicates a decrease in BIS reporting banks' liabilities vis-à-vis emerging economies, and a negative value an increase. [3] Changes in claims minus changes in liabilities. [4] Two-quarter moving average.

Graph 2.4

Asia and emerging Europe place more deposits abroad ...

In emerging Europe too, new lending was offset by placements abroad, resulting in net flows of $4 billion from the region to banks in the BIS reporting area. Banks in Russia and Poland channelled substantial amounts to banks in the reporting area. Notably, outflows from Turkey slowed significantly in the first quarter. Indeed, claims rose for the first time since late 2000, by $1 billion, although this rise was more than offset by an increase in foreign banks' liabilities to banks in Turkey. The rise in claims reflects repo activity between banks in the United States and banks in Turkey; banks in other countries continued to reduce their claims. In the second quarter of 2002, Turkish banks raised $545 million in the syndicated loan market, mostly for trade financing and to refinance maturing facilities.

... but Saudi Arabia and other oil exporters withdraw funds

In contrast to much of Asia and emerging Europe, residents of the Middle East and Africa withdrew funds from banks abroad for the third successive quarter. Coupled with new bank credit, withdrawals resulted in net flows of $7 billion into the region in the first quarter of 2002. Most of these funds went to oil-exporting countries, in particular Saudi Arabia. Almost the entire amount withdrawn by Saudi residents in the first quarter came from banks in Europe, and most of the funds were denominated in US dollars.

Weak demand depresses cross-border lending to South Africa

Inflows to oil-exporting countries were partially offset by large outflows from South Africa. Short-term bank claims on South African borrowers, especially non-banks, fell further in the first quarter. Between March 2001 and March 2002, the outstanding stock of cross-border claims on South African residents fell by 13%. Moreover, short-term claims fell to 49% of consolidated international bank claims on South Africa at end-March 2002, from 60% a year earlier. The contraction in cross-border credit appears to have been driven by

Cross-border bank flows to emerging economies

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

	Banks' position[1]	2000	2001	2001				2002	Stocks at end-March 2002
		Year	Year	Q1	Q2	Q3	Q4	Q1	
Total[2]	Claims	–7.8	–20.6	–1.5	–4.9	–16.9	2.7	–4.7	858.8
	Liabilities	140.1	23.2	38.7	26.9	–14.9	–27.5	–9.0	1,071.5
Argentina	Claims	1.2	–5.8	–1.7	1.6	–2.4	–3.3	–4.4	36.4
	Liabilities	3.1	–16.7	–6.0	2.3	–1.9	–11.1	–0.9	22.7
Brazil	Claims	9.5	0.9	4.0	0.1	–1.1	–2.2	0.7	95.5
	Liabilities	–4.6	0.4	–2.6	2.2	4.9	–4.1	1.7	49.0
Chile	Claims	0.3	0.2	0.5	0.4	–0.9	0.2	–0.4	18.4
	Liabilities	–1.5	–1.0	–0.3	0.2	–0.4	–0.6	0.3	14.8
China	Claims	–5.4	–3.5	–1.8	1.5	–2.7	–0.6	–7.3	46.7
	Liabilities	35.7	–6.5	0.7	3.5	–6.6	–4.0	–7.0	86.5
Indonesia	Claims	–3.6	–5.4	–0.8	–1.5	–2.3	–0.8	–1.3	33.7
	Liabilities	–1.0	1.1	1.5	–0.7	–0.4	0.7	–1.4	12.6
Korea	Claims	–4.8	–0.2	3.3	–2.6	1.0	–2.0	6.6	68.6
	Liabilities	–1.7	1.7	4.6	–2.2	–2.4	1.7	11.8	40.5
Mexico	Claims	–1.0	4.9	4.9	–0.2	–1.9	2.1	0.7	63.1
	Liabilities	6.9	8.9	3.2	0.6	4.5	0.6	–15.5	47.1
Russia	Claims	–6.6	1.3	–1.2	0.3	0.2	2.1	1.4	37.6
	Liabilities	7.2	5.2	3.8	2.6	–2.8	1.7	3.6	32.0
Saudi Arabia	Claims	0.1	–2.4	–1.9	0.1	–1.6	1.0	0.2	23.7
	Liabilities	10.9	–9.7	4.7	–1.4	–5.7	–7.3	–5.1	46.0
South Africa	Claims	0.6	–0.4	0.5	–0.5	0.8	–1.1	–1.5	16.2
	Liabilities	0.4	2.1	1.2	0.6	1.1	–0.9	0.2	16.2
Thailand	Claims	–7.8	–3.5	–1.0	–0.8	–3.1	1.4	–2.2	20.7
	Liabilities	1.9	1.3	0.3	1.0	–0.5	0.5	–0.7	14.8
Turkey	Claims	11.3	–12.0	–2.2	–5.1	–0.9	–3.7	1.0	37.3
	Liabilities	2.3	–2.1	–1.2	0.4	0.8	–2.1	1.7	19.9
Memo:									
EU accession countries[3]	*Claims*	*7.5*	*6.3*	*1.0*	*1.7*	*–0.4*	*4.1*	*1.3*	*73.3*
	Liabilities	*5.5*	*9.9*	*4.5*	*–0.2*	*0.9*	*4.8*	*–0.6*	*62.2*
OPEC members	*Claims*	*–11.4*	*–14.1*	*–7.5*	*–2.5*	*–5.1*	*1.1*	*3.5*	*128.8*
	Liabilities	*37.7*	*–2.8*	*13.3*	*2.1*	*–9.7*	*–8.5*	*–5.5*	*236.7*

[1] External on-balance sheet positions of banks in the BIS reporting area. Liabilities mainly comprise deposits. An increase in claims represents an inflow into emerging economies; an increase in liabilities represents an outflow from emerging economies. [2] All emerging economies. For details on additional countries, see Tables 6 and 7 in the Statistical Annex. [3] Countries in accession negotiations with the European Union, ie Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, the Slovak Republic and Slovenia. Table 2.2

weaker demand for external finance, owing to a steady improvement in South Africa's current account balance, rather than cutbacks in lending. South African borrowers were active in the international syndicated loan market during 2001 and the early part of 2002, suggesting that banks remained willing to take on South African risk.

Claims on several Latin American countries contract

Borrowers in Latin America appeared to have more difficulty obtaining cross-border bank financing than borrowers in other regions. During the first quarter, claims on Latin America fell by $5 billion, or 5% year over year, and signings of syndicated loan facilities dropped to their lowest level since 1996.

Cutbacks and write-offs of claims on Argentina accounted for a large part of the contraction in credit to the region. In addition, Colombia, Chile and Peru all saw claims decline. In the first quarter, Colombian and Chilean borrowers raised funds in the international syndicated loan market, and the Peruvian government in the debt securities market, yet these borrowings were not enough to offset repayments.

Lending to Brazil and Mexico held up better than lending to other Latin American countries. Indeed, cross-border bank claims on both Brazil and Mexico increased by $0.7 billion during the first quarter. Most of these funds went to non-bank borrowers, mainly corporations. In the second quarter of 2002, Brazilian and Mexican corporations were again active in the international syndicated loan market, to refinance maturing loans. Despite the challenges faced by Uruguay following the crisis in Argentina, claims on Uruguay also increased slightly during the first quarter. Trade credit accounted for most of this increase. Agricultural exports from Uruguay peak in the first half of each year, tending to boost demand for export financing.

Mexican central bank shifts reserves from deposits to securities ...

Cross-border lending activity in Latin America in the first quarter was overshadowed by changes in banks' liabilities to residents in the region. Corporations, individuals and other non-bank residents deposited over $2 billion with banks in the reporting area. Non-banks in Venezuela made especially large deposits. However, banks in Latin America, including central banks, withdrew a massive $19 billion from banks in the BIS reporting area, a larger amount even than in the fourth quarter of 2001, when Argentine banks drew down the bulk of their external assets. Banks in Peru, Colombia, Argentina and Uruguay repatriated significant amounts from abroad. By far the largest withdrawals were by banks in Mexico, which repatriated $16 billion, equivalent to one quarter of their total placements with banks in the reporting area. A large part of this decline reflected a reallocation of assets. In particular, the Mexican central bank withdrew $10 billion from banks abroad and reinvested the funds in foreign securities, including US Treasury and agency bonds.

... consistent with the global trend in reserve holdings

The Bank of Mexico's decision to reallocate its foreign exchange reserves is consistent with the global trend in reserve holdings. Deposits with banks in the BIS reporting area by central banks and other official monetary authorities peaked at 22% of total foreign exchange reserves at end-June 2001, before declining steadily to 18% by end-March 2002. The currency composition of central banks' offshore deposits remained more or less unchanged, with nearly 70% of deposits denominated in US dollars and 17% in euros.

International syndicated credits in the second quarter of 2002

Blaise Gadanecz

Activity in the international syndicated loan market rebounded during the second quarter of 2002, with signings rising by nearly 20% over the first quarter on a seasonally adjusted basis. However, this rebound did not represent a return to the days of easy credit in 1999 and 2000. Rather, it reflected the refinancing of facilities signed a year earlier as well as efforts by firms to expand their backup credit lines in response to difficult financing conditions in the commercial paper (CP) market.

Signings of standby or CP backup facilities soared to $46 billion, their highest level since the boom in lending to telecoms in late 2000. Ironically, this surge in signings of international standby facilities occurred even while banks were becoming increasingly reluctant to extend backup lines. Lower-quality credits are rarely able to arrange standby facilities, and so credit rating downgrades over the past year have reduced the number of eligible borrowers. At the same time, in the first half of 2002 those firms still able to tap the CP market made a concerted effort to reduce their exposure to rollover risk by both extending the maturity of their debt and expanding their backup lines. GE Capital arranged an $18 billion standby facility in two tranches, GMAC a $7.4 billion facility, Morgan Stanley Dean Witter $5.5 billion, and Household Finance Corporation $5.4 billion.

Syndicated lending in the second quarter was further boosted by $42 billion in refinancing activity, mainly by telecommunications companies. Vodafone AirTouch arranged a $10.7 billion facility at spreads almost equivalent to those on the maturing facility. PCCW Hong Kong Telecom raised HK$ 10 billion in order to retire early part of a US dollar facility signed in 2001.

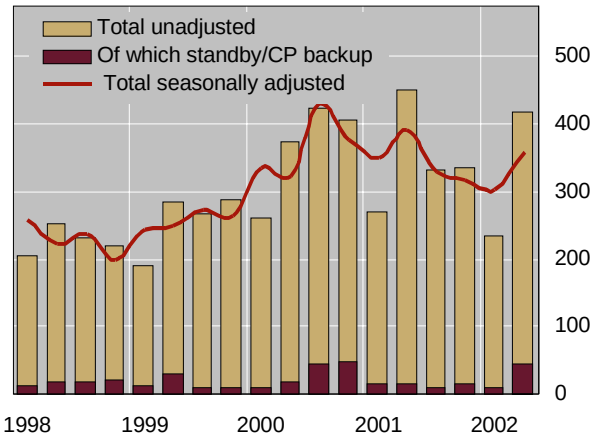
Turning to emerging economies, lending to borrowers in Latin America was substantially below volumes in recent years. Brazilian electrical utilities and steel firms raised $1.5 billion, and Mexican debtors $900 million. Few borrowers from other Latin American countries were able to access the syndicated loan market in the second quarter. Latin American firms face a heavy repayment schedule in the second half of 2002, with over $10 billion in syndicated facilities maturing. Mexican borrowers face the largest repayments, at $4.7 billion, followed by Argentine borrowers at $2.9 billion.

Borrowers from other emerging markets maintained favourable access to the syndicated loan market in the second quarter. Korean banks and corporations raised $2 billion, and the government and state airline of Qatar $1.4 billion. Borrowers from Turkey, mainly banks, signed facilities totalling $0.6 billion, at pricing comparable to that on loans arranged in 2001.

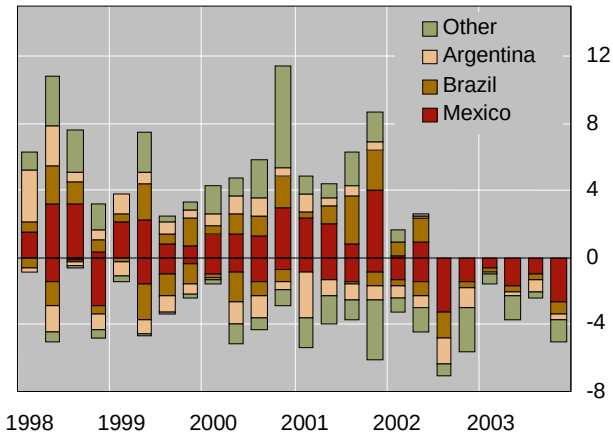
Activity in the international syndicated credit market

In billions of US dollars

Signed facilities



Signed and maturing facilities for Latin America[1]



[1] Signed facilities are represented by positive values, maturing ones by negative values. Maturing facilities are estimated based on facilities signed from January 1993 onwards and assume that the facility was not repaid or cancelled before maturity.

Sources: Dealogic Loanware; BIS.

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3. The international debt securities market

In spite of worsening financing conditions in June, net issuance in the international debt securities market rebounded during the second quarter of 2002 as a whole. For the quarter, net issuance amounted to $344 billion (Table 3.1), an 11% increase from the previous quarter. The growth in the

Main features of net issuance in international debt securities markets

In billions of US dollars

	2000	2001	2001			2002		Stocks at end-Jun 2002
	Year	Year	Q2	Q3	Q4	Q1	Q2	
Total net issues	1,237.8	1,348.8	370.8	224.8	339.4	310.2	344.0	8,634.7
Money market instruments[1]	152.1	–78.9	–26.2	–45.6	–9.3	–7.8	7.5	423.4
Commercial paper	*55.2*	*26.9*	*10.1*	*–12.0*	*6.5*	*5.5*	*1.8*	*266.8*
Bonds and notes[1]	1,085.6	1,427.7	397.0	270.4	348.8	318.0	336.5	8,211.3
Floating rate issues	*354.6*	*391.6*	*98.7*	*93.8*	*95.9*	*61.0*	*74.4*	*2,076.8*
Straight fixed rate issues	*714.3*	*996.4*	*287.6*	*170.5*	*237.5*	*253.7*	*247.9*	*5,824.4*
Equity-related issues	*16.7*	*39.7*	*10.7*	*6.2*	*15.3*	*3.3*	*14.1*	*310.1*
Advanced economies	1,158.1	1,260.8	327.2	210.1	323.8	286.3	325.3	7,582.6
United States	*464.5*	*597.2*	*155.4*	*114.3*	*136.9*	*138.8*	*117.5*	*2,638.7*
Euro area	*558.2*	*551.5*	*126.9*	*87.4*	*149.3*	*128.4*	*151.2*	*3,261.2*
Japan	*–25.8*	*–10.1*	*1.1*	*–6.5*	*–1.8*	*–9.3*	*3.2*	*272.4*
Offshore centres	14.7	27.0	8.1	5.4	6.4	4.5	–0.1	103.0
Emerging economies	42.1	44.7	29.9	–1.8	7.9	11.5	12.0	528.6
International organisations	22.9	16.3	5.7	11.1	1.3	8.0	6.8	420.6
Private sector	970.4	1,003.3	267.5	156.4	252.0	193.1	285.9	6,463.4
Financial institutions[2]	*798.1*	*800.3*	*200.7*	*133.6*	*196.4*	*178.9*	*243.5*	*5,242.7*
Corporate issuers	*172.3*	*202.9*	*66.8*	*22.8*	*55.6*	*14.2*	*42.5*	*1,220.7*
Public sector[3]	244.5	329.3	97.7	57.2	86.2	109.1	51.3	1,750.7
Central government	*52.6*	*60.5*	*32.1*	*–2.3*	*11.6*	*45.1*	*7.2*	*629.1*
State agencies and other	*191.9*	*268.7*	*65.6*	*59.5*	*74.6*	*64.0*	*44.0*	*1,121.7*
Memo: Domestic CP[4]	*255.6*	*–139.6*	*–63.1*	*–49.8*	*30.7*	*–73.0*	*–58.5*	*1,828.4*
of which: US	*208.3*	*–161.2*	*–67.9*	*–58.5*	*28.3*	*–63.3*	*–57.0*	*1,320.6*

[1] Excluding notes issued by non-residents in the domestic market. [2] Commercial banks and other financial institutions. [3] Excluding international organisations. [4] Data for the second quarter of 2002 are partly estimated.

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

Table 3.1

Gross issuance in the international bond and note markets

In billions of US dollars

	2000	2001	2001			2002	
	Year	Year	Q2	Q3	Q4	Q1	Q2
Total announced issues	1,703.8	2,306.5	639.8	465.8	554.1	606.5	582.0
Floating rate issues	518.2	643.6	163.1	157.1	168.7	141.8	165.0
Straight fixed rate issues	1,129.1	1,590.7	458.0	297.6	359.1	455.1	396.3
Equity-related issues[1]	56.5	72.2	18.7	11.1	26.3	9.6	20.7
US dollar	791.8	1,131.9	332.2	247.0	243.6	310.8	260.4
Euro	581.7	841.9	217.0	145.7	221.3	228.4	235.5
Yen	129.1	125.3	38.8	32.5	26.2	16.4	25.9
Other currencies	201.2	207.5	51.7	40.6	62.9	51.0	60.1
Private sector	1,319.5	1,676.6	451.0	327.0	420.9	416.7	438.2
Financial institutions[2]	*1,087.6*	*1,335.4*	*349.8*	*276.0*	*325.7*	*353.1*	*364.1*
Corporate issuers	*231.9*	*341.1*	*101.3*	*51.0*	*95.2*	*63.6*	*74.2*
of which: telecoms	*119.3*	*134.6*	*30.2*	*15.9*	*38.0*	*11.8*	*14.5*
Public sector	315.1	555.2	165.9	118.7	118.4	163.8	122.5
Central government	*92.9*	*130.8*	*58.2*	*13.4*	*17.9*	*59.3*	*29.0*
State agencies and other	*222.2*	*424.4*	*107.6*	*105.3*	*100.5*	*104.6*	*93.5*
International organisations	69.2	74.8	22.9	20.1	14.8	26.0	21.3
Completed issues	1,705.6	2,306.3	630.2	478.1	568.4	587.9	579.2
Memo: Repayments	*619.9*	*878.6*	*233.2*	*207.7*	*219.6*	*269.9*	*242.7*

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

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

demand for funds by the private sector was substantially larger than figures for aggregate issuance suggest, because net issuance by the public sector declined markedly. The increase in aggregate private sector issuance was almost entirely due to the activities of European and Japanese borrowers. In contrast, net issuance by borrowers based in the United States declined from $139 billion to $118 billion between the first and second quarters. Emerging market borrowers continued to borrow at a moderate rate in the international debt securities market.

Towards the end of the second quarter, there was a marked shortfall of announced issuance in the international bond market compared to the levels that would normally have been expected on the basis of seasonal factors. The shortfall coincided with a widening of corporate spreads (see “Overview” on page 1), indicating a tightening in the supply of funds rather than a lack of demand. There was a particularly sharp fall in gross issuance by investment grade borrowers, which followed a drying-up of gross issuance by non-investment grade borrowers that began in May. In July, credit spreads in the United States and Europe widened sharply (see “Overview”). There was a further decline in announcements by investment grade borrowers in Europe, and essentially a drying-up of issuance by investment grade borrowers in the United States. Most notably, after several months of strong issuance, the major

US finance companies were almost completely absent from the international bond and note market in July.

Decline in public sector issuance offset by private borrowing

A decline in public sector borrowing …

Net issuance by public sector borrowers fell sharply between the first and second quarters of 2002. At $51 billion, issuance during the second quarter was 53% lower than the previous quarter's record amount. The drop was fairly evenly spread between US- and European-based borrowers. In the advanced European economies, the decline was attributable to lower borrowing by central governments. In the United States the decline, from $61 billion to $37 billion, was accompanied by a $19 billion fall in completions. Lower gross issuance by the US housing agencies played a role. Freddie Mac's gross issuance in the international markets fell from $41 billion to $33 billion and that of Fannie Mae from $31 billion to $24 billion. Even so, the largest issues placed in the international bond and note market included two $6 billion offerings by Freddie Mac and Fannie Mae, the latter of which was priced at a spread of 26 basis points.

… is more than offset by increased private sector issuance

The fall in net issuance by public sector entities in the second quarter of 2002 was more than offset by an upsurge in net issuance by the private sector, up 48% from the previous quarter to $286 billion. The rise reflected sharply higher borrowing by both financial institutions and non-financial corporates. Net issuance by financial institutions was particularly strong during the second

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

In billions of US dollars

Region/currency		2000	2001	2001			2002	
		Year	Year	Q2	Q3	Q4	Q1	Q2
North America	US dollar	377.7	526.4	136.1	105.9	120.9	126.6	93.3
	Euro	44.5	64.4	15.5	7.1	20.9	17.8	15.1
	Yen	17.2	17.5	5.7	6.7	1.8	–3.5	1.7
	Other currencies	17.3	8.3	3.5	–1.0	0.7	3.5	6.2
Europe	US dollar	170.2	56.7	14.2	–0.7	15.6	6.5	43.0
	Euro	411.3	520.1	130.1	79.1	142.2	137.9	133.8
	Yen	40.8	–1.4	3.3	3.9	–2.6	–13.3	–4.7
	Other currencies	88.1	71.1	11.7	11.9	28.1	17.0	30.9
Others	US dollar	61.4	69.8	41.8	11.0	7.7	23.6	13.7
	Euro	14.8	13.0	4.8	0.3	2.9	3.1	7.2
	Yen	–20.3	0.6	4.8	–1.9	0.9	–12.1	5.9
	Other currencies	14.9	2.4	–0.7	2.4	0.3	3.2	–2.0
Total	US dollar	609.3	652.8	192.1	116.2	144.2	156.6	149.9
	Euro	470.6	597.5	150.3	86.5	166.0	158.7	156.2
	Yen	37.7	16.7	13.9	8.7	0.1	–28.9	2.8
	Other currencies	120.2	81.8	14.6	13.3	29.1	23.7	35.0

[1] Based on the nationality of the borrower.

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

quarter and, at $244 billion, was the third highest ever recorded. The largest private sector issue, a $6 billion offering, was floated by GE Capital Corporation.

The increase in private sector borrowing is almost entirely attributable to the activities of entities based in the advanced European economies. Net issuance by these borrowers rose from $108 billion during the first quarter of 2002 to $184 in the second quarter. Private sector borrowing by Japanese entities rose from –$10 billion to $4 billion while that of US entities was essentially unchanged. Gross announced issuance by private sector borrowers in the United States actually declined from $161 billion to $145 billion over the period.

Emerging market borrowers retain access to international debt securities market

Aggregate issuance by emerging market borrowers remains unchanged ...

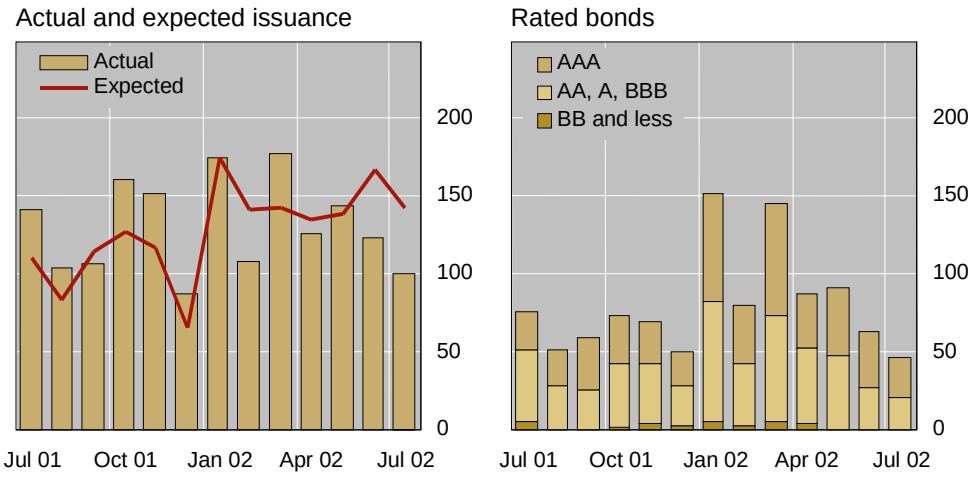
Emerging economies continued to borrow moderately in the international debt securities market during the second quarter of 2002. At $12 billion, net issuance by emerging market borrowers was essentially unchanged from the previous quarter and slightly above the average quarterly net issuance since the onset of the Asian financial crisis. Gross announced issuance rose slightly, from $30 billion to $33 billion. The largest emerging market borrower during the second quarter was Petronas Capital Limited, which floated over $2.7 billion in three issues.

... while South Korean borrowing rises sharply

The aggregate borrowing figures mask large changes in regional borrowing patterns. For instance, net issuance in emerging Asia-Pacific economies rose from $4.3 billion to $10.1 billion between the first and second quarters of 2002, mainly because of a large increase in borrowing by South Korean entities. In contrast, Latin American borrowing fell sharply, from

Announced issuance of international bonds[1]

In billions of US dollars

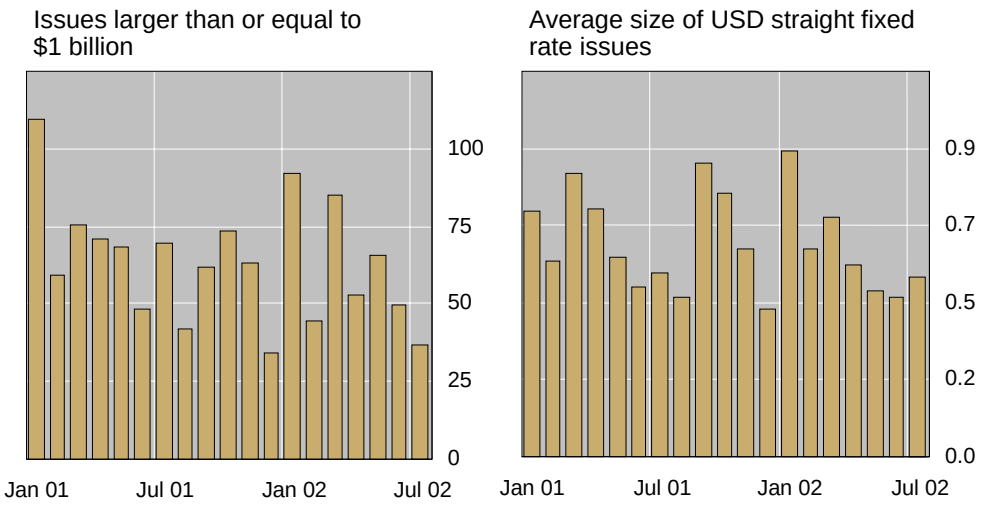


[1] Includes bonds issued under EMTN documentation.

Sources: Dealogic; BIS. Graph 3.1

Announced issuance of international bonds[1]

In billions of US dollars



[1] Includes bonds issued under EMTN documentation.

Sources: Dealogic; BIS. Graph 3.2

$4 billion to –$3 billion, mainly because of a decline in net issuance in Mexico. Brazilian borrowing also contracted over the period, from $2.7 billion to $1 billion.

Commercial paper market sees continuing difficulties

The second quarter witnessed a continuation of the contraction in the US domestic commercial paper (CP) market. Net issuance by financial institutions fell 4% to $1,151 billion while that of non-financial corporates declined 8% to $170 billion. The total fall in net issuance was $57 billion. In previous quarters, accompanying increases in straight fixed rate bond and note issuance had indicated a shift in borrowing patterns from short- to long-term financing. In the second quarter, however, straight fixed rate issuance declined (Table 3.2). In contrast, net issuance in the international CP market, a significantly smaller market, was positive at $1.8 billion.

Credit conditions appear to deteriorate starting in June

Unexpectedly low issuance in June ...

Conditions in credit markets in general, and in the international bond and note market in particular, apparently began to worsen starting in June. In contrast to the sizeable increase in issuance in the international bond market that typically occurs between May and June, announced issuance declined by $21 billion (Graph 3.1, left-hand panel). Lower issuance by borrowers in the advanced economies played an important role. There was a particularly sharp fall in gross issuance by investment grade borrowers in these countries, from $90 billion to $63 billion, and a continuation of the absence of non-investment grade issuance. In the first four months of 2002, non-investment grade issuance was approximately 2% of total announcements in the international

bond market. In both May and June, in contrast, announcements in the non-investment grade class accounted for 0.3% of total announcements.

... accompanies a widening of credit spreads

As noted in the "Overview", June witnessed the beginnings of a widening in credit spreads in the United States and a continuation of their widening in Europe. The widening of credit spreads and the simultaneous fall in issuance suggest a reduction in the supply of funds to the international bond market towards the end of the second quarter. There is evidence that financial institutions in particular had difficulty raising funds. Straight fixed rate issuance by financial institutions fell from $80 billion in May to $59 billion in June while that of non-financial corporates actually rose slightly.

Issuance falls further in July ...

Credit spreads in both the United States and Europe continued to widen during July. Preliminary data show a further fall in announcements in the international bond market, although by less than would have been expected on the basis of seasonal factors. The total amount of large issues placed in the international bond market fell to $37 billion, the lowest since December 2001 (Graph 3.2). Non-investment grade issuance remained at essentially zero while issuance classified as investment grade declined further in July to $46 billion, a level not experienced since December 2000. The fall in investment grade issuance was particularly severe in the United States, with essentially no such issuance in July. The major US finance companies were also absent from the international bond market. In both May and June, the three major US finance companies were responsible for $13 billion in gross issuance; however, in July they essentially withdrew from the market. Nevertheless, July witnessed several large new bond issues. Amongst AA-rated issues were those by Crédit Agricole SA and Credit Suisse First Boston, both for $1 billion, the latter priced at a spread of 185 basis points.

... as the major US finance companies withdraw from the market

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4. Derivatives markets

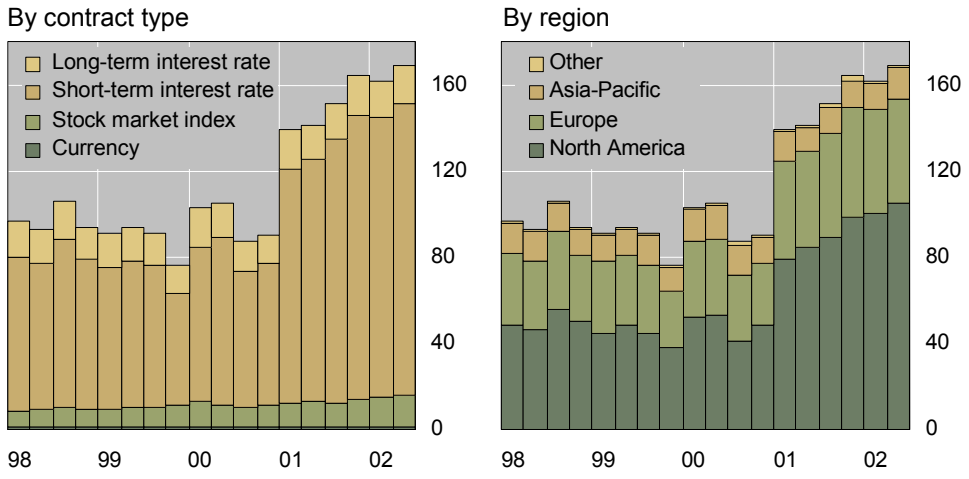
The aggregate turnover of exchange-traded financial derivatives contracts monitored by the BIS rose by 4% to $169 trillion in the second quarter of 2002, following a 2% drop in the previous quarter (Graph 4.1). The increase in activity was spread across the three major risk classes, with the most robust expansion taking place in the small currency segment.

The growth of activity was surprisingly modest given the steady stream of unsettling events observed during the quarter (see "Overview" on page 1). This is probably due to the fact that there were no major monetary policy surprises requiring market participants, and large financial institutions in particular, to make quick adjustments to the duration of their balance sheets. Such adjustments were a major contributor to the growth of exchange-traded business last year.

However, activity rose abruptly in July as market conditions took a turn for the worse. Further revelations of accounting irregularities, including WorldCom's large restatement of its earnings on 25 June, precipitated a sharp plunge in global equity markets. Preliminary turnover data for July show a 29% rise in the number of financial contracts traded compared to June, with several

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

exchanges reporting new trading records. Much of this rise took place in stock index contracts as investors sought to hedge their underlying positions.

Modest expansion of business in interest rate products

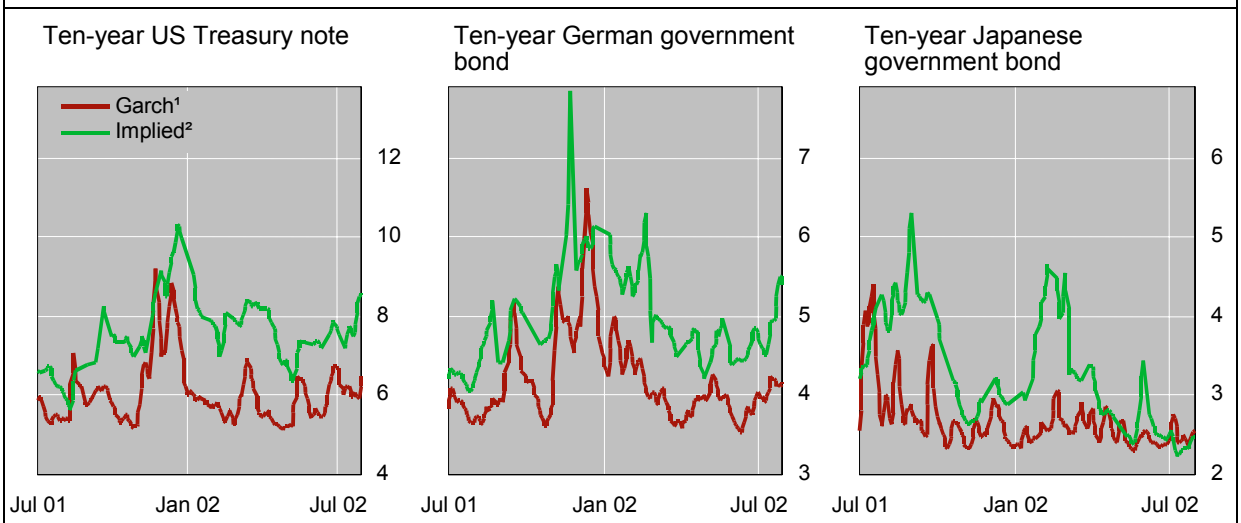
Lack of monetary policy surprises limits use of interest rate products

Trading in exchange-traded interest rate contracts rose by 4% to $152.8 trillion in the second quarter of 2002, compared with a 2% contraction in the first quarter. Although business in interest rate products remained robust by historical standards (Graph 4.1), the overall increase in activity was surprisingly modest. Market participants were confronted with a steady stream of unsettling events during the course of the quarter, which probably sustained speculative activity. However, the lack of monetary policy actions or surprises in the largest economies made it less necessary for major financial institutions to use fixed income derivatives for a rapid adjustment of the duration of their balance sheets. In fact, expectations of monetary tightening were scaled back in a fairly gradual fashion as downward pressure on equity markets exacerbated doubts about a global economic recovery. This progressive change in expectations was illustrated by the fairly stable pattern of volatility observed in major government bond markets for much of the second quarter (Graph 4.2).

It should be noted, however, that developments at the end of the quarter, most notably WorldCom's restatement of its accounts, led to renewed market instability and, consequently, to an upswing in the turnover of fixed income contracts in July.

Volatility of major bond markets

Five-day moving averages



[1] Annualised conditional variance of daily changes in bond yields from a GARCH(1,1) model. [2] Volatility implied by the prices of at-the-money call options.

Sources: Bloomberg; national data; BIS calculations. Graph 4.2

Sustained activity in money market contracts

Variation in money market activity across regions

Money market contracts, which account for the bulk of turnover in interest rate instruments, expanded by 4% to $134.9 trillion. There was a significant variation in short-term activity across the major trading zones in the second quarter. Trading in North America, which accounts for nearly 70% of global short-term activity, rose by 4%, while business in Europe was flat. Trading in the Asia-Pacific region was very robust, with turnover rising by 17%. Much of this sharp increase resulted from active business in eurodollar contracts on the Singapore Exchange.

Short-term products remain buoyant as hedging and trading practices change

The market for short-term interest rate products, particularly eurodollar and euribor contracts, has been notably buoyant since the end of 2000, owing largely to monetary easing but also to changes in hedging and trading practices. One of those changes involves a move by some investors away from their traditional longer-term trading and hedging vehicles, such as government securities and related futures contracts, to over-the-counter (OTC) interest rate swaps and swaptions (due to a lack of liquid exchange-traded alternatives).[1] In turn, the shift to swaps and swaptions has had a second-round impact on the turnover of money market futures and options since such instruments are commonly used in the hedging of OTC contracts. Some large market participants, such as mortgage banks and investors in mortgage-backed securities, have also stepped up their use of swaps and swaptions.

Weak growth of government bond contracts amid shift in composition of activity

Divergence in long-term activity across regions

Trading in longer-term interest rate contracts, principally on government bond rates, expanded at a somewhat slower pace than that in short-term instruments, with transactions rising by 2% to $17.9 trillion. Here again, there was a divergence in activity across geographical areas. Business in Europe, which accounts for 54% of global turnover in long-term contracts, declined by 3%, while activity in the Asia-Pacific region contracted by 5%. By contrast, trading in North American markets grew by 13%. The steepening of the US Treasury yield curve during the second quarter probably created some trading opportunities in Treasury note contracts, but market commentary also suggests that some important hedgers, such as US mortgage lenders, returned to a more active use of such contracts.

Shift in the composition of activity

One of the most notable developments in the market for government bond contracts has been a shift towards shorter maturities (Graph 4.3). For example, trading in Chicago Board of Trade (CBOT) five- and 10-year US Treasury note contracts has increased steadily since the end of 1999, at the expense of the 30-year US Treasury bond contract. In fact, the 10-year Treasury note future

[1] The factors underlying such a shift have been discussed in past issues of the *BIS Quarterly Review*, including in an article by Philip D Wooldridge "The emergence of new benchmark yield curves", December 2001, pp 48–57.

Exchanges introduce a number of new contracts

The second quarter of 2002 witnessed the introduction of several new contracts, including a few on interest rate swaps. In early April, the Chicago Mercantile Exchange (CME) became the third major exchange – after LIFFE and the CBOT – to introduce contracts on swap rates. The mechanics of the new contracts on two-, five- and 10-year swap rates differ slightly from those of their predecessors, but their key characteristics as management tools for corporate and financial sector risks are fairly similar. One important difference is that the design of the CME futures is closer to that of its eurodollar contracts than to other competing swap contracts.[1] The new contracts will be priced according to the well established International Monetary Market pricing style, whereby the price is derived by subtracting the swap rate from par (100 – swap rate = price). This means that the contract will not allow for convexity, unlike the coupon bearing securities that the contract will be meant to hedge.[2] It should be noted, however, that the CME's swap contracts have not yet been actively traded.

In June, the CBOT introduced a new contract on five-year swap rates. The launch of this contract followed the successful introduction in October 2001 of a 10-year swap future.[3] Although the 10-year swap contract accounts for only a small share of overall trading in fixed income contracts on the CBOT (about ⅓ of 1% in the second quarter), it is already trading slightly more actively than the 10-year agency note contract. The contract is benefiting from the growing role played by interest rate swaps in US financial markets.

Also in June, LIFFE began to offer Swapnote contracts on two-, five- and 10-year dollar-denominated swap rates. The principal difference between the dollar contracts offered by LIFFE and those traded on US exchanges is that LIFFE's contracts will be based on annual rather than semiannual compounding.

In the same month, LIFFE also launched a future on two-year German government Treasury notes (or "schatz", for Bundesschatzanweisungen). The new contract will compete with Eurex's well established schatz contract. In order to attract trading demand, the LIFFE future differs slightly from the original Eurex contract, including a doubling of its size (to €200,000) and the availability of finer price setting (through a smaller tick size).

Finally, in May the Chicago Board Options Exchange (CBOE) and the Pacific Exchange began trading options on Diamond Trust, an exchange-traded fund (ETF).[4] ETFs have expanded rapidly in recent years and exchanges see them as a promising area for the development of new contracts. Amex already lists a number of put and call options on ETFs, including on its Nasdaq-100 Index Tracking Stock, which is reportedly the most actively traded ETF in the world.

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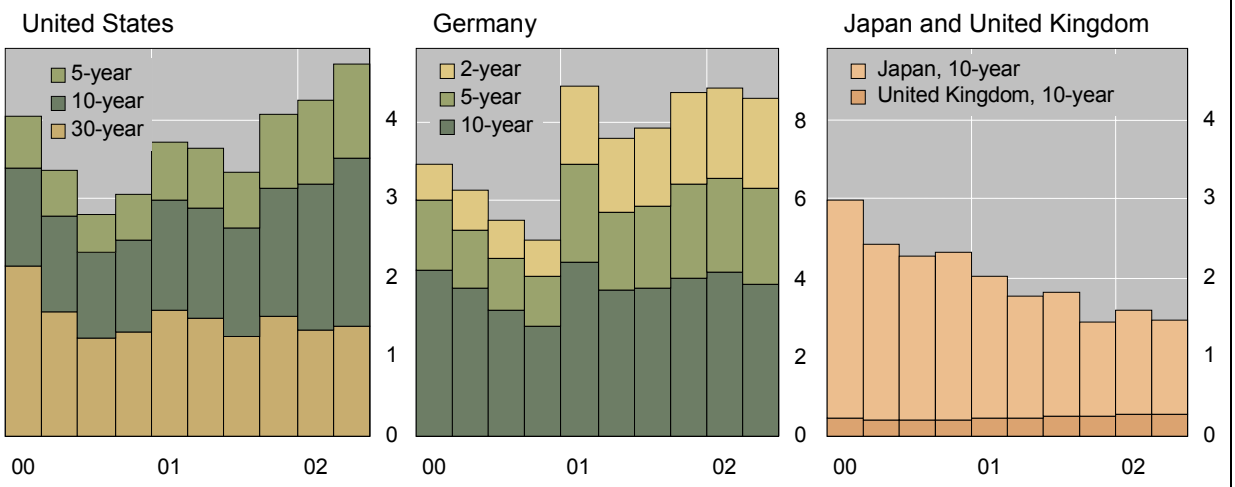
[1] For a more technical exposition, see David A Boberski, "CME to launch interest rate swap futures", *Bond Focus*, SalomonSmithBarney, 29 January 2002. [2] By contrast, the contracts traded on LIFFE and the CBOT both feature coupon bearing pricing, which makes them convex. [3] See the March 2002 issue of the *BIS Quarterly Review* for a more detailed discussion of the CBOT's swap futures contract. [4] ETFs are exchange-traded securities (or index funds) that are backed by an underlying basket of stocks. The basket of underlying securities can be expanded or reduced in accordance with the strength of investor demand, which makes them similar in nature to open-ended mutual funds. However, in contrast to conventional mutual funds, which are generally purchased or redeemed only at end-of-day prices, ETFs may be bought and sold at intraday prices throughout the trading day.

has overtaken the Treasury bond contract as the most active US bond contract since the third quarter of 2001. A shift by the US Treasury to shorter debt maturities, combined with an announcement in October 2001 that it would halt sales of 30-year Treasury bonds, affected the liquidity of the Treasury bond market and contributed to the contract's trend decline.

A similar evolution appears to be taking place in European government bond contracts. The 10-year German government bond future traded on Eurex (Euro Bund) has failed to make further gains since the record volume of trading recorded in the first quarter of 2001, while the two- and five-year contracts (Euro Schatz and Euro Bobl) have made steady inroads.

Turnover in government bond contracts

Quarterly futures contract turnover, in trillions of US dollars



Sources: FOW TRADEdata; Futures Industry Association; BIS calculations. Graph 4.3

Trading in stock index contracts continues to be boosted by expansion in Asia

Overall activity in equity index contracts reached a new record high in the second quarter of 2002, with business expanding by 11% to $15.4 trillion. Turnover rose sharply in June as new corporate irregularities took their toll on global equity markets (Graph 4.4).

Rapid expansion of Korean stock index options

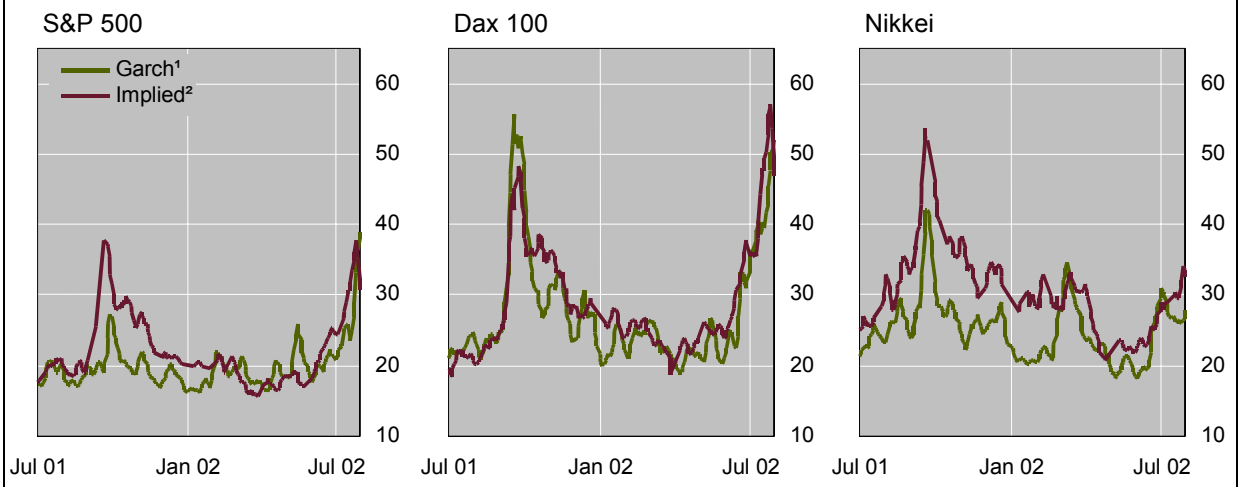
Although turnover was fairly buoyant in all major geographical areas, more than half of the absolute increase in business resulted from the rapid development of trading in Korean stock index contracts (Graph 4.5). Business in these Korean contracts rose by 27% in the second quarter to $3.7 trillion, with options accounting for 91% of the total. As a result, the Korean marketplace is now the second most active after that of the United States, where stock index transactions amounted to $7.6 trillion. Korean turnover is also now significantly higher than that on all European exchanges put together, which amounted to $3.2 trillion in the most recent period. The exclusion of trading in Korean stock index contracts reduces the overall rate of expansion of that market segment to 7%, with turnover in North American instruments rising by 8% and that in European ones growing by 5%.

Changing pattern of activity in stock index contracts

As with the market for long-term interest rate instruments, stock index contracts have also witnessed some changes in the pattern of activity in recent periods. For example, the CME's S&P 500 future, long the most important stock index contract in the world, has been rapidly losing ground to its e-mini S&P 500 contract. With its small size (one fifth of the value of the standard S&P 500 contract) and electronic trading during both regular trading hours and out of hours, the e-mini contract has been well received by retail investors.

Volatility of major equity markets

Five-day moving averages



[1] Annualised conditional variance of daily stock returns from a GARCH(1,1) model. [2] Volatility implied by the prices of at-the-money call options.

Sources: Bloomberg; national data; BIS calculations. Graph 4.4

Tentative revival of currency contracts

Currency contracts, which account for less than 1% of overall trading in financial instruments, grew by 19% in the second quarter of 2002, to $808 billion. Such contracts appear to have been recovering in recent quarters from a long period of decline. This recovery stems largely from a significant increase in the turnover of dollar/euro futures traded on the CME. Trading in the CME's major European "legacy" contracts (dollar/Deutsche mark and dollar/French franc) had declined sharply ahead of the introduction of the euro in early 1999. Although the new dollar/euro contract has since replaced legacy contracts, its turnover has yet to match the high volumes achieved by legacy contracts in the mid-1990s.

Significant increase of euro/dollar contracts

Sharp jump in global trading in July

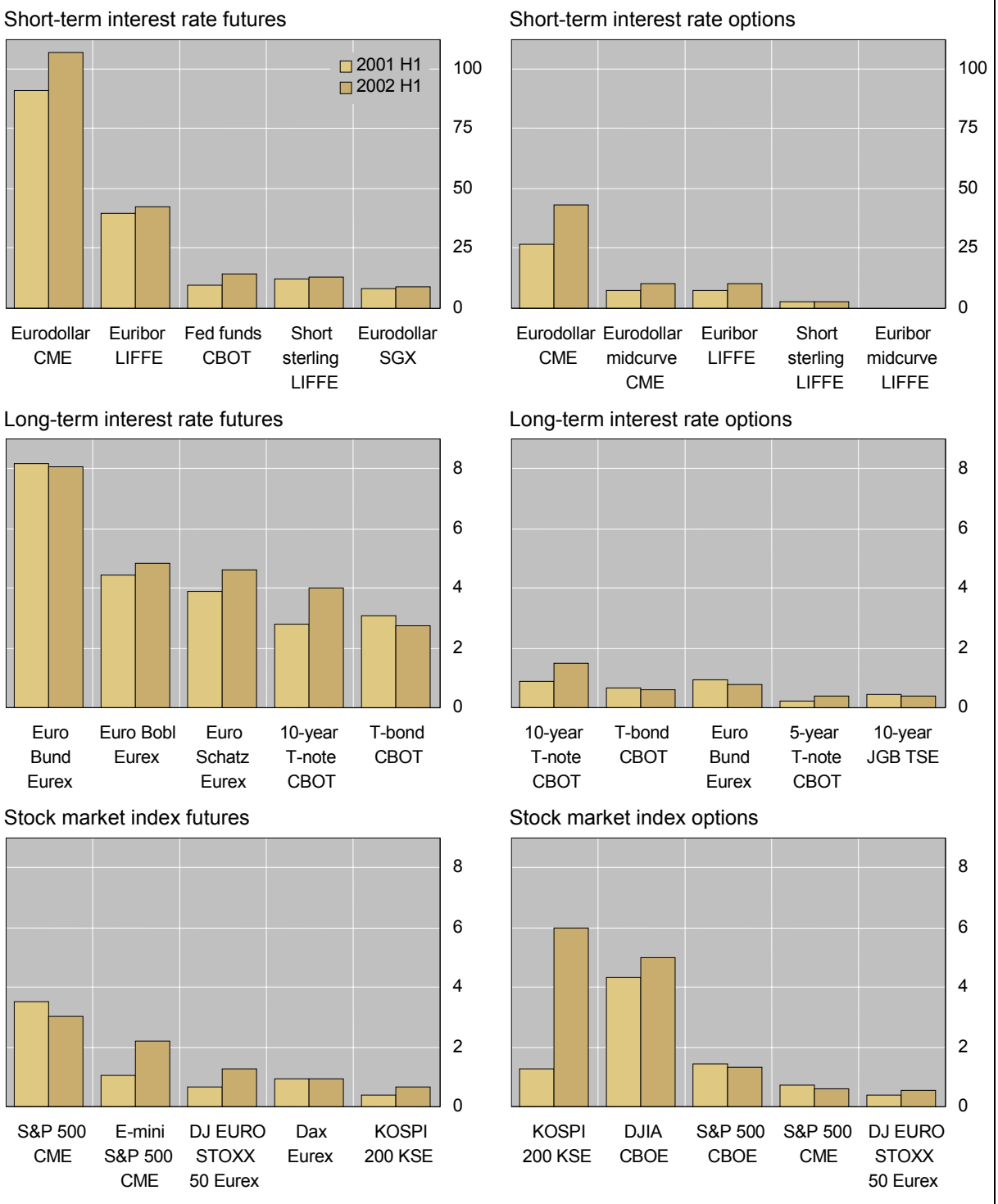
Preliminary data on the global turnover of financial contracts for the month of July show that the number of units traded rose by 29% (to 412 million) compared to June, with several exchanges in Asia, Europe and North America reporting new monthly trading records.[2] Much of the sharp increase observed relative to June stemmed from a 41% rise in the number of stock index transactions, principally in Asia and North America. The confidence of investors in equity markets was further damaged by new revelations of accounting irregularities (illustrated by the upsurge in equity market volatility in July; Graph 4.4), including WorldCom's earnings restatement at the end of

Renewed market turbulence in July

[2] Statistics on the dollar value of transactions monitored by the BIS were not available at the time of this writing.

Value of turnover for the most active exchange-traded contracts

In trillions of US dollars



Sources: FOW TRADEdata; BIS calculations. Graph 4.5

June. These developments appear to have accounted for the upswing in transactions as investors presumably sought to protect the value of their equity holdings.

Markets remain dominated by a narrow group of products

Despite their buoyancy, exchange-traded derivatives markets are still dominated by a narrow group of products (Graph 4.5). The five most active money market futures accounted for almost 95% of global turnover in the first half of 2002. With market participants tending to use one short-term instrument per major time zone, few new contracts have succeeded in capturing market share in recent years. One exception has been midcurve options on interest rate futures,[3] which have managed to establish themselves on the CME.

Trading is concentrated in a few money markets

Trading in longer-term fixed income futures is slightly less concentrated than is the case for money market contracts, with the five largest longer-term interest rate futures accounting for 77% of global activity in such instruments in the first half of 2002. In large part, this reflects the greater opportunities for positioning along the longer-term segment of the yield curve.

In the case of stock index futures, concentration is lowest for stock index futures, with the top five futures accounting for 63% of total trading. This can be explained to some extent by the introduction in recent years of a number of index contracts based on various subsegments of equity markets.

[3] Standard options provide for the delivery of underlying futures with the same maturity as the options, whereas midcurve options provide for the delivery of positions in longer-dated futures. Such options enable market participants to manage long-term exposures and to benefit from a wider range of plays on market volatility.

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Housing markets and economic growth: lessons from the US refinancing boom[1]

Household spending remained unexpectedly strong in the OECD area during the 2001 downturn. One explanation is that it was supported by rising real estate values and declining mortgage rates, mainly in the English-speaking countries.[2] Such resilience was particularly remarkable for the United States, where overall household wealth declined because of falling equity prices. The US mortgage market appears to have played a significant role in this strength. There was a wave of mortgage refinancing in 2001 that was unique in both its nature and magnitude. This special feature discusses the effect of mortgage refinancing during the 2001 slowdown and the role played by changes in the structure of the market for housing finance.[3]

The 2001 refinancing boom and household spending

An unprecedented number of mortgage loans were refinanced in the United States in 2001. The estimated 11.2 million refinanced mortgages in 2001 is about twice the figure of 1998, a year that had been perceived as "extraordinary" at that time.[4]

Refinancing of mortgages can add to the effective purchasing power of households in two ways. First, through additional borrowing against an increasing value of property. Such "cash-out" or "extraction" of housing equity requires that the new mortgages be for larger dollar amounts than those being refinanced. The difference between the new and refinanced loan principals (less fees) provides immediate cash to the household. Second, when the rate

[1] We would like to thank Angelika Donaubauer for excellent research assistance. The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS.

[2] See BIS (2002).

[3] On the link between housing markets and consumption in the United Kingdom, see Aoki et al (2002).

[4] See Bennett et al (1999).

Indicators of US refinancing activity, 1997–2001						
Year	Loans refinanced (millions)	Age of refinanced loan[1]	Appreciation of refinanced property[1]		Percentage of refinancing with cash-out	Ratio of old to new interest rate[1]
			Total[2]	Annual[3]		
1997	2.8	4.0	13	3.1	62	1.07
1998	6.7	4.1	10	2.4	49	1.18
1999	4.4	5.6	13	2.2	66	1.12
2000	2.4	6.0	26	3.9	81	0.97
2001	11.2	2.6	14	5.2	54	1.18

[1] Median. [2] Total appreciation over the period between original and refinanced mortgage, in percentages. [3] Average annual appreciation over the period between origination and refinancing of the mortgage, in percentages.

Sources: Credit Suisse First Boston; Freddie Mac. Table 1

on the new mortgage is lower than that on the refinanced one, the reduced interest payments add to disposable income given the same size of mortgage. For 2001, the evidence indicates that, on balance, the first effect has been considerably larger than the second.

Cash-out of housing equity boosted disposable income ...

In 2001, refinancing gave a considerable boost to effective purchasing power through the cash-out of increased housing wealth. The principal of 54% of new mortgages was at least 5% higher than that of refinanced mortgages (Table 1), suggesting that about half of the refinanced mortgages generated net cash payouts. The median price appreciation of property refinanced in 2001 was about $25,000[5] in only 2.6 years, reflecting the surge in housing prices in 2000 and 2001.

The propensity to tap into home equity was even stronger in 2000, when an estimated 80% of refinancing transactions resulted in equity cash-out. During the six years since the previous financing, about $36,000 of additional equity had accumulated in the median refinanced house. Nevertheless, in 2001 the potential increase in effective purchasing power was much larger as the number of refinanced loans was five times higher.

... but was accompanied by rising levels of mortgage debt

Tapping home equity through mortgage refinancing thus contributed to rising levels of household debt. Mortgage debt, which accounts for two thirds of household debt, has grown by $850 billion or 19% over the past two years (Graph 1). To some extent, this increase reflects consolidation of other debt such as credit card balances. Nevertheless, instead of declining, as was the case during past recessions, household liabilities have risen to an all-time high of 106% relative to disposable income. US homeowners' equity in their households has dropped about 10 percentage points in the last decade and stands today at only 55%.

[5] The National Association of Realtors estimates that the average sale price of an existing single family home was $176,200 in 2001. Applying quarterly data (not shown here) on the median appreciation of refinanced property to this figure yields a median appreciation of $24,700. This calculation provides a conservative estimate since it does not take into account principal repayment in the interim that would increase the available cash-out.

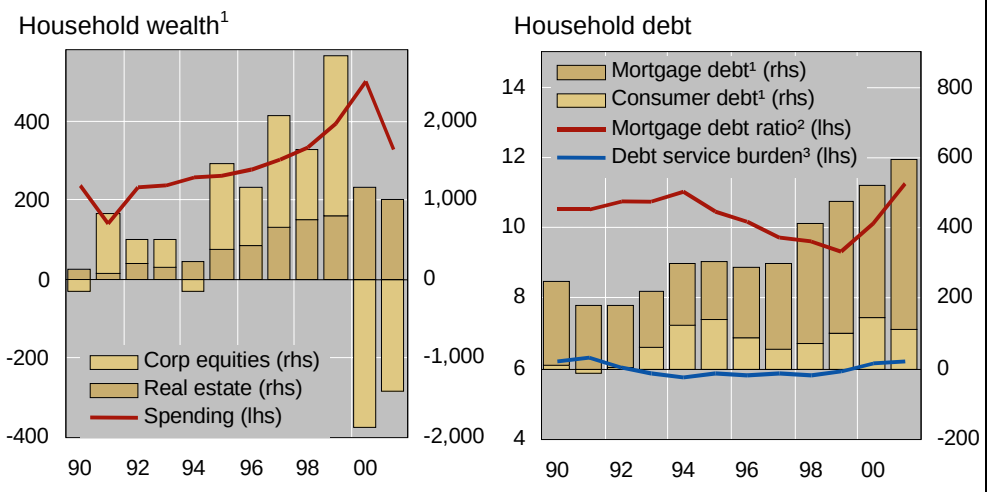
Another consequence of the leveraging of housing equity is that refinancing, although substantially lowering the rates paid on outstanding mortgages (Table 1), has not translated into a lower debt service burden. In 2000, some households even refinanced at rates that were higher in order to generate cash-out. The cost of servicing mortgage debt relative to disposable income is now as high as it was in the early 1990s (Graph 1).

Significant effect on consumption

Mortgage refinancing seems to have played a significant role in keeping US consumption unusually buoyant through the recent downturn. Assuming that 54% of refinanced mortgages generated a net cash payout and that the full median appreciation of property refinanced in 2001 of $25,000 was cashed out, one arrives at an estimate of $150 billion of discretionary cash flow from household equity extraction. This is equivalent to 2.3% of owners' equity in household real estate (compared to $67 billion or 1.1% of owners' equity in 2000).

About half of "liquefied" housing equity is estimated to be used for current expenses.[6] In the late 1990s, an estimated one fifth of the cash-out was consumed. Another third was spent on home improvement. The propensity to consume arising out of the 2001 refinancing-generated windfall may have been somewhat higher. There is some evidence that homeowners "overreact" to higher income from housing price appreciation.[7] Taking the ratios of total current expenses (50%) and consumption (20%) as upper and lower limits, the

Household wealth and debt



[1] Annual changes, in billions of US dollars. [2] As a percentage of total household assets. [3] Household debt service payments for mortgages as a percentage of disposable income; annual averages.

Source: US flow-of-funds data. Graph 1

[6] According to the triennial Survey of Consumer Finances, 18 cents of every dollar liquefied in 1998 and early 1999 were spent on "consumer expenditures" and 33 cents on "home improvements", which is included in residential investment. About 28 cents were used for the repayment of other debts (Brady et al (2000)).

[7] See Capozza and Seguin (1996).

2001 housing equity cash-out accounted for 10–25% of the total increase in consumption.

Driving forces behind the 2001 refinancing boom

Buoyant refinancing activity in 2001, and its impact on household spending, can be seen as the result of the coincidence of lower nominal mortgage rates, declining transaction costs of refinancing, and a rapid appreciation of refinanced property.[8]

Refinancing was driven by lower interest rates ...

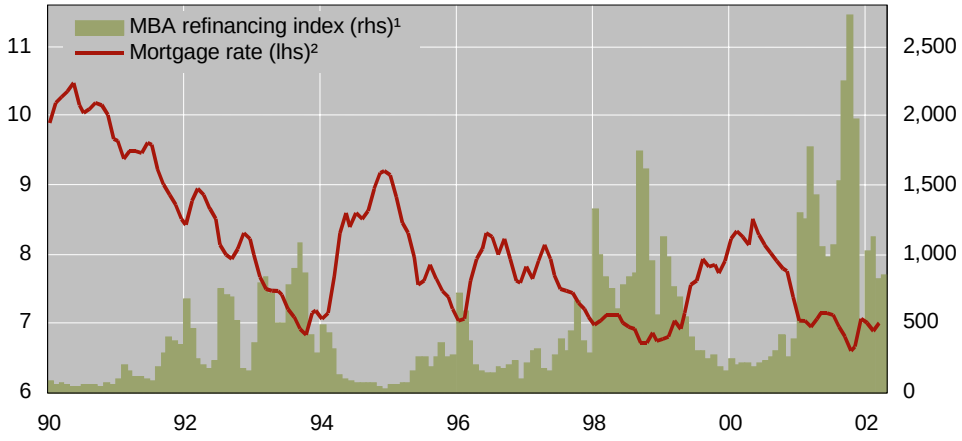
The economic slowdown in the United States provided the backdrop for a sharp fall in mortgage interest rates. In line with capital market yields in the strong investment grade range, nominal mortgage rates have trended down since late 2000, recently reaching lows not seen in three decades (Graph 2).

Declining mortgage rates make it attractive for borrowers to exercise the option to repay mortgage loans, typically without penalty, before scheduled maturity dates. However, the upsurge in mortgage refinancing during 2001 was much stronger than in earlier mortgage rate cycles. In 1998, the last time that rates went down as much as in 2001, the number of refinanced mortgages was about half of the figure for 2001. In both instances, borrowers reduced their effective borrowing rates by about 125 points by exercising the prepayment option.

... declining transaction costs ...

In addition to lower nominal mortgage rates, the transaction cost of replacing one loan with a new one – the penalty for refinancing – has declined. Homeowners have benefited from a consistent reduction in the percentage of the loan amount that has to be paid as refinancing fee (referred to as “points”;

Mortgage rate and refinancing index

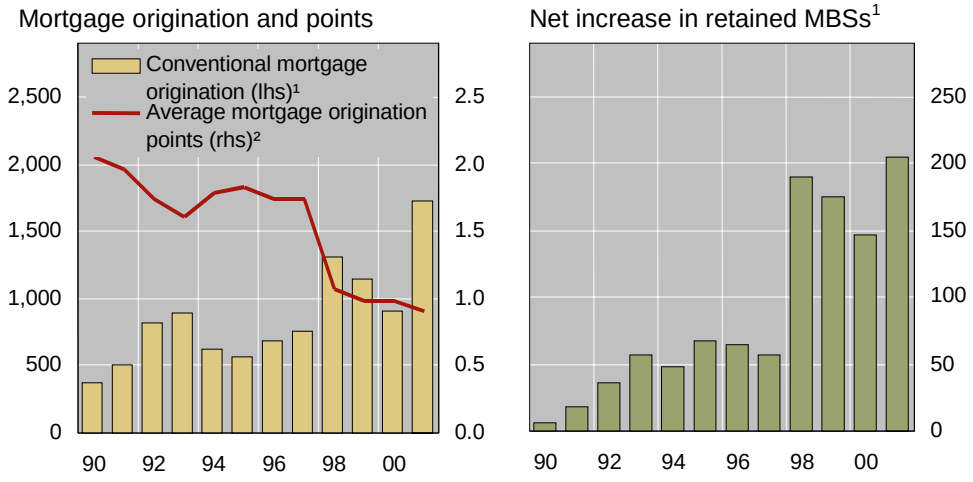


¹ January 1991 = 100. ² In percentages.

Sources: Bloomberg; Freddie Mac. Graph 2

[8] Refinancing activity also depends on a number of other micro- and macroeconomic factors, including the volatility of mortgage rates, transaction costs of refinancing and credit quality of the borrower. See, for example, Bennett et al (2001).

Mortgage origination, points and GSEs' retained mortgage portfolio



[1] In billions of US dollars. [2] In percentage points.

Sources: Freddie Mac; Office of Federal Housing Enterprise Oversight (OFHEO). Graph 3

Graph 3). Average points paid on 30-year conforming mortgages currently stand at only 50 basis points. This is only about one third of the points charged five years ago.

Since the sharp drop in points in 1998, refinancing transactions have accounted for 43% of the total amount of mortgage origination, compared to 34% during the 1993–96 interest rate cycle. This suggests that the reduction in the cash payment threshold has increased the propensity of households to refinance irrespective of the actual mortgage rate.[9]

... and surging housing prices

A surge in housing prices created the additional wealth that households tapped through refinancing. The last two years have been unique as regards the pattern of housing prices. Every previous recession has been accompanied by at least a slowdown in housing price increases, and on two occasions housing prices actually declined. In contrast, house price increases accelerated during the economic slowdown that started in mid-2000. The OFHEO house price index surged 9.3% in 2000 and 6.0% in 2001. This is much more than the annual average increase of 4.6% over the last 20 years.

In addition to demographic trends that are a major long-term driving force behind housing prices,[10] favourable financing conditions may also have supported their rise. Housing affordability has improved due to lower mortgage rates and lower requirements for down payments, and home ownership has jumped from 64% to almost 68% in the last five years. Increasing demand for housing, accentuated by shortages in certain urban areas, results in upward pressure on prices.

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[9] An econometric estimate based on monthly data from January 1990 to March 2002 supports the significance of points for refinancing activity. When the refinancing index is regressed on points, changes in housing prices and changes in interest rates, points show the expected negative sign (lower points increase the refinancing index): a 50 basis point drop in points has an effect similar to a 1 percentage point drop in mortgage rates.

[10] See Joint Center for Housing Studies (2002).

Refinancing and changes in mortgage finance

Beyond cyclical factors, such as the weakening of the economy and the easing of monetary policy, the reasons for the reduction in refinancing costs lie partly with changes in the mortgage market and the behaviour of some of its key participants. These changes have meant that the financial system was able to absorb high mortgage origination and record high refinancing at broadly stable spreads of mortgages over treasuries.

Lower transaction costs of mortgage origination ...

The introduction of new technology seems to have contributed to the drop in points, thereby making the refinancing of mortgages easier. One prominent example is the computerised underwriting of mortgages eligible for refinancing by Fannie Mae and Freddie Mac.[11] Fannie Mae and Freddie Mac, while private institutions, are government-sponsored enterprises (GSEs) with the public mandate to promote house ownership. They are by far the largest players in residential mortgage markets.

Lower points are not exclusively the result of the behaviour of intermediaries since they also reflect the choice of borrowers among various alternatives for mortgage refinancing. However, the rather abrupt decline in points supports the argument of a supply side change affecting a large share of the market.

... and buy-and-hold by the GSEs seem to have facilitated refinancing

A strong expansion of the GSEs' retained mortgage portfolios seems to have played an important role in absorbing increasing mortgage origination and refinancing.[12] In the past, the GSEs had mainly "passed through" mortgages originated by banks to other investors through securitisation. Since 1998, the GSEs have also become the largest holders of such debt (Graph 3). The year 2001 marked a peak in the GSEs growth of retained mortgage portfolios, which increased by $207 billion. This is equivalent to 43% of household net borrowing in the form of home mortgages, a figure slightly below the average of 1998–2001 (47%), but much higher than earlier in the 1990s (27% in 1990–97).

Mortgage retention could have stabilised spreads through the unbundling of the duration and prepayment risk of mortgage portfolios. One element of such unbundling has been the issuance of GSE's own debt, and in particular of non-callable benchmark bonds. These instruments are attractive to a wider investor base compared with MBSs because of their high-credit rating, liquidity and the absence of prepayment risk. The other element has been the management and hedging of interest rate and prepayment risk through derivatives markets. Hence, in addition to "traditional" investors in MBSs, large

[11] According to Fannie Mae (1999), the introduction of a computer-based underwriting system enabled lenders to cut mortgage origination costs by over $800.

[12] The GSEs' retained mortgage portfolios could also have acted as a buffer between the primary mortgage market and the MBS market. This could have supported primary market activity if it prevented temporary increases in refinancing costs and eventually mortgage rates. A recent paper by Naranjo and Toevs (2002) finds that the GSEs' portfolio and securitisation activities stabilise mortgage markets by reducing the volatility of mortgage rates. Spreads of MBSs over treasuries declined in the first and the third quarter of 2001, when the GSEs were particularly active buyers of MBSs. This would be consistent with a buffer function of retained mortgage portfolios.

players in derivatives markets have become increasingly important for the hedging of prepayment risk.

One factor supporting the expansion of GSE's balance sheet and the associated unbundling has been the funding advantage resulting from the GSEs' agency status. The GSEs' long-term debt issues are rated triple-A by Moody's and Standard and Poor's compared with the double- or single-A quality of mortgage debt or the debt rating of major banks. In 2001, the stock of outstanding GSE debt increased by $259 billion or 24%.

A second, related, aspect was the changing shape of fixed income markets in the late 1990s.[13] Against the backdrop of a shrinking US Treasury market, the GSEs launched benchmark dollar debt issuance programmes in 1998 to exploit investors' appetite for highly rated and liquid securities. Such debt is now issued on a substantial scale, spanning maturities from two to 30 years and in accordance with a scheduled financing calendar. Benchmark issuance in euros was started in 2000 and now rivals that of some European sovereign issuers, both in size and liquidity.

Looking ahead

Refinancing again strong in 2002, but several factors point to a possible slowdown

Against the backdrop of a further decline in mortgage rates and continuously strong housing markets, refinancing has remained buoyant in the first half of this year. However, from the financial side, several factors point to a possible slowdown in refinancing activity and the cash-out of housing equity.

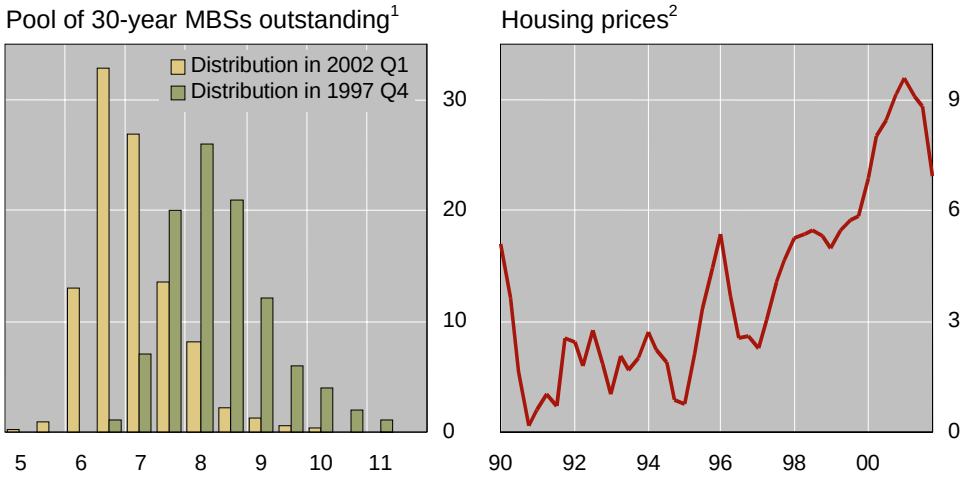
By mid-August, the interest rate for 30-year mortgages had reached a new record low of 6.22%. A further decline, which would further stimulate refinancing, would probably be accompanied by a deteriorating economic outlook. Under such a scenario, declining household confidence could at some point adversely affect the propensity to cash out and spend increases in housing wealth.

Moreover, the stock of mortgages suitable for refinancing has dwindled significantly as a consequence of the buoyant refinancing activity in the past two years. Currently, only 26% of 30-year mortgage-backed securities (MBSs) outstanding have a coupon above 7%, compared to 92% at the end of 1997 (Graph 4). Refinancing would thus offer substantial benefits in terms of much lower interest payments only for a much smaller share of borrowers than in the past.

The scope for more supply side changes in housing finance that could further increase the propensity to refinance through structurally lower costs appears limited. Transaction fees in the primary mortgage market have already declined dramatically. The conditions supporting a further expansion of GSE debt will very much depend on the supply of other high investment grade debt. In particular, the future supply of US Treasuries now seems to be significantly greater than was previously expected.

[13] On the changes in fixed income markets, see BIS (2001).

MBSs outstanding and housing prices



[1] Distribution by coupon (x-axis); as a percentage of total outstanding. [2] Weighted "repeat sales" index of movements in the price of single family housing whose mortgages have been purchased or securitised by Fannie Mae or Freddie Mac; percentage change over four quarters.

Sources: Bloomberg; Freddie Mac; OFHEO. Graph 4

In these circumstances, refinancing activity would largely depend on housing price developments. By the first quarter of 2002, the OFHEO house price index again had risen by 6.1% over the precedent four quarters. The mere absence of a further substantial increase in house prices would dampen refinancing activity and reduce the function of housing equity as a buffer for other wealth losses.

Conclusion

The US refinancing boom provides an example of how changes in financing patterns can have effects on macroeconomic performance. The coincidence of sharply increased refinancing activity since 1998 and innovations in mortgage markets is consistent with the view that supply side changes did affect the volume of refinancing. In turn, the "cash-out" of housing equity through mortgage refinancing appears to have supported household spending. At least in the United States in 2001, this seemingly had a significant countercyclical effect.[14]

From a longer-term perspective, the recent refinancing boom could herald a new world where housing equity is increasingly viewed as a source of liquidity and as a means to smooth fluctuations in income and wealth. This would not necessarily be limited to the use of traditional mortgages. Home equity loans (or second mortgages) and home equity lines of credit could complement the use of mortgage refinancing as means for managing home equity and debt.

[14] An example of procyclical effects was witnessed in the Netherlands in 2000. See Netherlands Bank (2002).

Such enhanced opportunities to manage household cash flow and eventually spending could – as in 2001 – help to reduce the cyclical volatility of the economy. In the future, however, greater scope for intertemporal smoothing of spending runs the risk of an overextension of household balance sheets, especially if higher housing prices are perceived as a source of continuing future returns. Such debt overextension could cause housing investment to turn into a financial burden rather than a buffer should house prices peak or fall, or interest rates rise. Against this backdrop, sustainable household debt levels and patterns in housing finance would be necessary preconditions for enhanced financial flexibility of households in the long run.

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Explaining changes in house prices[1]

Against the backdrop of sharply lower global equity prices, an important question facing policymakers is the outlook for consumer spending.[2] The exact relationship between changes in household wealth and consumer spending is uncertain. Even so, the recent large declines in equity prices are likely to be a depressing influence on consumer spending in the future. Offsetting this effect is the strong recent growth in house prices in a number of countries. Academic research has documented an important influence of housing wealth on consumer behaviour.[3] The outlook for consumer spending, therefore, also depends on the future course of house prices. Presumably, a continuation of the global economic slowdown would slow the growth in house prices. Yet, house prices could also come under pressure even in the absence of a further slowdown in economic activity if stock market wealth is an important determinant of the demand for housing.

This special feature examines the extent to which house price fluctuations in six advanced economies – the United States, the United Kingdom, Canada, Ireland, the Netherlands and Australia – can be attributed to fluctuations in national incomes, interest rates and stock prices. To this end, the joint behaviour of house prices, national incomes, real interest rates and stock prices is studied within the context of a simple empirical model. The empirical framework permits one to identify the typical response of house prices to changes in a small set of key determinants and also to examine the extent to which house prices have tended to deviate from the values predicted by them.

Interesting results emerge from the analysis. For instance, the empirical results indicate that shocks to national income, stock prices and interest rates influence house prices, and that some of the recent large gains in house prices can be explained in terms of the favourable economic developments captured by these variables.

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[1] The views expressed in this article are those of the author and do not necessarily reflect those of the BIS.

[2] Greenspan (2002) discusses the uncertainties associated with the outlook for US consumer spending following the recent declines in equity prices.

[3] See, for example, the study by Case et al (2001).

Housing price data

This special feature studies the behaviour of housing prices in six countries: the United States, the United Kingdom, Canada, Australia, the Netherlands and Ireland. These countries were chosen because of the availability of relatively long time series of housing prices at a quarterly frequency.[4]

Data for six countries show rising house prices

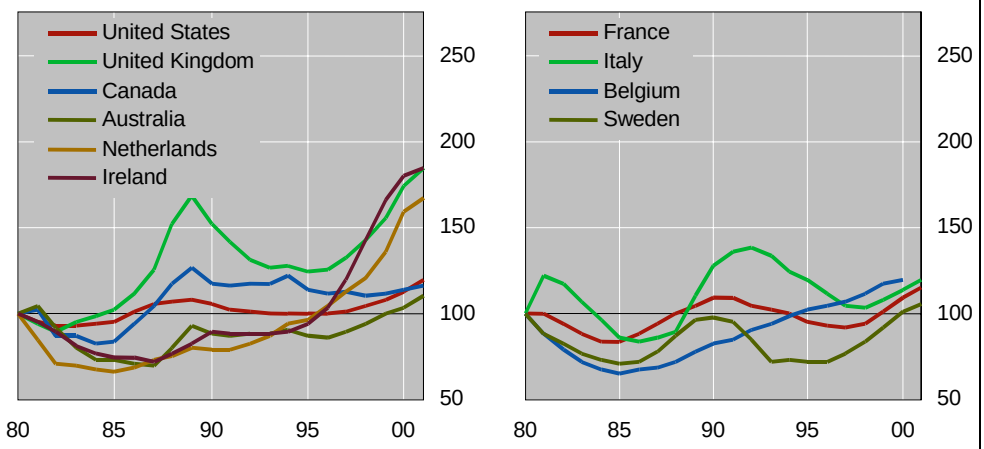
These series, which attempt to capture the average price change of existing homes, are shown in the left-hand panel of Graph 1. There is a broad similarity of general trend movements in the housing prices studied, and also in house prices in other countries (Graph 1, right-hand panel). Since the mid-1990s, housing prices have been increasing fairly rapidly. In the United States, for example, real house prices rose 21% over the 1995–2001 period. Other markets have recorded even stronger gains. In the United Kingdom, real house prices rose 42% over the same period and in the Netherlands and Ireland 60% and 70%, respectively. There was a similar period of rapid growth during the 1980s, after which the global economic slowdown of the early 1990s was associated with lower house price appreciation.[5]

The empirical framework

The empirical model adopted in this special feature is a small vector autoregressive (VAR) model of the type pioneered by Sims (1980). This framework, explained in more detail in the box on page 54, permits one to study the dynamic influences of a small number of key determinants on home

Inflation-adjusted house prices

1980 = 100



Sources: Catella; Frank Russell Canada Ltd; Investment Property Databank Ltd; Ministère de l'Équipement, des Transports et du Logement; National Council of Real Estate Investment Fiduciaries; Nomisma; national data. Graph 1

[4] From a starting point in the 1970s to the first quarter of 2002.

[5] For a more detailed discussion, see BIS (1993, 2002).

values.[6] Arguably, the demand for housing, like the demand for other goods, is positively related to real household income and wealth. Accordingly, the growth of real national income and changes in stock market wealth are two of the key determinants of house values included in the VAR.

A house is a long-lived asset that delivers consumption services over many periods, and the implicit value of a house is the discounted value of the expected service stream. Home values therefore depend on the current and expected future interest rates used to discount the housing service flow. Under ideal market conditions, a long-term interest rate might be expected to capture the influences of the entire time profile of discount rates. However, capital markets are often less than perfect. In particular, short-term rates may capture financing constraints and cash flow effects. In fact, floating rate mortgages are quite common in a number of the countries considered here.[7]

Our model captures effects of income, stock market wealth and interest rates

Economic theory suggests that housing prices, like other asset prices, respond to new information about the determinants of value. Within the context of the VAR model, it is possible to compute the typical response over time of house prices to unforecastable changes, ie "surprises", in the key determinants of value. For instance, one can compute the typical response over time of house prices to a surprise in the growth rate of national income. There follows a discussion of the response of house prices to three shocks, roughly one standard deviation in size: a 1% surprise increase in the growth rate of national income, a 1 percentage point surprise decrease in interest rates and a 10% increase in stock prices.

What drives house prices?

This section discusses the responses of house prices to the three shocks mentioned above. Before discussing the estimates, a question that naturally arises is whether the cumulative influences presented actually represent responses of housing prices to the key determinants examined or instead simply reflect a coincidence of sampling error. In an attempt to answer this question, formal statistical tests were conducted. The results of the tests indicate that, as a group, the key determinants considered are statistically significant variables in explaining changes in house prices.[8] To be sure, there is substantial uncertainty concerning the precise size of the influences. Nevertheless, every cumulative response has the theoretically correct sign, further suggesting that the results are unlikely to be due only to chance.

Statistical tests suggest these effects are significant

There is also uncertainty concerning the appropriate model for studying these dynamic relations, for which the VAR model employed here is just one possibility. Furthermore, the appropriateness of the assumptions used to

[6] The quarterly percentage change in real house prices is included in the VAR, rather than the level of prices, because it is more likely that growth rates in house prices fluctuate around a constant mean.

[7] See Borio (1995).

[8] These tests, which rely on Monte Carlo experiments, are discussed in more detail in the box on page 54.

identify the VAR model can also be questioned, including the appropriate ordering of the variables. These caveats are discussed in more detail in the box on page 54.

Shocks to GNP growth

Increases in national income lead to higher house prices ...

Increases in the growth rate of national income would be expected to lead over time to higher house prices, and this intuition is consistent with the data (Graph 2). There is a broad similarity of the estimated responses across countries. Point estimates indicate that increases in GNP growth have a lasting positive influence on house prices, even though they are also associated with a contemporaneous rise in real interest rates. A 1% increase in the growth rate of GNP is associated with a rise in real house prices in the range of 1–4% after three years. The estimated effect is greatest in Ireland. This is due in part to the high degree of persistence of the shocks to Irish national income. Over the sample period, an unexpected increase in the growth rate of Irish GNP has been associated with higher GNP growth over the next few years.

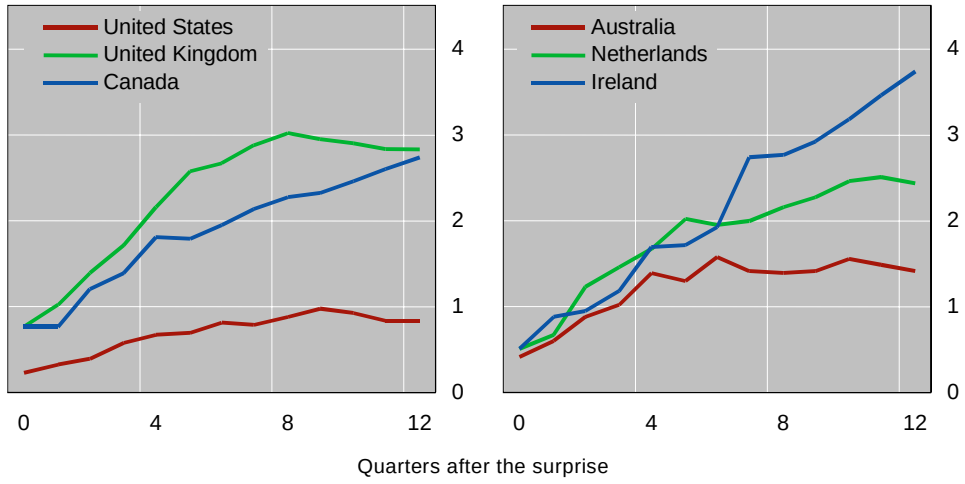
Shocks to real interest rates

... as do declines in interest rates

The point estimates also indicate that decreases in real interest rates lead over time to increases in house prices (Graph 3). This is true whether a real long-term interest rate or a real short-term interest rate is included in the model. A 100 basis point decrease in the real short-term interest rate leads to an increase in house prices in the range of ½–1½ percentage points over four quarters. For all countries, there is a weaker response of housing prices to decreases in long-term interest rates. As discussed above, the difference in the impacts of long and short rates could be attributable to capital market imperfections.

Response of house prices to GNP

Cumulative quarterly changes following a 1% increase in GNP, in percentages

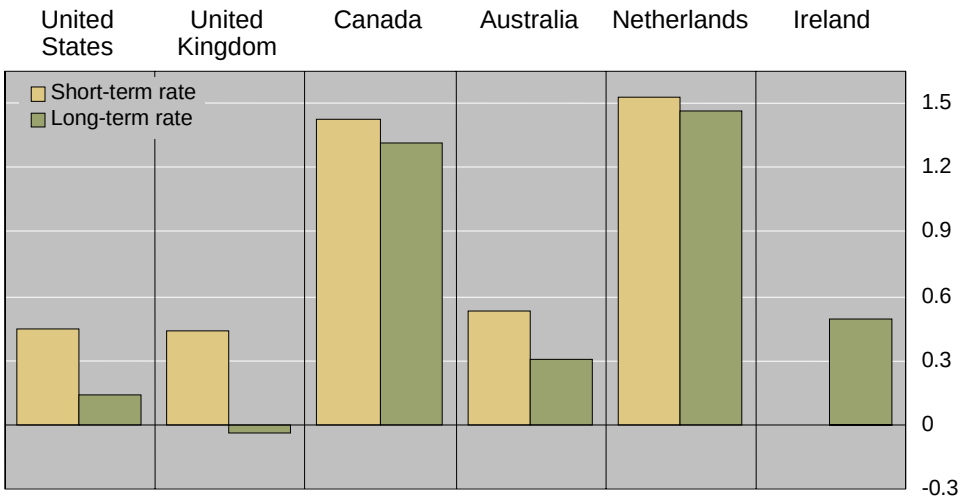


Sources: National data; author's calculations.

Graph 2

Response of house prices to interest rates

Cumulative percentage change after four quarters to a 1% point decrease in interest rates[1]



[1] Calculated for both a real short-term and a real long-term interest rate (for Ireland, long-term rate only).

Sources: National data; author's calculations. Graph 3

Changes in equity prices

Stock prices seem to have a strong effect in the United Kingdom and Canada ...

For all countries, the estimated model suggests the existence of a positive relationship between changes in equity and house prices (Graph 4). Point estimates indicate that in the United States, Canada and Ireland house prices increase by about 1% over three years following a 10% rise in equity prices. In Australia and the Netherlands, house prices increase by about 2%. A much larger effect is estimated for the United Kingdom, where housing prices typically rise by 5% after three years.

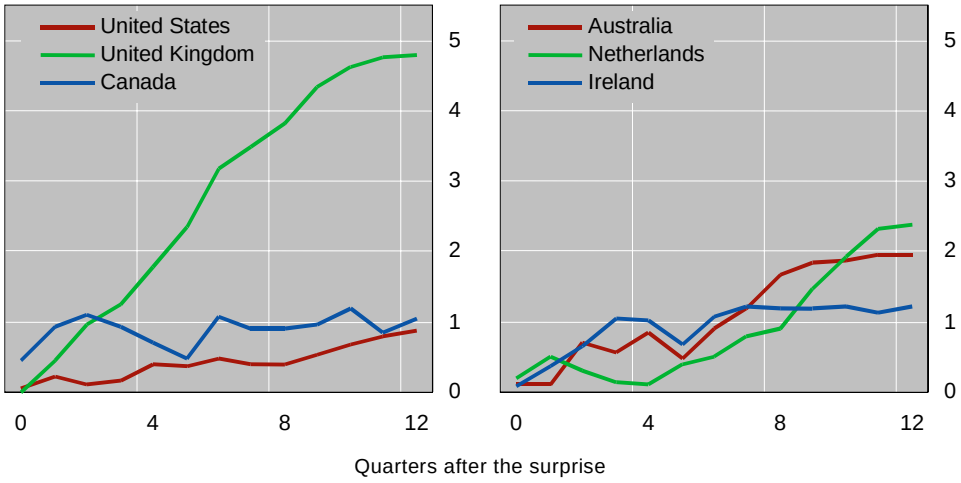
... because they anticipate income growth

The positive response over time of house prices to movements in equity prices could reflect the tendency of the latter to forecast growth in national income. The estimated responses lend some support to this view. In the United Kingdom, a 10% rise in equity prices is typically associated with 0.7% greater national income growth over the next three years. In Australia, such a shock is associated with a rise of about 0.3% in national income growth after three years. In general, however, the responses of national incomes to changes in stock prices do not appear large enough to completely explain the stock price effect on house prices. This result, coupled with the observation that stock ownership is fairly widespread in most of the countries studied, suggests that the positive relation probably also reflects a stock market wealth effect on housing demand.

It is perhaps surprising that the impact of stock price fluctuations on US housing prices appears to be smaller than in some of the other countries, given that stock ownership is relatively widespread in the United States. There are at least two possible explanations for this finding. First, it could be consistent with the view that households in the United States might not have regarded their

Response of house prices to equity prices

Cumulative quarterly changes following a 10% increase in equity prices, in percentages



Sources: National data; author's calculations. Graph 4

particularly large stock market gains as being permanent. In this case, the equity price gains need not have been associated with substantially larger perceived household wealth.[9] It is a puzzle why such stock market gains might not be regarded as permanent. Second, in the United States stock market investments may be a substitute for housing assets. Widespread home ownership in the United States and a history of house price appreciation and turnover in ownership seem to have made housing an attractive investment to a greater degree than in other countries. In particular, periods that witness large investment flows into equity markets may also see reduced investment demand for housing, leading to lower house price appreciation during periods of relatively strong equity price growth.

Which shocks matter?

In addition to identifying the typical response of house prices to a particular shock, the estimated VAR model can be employed to shed light on the relative importance of each disturbance in explaining movements in house prices during the period covered by the estimation.

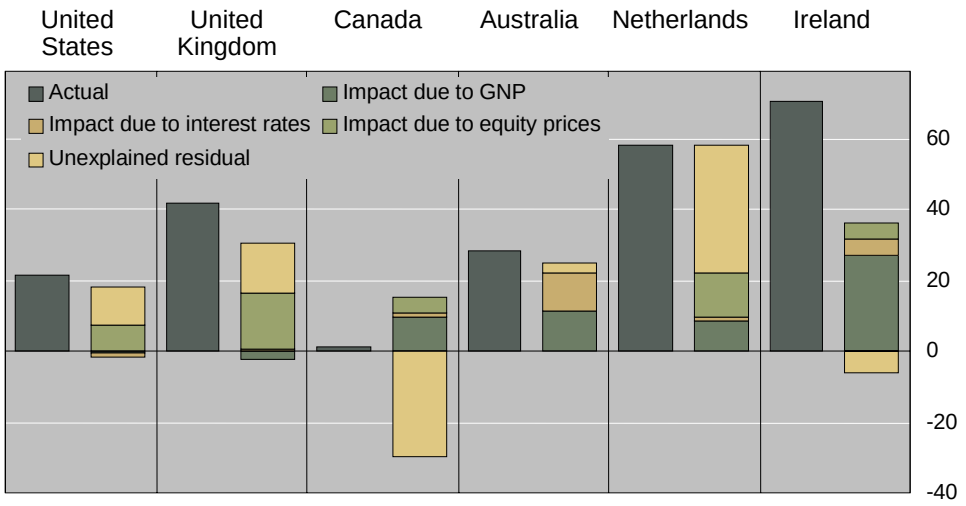
Stock prices are surprisingly important

Perhaps not surprisingly, point estimates suggest that the relative importance of different disturbances varies across countries. One common finding, however, is the relative importance of stock market fluctuations for explaining house prices. In most countries, changes in stock prices appear to be as important for house prices as are fluctuations in GNP and interest rates. For instance, in the United States, Canada and Australia, each disturbance explains between 7 and 15% of the variance of house price growth at the three-year horizon. A much larger role for stock prices is found in the United

[9] In support of this view, Lettau and Ludvigson (2002) fail to find a significant impact of the previous decade's rise in US share prices on US consumption.

Developments in house prices

Cumulative percentage growth over 1995 Q1–2002 Q1



Note: For each country, the first bar shows the growth in house prices over the period and includes the component which can be accounted for by the dynamics of shocks up to and including 1994 Q4. The second bar decomposes the part of the actual price change that is not accounted for by these dynamics. The components correspond to the contribution of shocks to GNP growth, interest rates and equity prices since 1995 Q1.

Sources: National data; author's calculations. Graph 5

Kingdom, where stock price fluctuations explain 35% of the variance of house price growth at a three-year forecast horizon, while fluctuations of GNP explain about 20%.

Actual and "explained" house price appreciation

The VAR model can also be used to decompose the actual house price appreciation over a particular period into three parts: the part that would have been expected to occur on the basis of information available at the start of the period concerning lagged shocks, the part attributable to new information about the fundamental determinants included in the VAR, and the price gains unrelated to these determinants.

In five countries, house prices rose unexpectedly …

The results of such a decomposition are shown in Graph 5 for the 1995 Q1–2002 Q1 period. Over this period, housing prices in most countries increased by more than would have been expected at the start of the period based solely on the lagged effect of the earlier shocks to the system. The only exception is Canada, where house prices remained essentially unchanged over the period although the model predicted a 15% increase in home values. The behaviour of house prices in Canada is even more puzzling once one considers developments in national income, interest rates and stock prices. The model associates favourable surprises in these variables with higher house prices than would have been achieved in the absence of these shocks. The upshot is that Canadian house prices underperformed by almost 30% over the period.

In every other country, house price gains over the 1995 Q1–2002 Q2 period surpassed what would have been expected on the basis of information

... in three cases, because of stock price gains

available at the beginning of 1995. In the case of Ireland, the superior performance can be traced to positive surprises in national income. In the case of the United States, the United Kingdom and the Netherlands, unexpected stock market gains are the most important surprises explaining unanticipated house price growth. Nevertheless, the total price gains are larger than is predicted solely on the basis of new information about the three fundamental determinants considered.

Conclusions

This special feature has examined the extent to which house price fluctuations in six advanced economies – the United States, the United Kingdom, Canada, Ireland, the Netherlands and Australia – can be attributed to fluctuations in national incomes, interest rates and stock prices. The main empirical finding is that favourable economic developments captured by these variables appear to have played an important role in recent house price gains, although in some instances prices appear to have increased by more than warranted by the set of fundamental determinants considered. The outlook for house prices is more uncertain. Conditional on the assumptions underlying the model employed here, the recent decline in share values might foreshadow some downward pressure on house prices, although the precise amount cannot be established.

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The VAR model

The basic framework for studying the joint behaviour of housing prices, national income, interest rates and stock prices adopted in this article is a small-scale vector autoregressive (VAR) model of the type pioneered by Sims (1980). Key advantages of the VAR approach are that all variables are assumed to be endogenously determined and only weak restrictions are placed on the dynamic behaviour of the variables of interest. The variables that are included in the VAR are the quarterly growth rate of real national income,[1] a real interest rate,[2] the quarterly growth rate of real stock prices[4] and the quarterly growth rate of real house prices.[3] In an unrestricted VAR, each variable in the system is regressed on a given number of lags of itself and the same number of lags of all other variables in the system. Because this can lead to a large number of estimated parameters, relative to the sample size, it is sometimes useful to place mild restrictions on the parameters of the VAR model. In the present context, this is accomplished by assuming that the growth rate of real stock prices is not forecastable on the basis of the other variables in the system.

More formally, the estimated VAR model consists of the following four equations:

(1) $$\Delta y_t = c_1 + \sum_{i=1}^{8} \alpha_{1,i} \Delta y_{t-1} + \sum_{i=9}^{16} \alpha_{1,i} r_{t-1} + \sum_{i=17}^{24} \alpha_{1,i} \Delta s_{t-1} + \sum_{i=25}^{32} \alpha_{1,i} \Delta p_{t-1} + u_{1t}$$

(2) $$r_t = c_2 + \sum_{i=1}^{8} \alpha_{2,i} \Delta y_{t-1} + \sum_{i=9}^{16} \alpha_{2,i} r_{t-1} + \sum_{i=17}^{24} \alpha_{2,i} \Delta s_{t-1} + \sum_{i=25}^{32} \alpha_{2,i} \Delta p_{t-1} + u_{2t}$$

(3) $$\Delta s_t = c_3 + u_{3t}$$

(4) $$\Delta p_t = c_4 + \sum_{i=1}^{8} \alpha_{4,i} \Delta y_{t-1} + \sum_{i=9}^{16} \alpha_{4,i} r_{t-1} + \sum_{i=17}^{24} \alpha_{4,i} \Delta s_{t-1} + \sum_{i=25}^{32} \alpha_{4,i} \Delta p_{t-1} + u_{4t}$$

where Δy_t is the growth rate of real national income between quarter t-1 and t, r_t is a real interest rate, Δs_t represents the growth rate of real stock prices, Δp_t is the growth rate of real house prices and u is the reduced form error term. In equation (3) it is assumed that, aside from a constant term, all of the other coefficients are equal to zero. This corresponds to the belief that, at the one-quarter horizon, stock returns are unforecastable on the basis of the variables included in the VAR model.

One can compute, from the estimated VAR coefficients, the dynamic response of a particular variable to innovations or "surprises", ie unforecastable movements, in other variables. These so-called impulse response functions are useful for gaining a better understanding of the interactions between the variables of interest. Of particular interest in the present context are the dynamic responses of housing prices to innovations in the growth rate of real national income, the level of real interest rates and the growth rate of real stock prices.

Equations (1)–(4) are estimated by ordinary least squares with data for each country,[5] and impulse response functions are derived from the parameter estimates. However, one difficulty that arises when analysing the dynamic properties of systems like equations (1)–(4) is the potential for contemporaneous cross-equation correlation of the u s. It makes little sense to study the responses of a system to a shock to one of the reduced form error terms in isolation if historically that disturbance has tended to move together with another of the model's reduced form error terms. For this reason impulse response functions are not computed for the reduced form residuals. Instead, following Sims (1980), impulse response functions are computed for a triangular representation of the reduced form error terms:

(5) $$u_{1t} = \varepsilon_{1t}$$

(6) $$u_{2t} = \gamma_{2,1}\varepsilon_{1t} + \varepsilon_{2t}$$

(7) $$u_{3t} = \gamma_{3,1}\varepsilon_{1t} + \gamma_{3,2}\varepsilon_{2t} + \varepsilon_{3t}$$

(8) $$u_{4t} = \gamma_{4,1}\varepsilon_{1t} + \gamma_{4,2}\varepsilon_{2t} + \gamma_{4,3}\varepsilon_{3t} + \varepsilon_{4t}$$

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[1] National income is defined as gross national product. The consumer price index is used to convert nominal variables to real quantities. [2] The real long-term interest rate is defined as the 10-year government bond yield minus the previous four-quarter percentage change in the consumer price index. The real short-term interest rate is defined as the three-month interbank rate minus the previous four-quarter change in the consumer price index. [3] It is assumed that the real rate of interest is stationary but the logs of real national income and real stock prices need to be differenced to achieve stationarity. [4] For Australia, the Netherlands and Ireland, the stock price indices are the total market indices provided by Datastream. For the United States, the stock market index is the S&P 500, for the United Kingdom it is the FTSE 100 and for Canada the TSE 300. [5] For the United States, the United Kingdom and Canada, the sample period is 1973 Q2–2002 Q1. For Australia and Ireland, the sample period is 1975 Q2–2002 Q1. For the Netherlands, it is 1977 Q2–2002 Q1.

where ε are mutually uncorrelated random variables with unit variance. Impulse response functions are computed for three shocks: a 1% unexpected increase in national income $(\varepsilon_{1t} = 1)$, a 1 percentage point unexpected increase in real interest rates $(\varepsilon_{2t} = 1)$ and a 10% increase in stock prices $(\varepsilon_{3t} = 10)$.

The ordering of the variables (Δy_t, r_t, Δs_t, Δp_t) reflects potential contemporaneous influences. The growth rate of real national income is the first variable in the ordering because it is assumed that innovations in the growth rate of GNP influence the other variables in the model within the same quarter. The real interest rate is placed second in the ordering because it is assumed that innovations in the real rate influence stock prices and housing prices within the same quarter but do not influence GNP within the same quarter. Housing prices are last in the ordering because it is assumed that innovations in house prices do not impact on the other variables within the same quarter.

The empirical results of course depend upon the chosen form of the model, which includes the identifying assumptions embodied in the ordering of the variables. Within the class of triangular representations for the reduced-form errors, however, there is reason to suspect that the chosen ordering has only minimal consequences for the empirical results. This is because the correlation between the reduced-form error terms in the stock price and interest rate equations is for most countries essentially zero, so that the results would not change significantly if the order of stock prices and interest rates was reversed. The correlations between the reduced-form error term in the house price equation and that of the stock price and interest rate equations are also low, suggesting that moving housing prices up in the order would also not significantly affect the results. Nevertheless, there remains the possibility that a VAR model identified with other assumptions would yield different empirical results.

The estimated VAR model can also be used to formally evaluate the statistical significance of the results. In particular, confidence intervals for the impulse response functions can be computed by Monte Carlo simulation. In the present context, this was achieved by drawing random errors from a normal distribution and then computing impulse response functions from the simulated data for the four variables in the model. The results of this exercise indicate that, for each country, the response of housing prices to GNP shocks is different from zero at the 10% level of confidence. However, with a few exceptions, this test could not reject the null hypothesis that the estimated cumulative responses to interest rate and stock market shocks were in fact zero.

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The case of the missing commercial real estate cycle[1]

Booms and busts in commercial real estate have been a traditional source of distress for financial institutions.[2] In the early 1990s, for example, the downward correction of commercial property prices caused a significant increase in bad debt expenses for banks and other financial institutions, and turned out to be a major contributor to the global economic downturn. In contrast, the commercial property cycle was much less pronounced in the recent global business cycle. While housing prices have risen markedly in a number of countries in the past five years, with few exceptions commercial property prices have remained well below the level reached a decade ago.

This "missing" commercial real estate cycle is arguably partly attributable to the rapid growth of real estate securitisation in the past decade. First, the emergence of new financing methods provided a substitute for traditional banking finance and may have helped even out the flow of capital into the commercial property sector. Second, the development of public markets improved information transparency and may have strengthened market discipline. And finally, the development of public real estate equity and debt markets made it possible for commercial property risk to be spread through capital markets to a wider array of investors.

Nevertheless, these structural changes by no means imply that commercial real estate cycles have disappeared. To a significant extent, the absence of a commercial property boom in the late 1990s could be a consequence of the slow pace of absorption of the overcapacity generated during the late 1980s boom. Furthermore, the closer integration of commercial real estate markets with capital markets does not suggest that the commercial property sector will now be immune to all shocks. In fact, commercial property markets might even be subject to new sources of market volatility.

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[1] I would like to thank Gert Schnabel for excellent research assistance. The views expressed in this article are those of the author and do not necessarily reflect those of the BIS.

[2] Hilbers et al (2001) document a series of episodes in the last two decades in which real estate imbalances helped predict banking crises. Borio and Lowe (2002) also suggest that a rapid increase in property prices might signal the formation of financial imbalances.

Performance of the commercial real estate sector

The early 1990s downturn

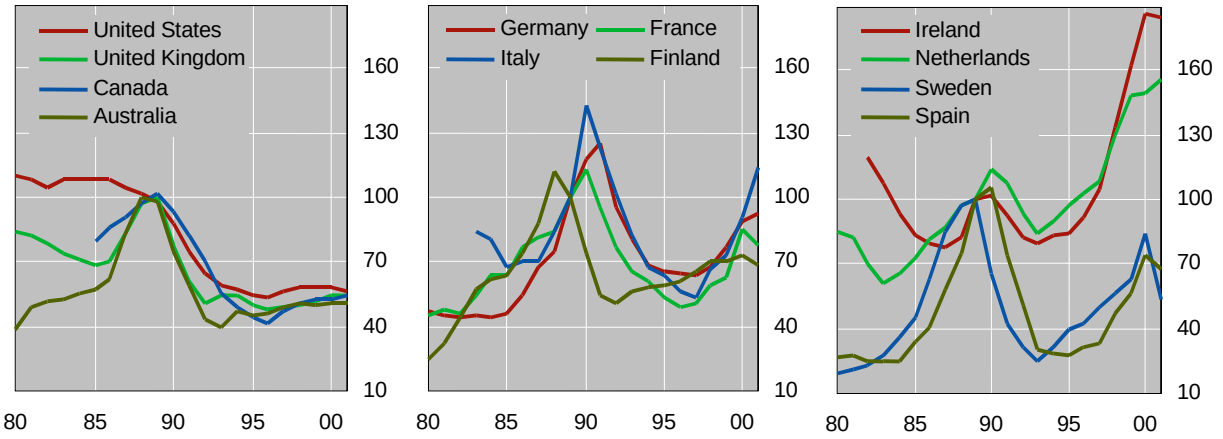
Boom and bust in the commercial property sector were a major contributor to financial distress in the early 1990s ...

The commercial real estate sector played a prominent role in the early 1990s business cycle.[3] Commercial property prices in most industrial countries rose steadily during the second half of the 1980s in response to an acceleration in the growth of real income and fuelled by strong growth in private sector credit (Graph 1). Buoyant expectations prevailed in the markets and generated a high level of construction, which in turn helped stimulate the economy. However, as economic activity slowed and demand for real estate collapsed, commercial properties suffered a considerable loss of value. Falling property prices drove some financial institutions into distress. In particular, there was a broad-based reduction in profitability and a widespread deterioration in asset quality in the banking industry, not only because of the direct effect of mounting property loan losses, but also because of a deterioration in the balance sheets of corporate borrowers that had used real estate as collateral.[4] Not surprisingly, lending to the property sector was significantly curtailed, in turn exacerbating the commercial real estate cycle.

The boom-bust commercial property cycle of the late 1980s–early 1990s can be partly attributed to the financial liberalisation of the 1980s, particularly

Real commercial property prices

1989 = 100



Sources: Catella; Frank Russell Canada Ltd; Investment Property Databank Ltd (IPD); Jones Lang LaSalle; Ministère de l'Équipement, des Transports et du Logement; National Council of Real Estate Investment Fiduciaries (NCREIF); Nomisma; Ring Deutscher Makler; national data. Graph 1

[3] Chapter VII of the 63rd BIS Annual Report (1993, pp 155–81) describes the performance of the real estate sector during this period in greater detail. Wheaton (1999) provides both empirical evidence and a theoretical explanation of the cyclical movements of commercial property prices in the United States.

[4] Kiyotaki and Moore (1997) propose a theoretical framework in which collateral-based borrowing could provide a powerful transmission mechanism through which a small, temporary shock would generate large, persistent fluctuations in asset prices and output. Borio (1995) provides empirical evidence on the wide use of real estate as collateral in a cross-country study.

in the Nordic countries. As new types of less tightly regulated financial institutions emerged, borrowers were able to access new funds at lower costs from the domestic and international capital markets, adding to upward pressure on real estate prices. The intense competition among financial institutions probably led to an underpricing of the risk of these loans, making the financial system as a whole more vulnerable.

Recent performance

... yet they have been largely absent in recent years

Commercial property prices have behaved very differently in the most recent business cycle (Graph 1). In most countries, commercial property price fluctuations have been at most modest, even as residential real estate prices in a number of countries have reached historical highs.[5] In fact, there has been no commercial real estate boom in most English-speaking countries. Real commercial property prices in these countries have been relatively stable, following a sharp decline in the first half of the 1990s. In most European countries, the markets have witnessed a robust recovery since the mid-1990s. However, in real terms prices have remained well below the levels reached a decade ago. The notable exceptions are Ireland and the Netherlands, where commercial property prices have increased sharply to historical highs in recent years. In Japan, commercial property prices have continued to decline, resulting in added pressure on the fragile banking industry and the weak economy.

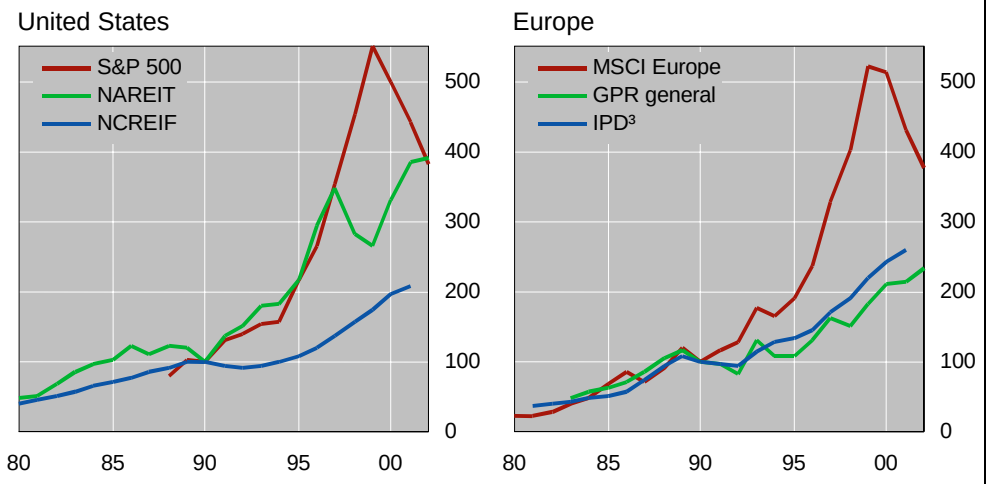
The property sector has performed strongly

Today, while the global economy has weakened and financial institutions have experienced increasing defaults on their corporate loans, the commercial property sector has performed strongly and the banking industry has so far shown great resilience in most countries. This has been reflected in the historically low delinquency rates on commercial real estate loans. In addition, the property sector has been posting robust returns over the past few years, outperforming the broader stock market (Graph 2) and creating an attractive diversification opportunity for investors.

The main influence on commercial real estate markets has come from the demand side. There has been a contraction in certain sectors, particularly in technology, media and telecommunications, and in tourism. This is in sharp contrast to market conditions in the early 1990s, when major problems arose from excessive new supply. Looking forward, there is some risk of vacancies and delinquencies increasing in the near term, but with new construction at modest levels in most markets, conditions appear more benign than in the early 1990s in most countries.

[5] Residential real estate markets in most industrial countries (with the exception of Germany, Japan and Switzerland) have posted strong gains since 1998. Real housing prices have reached new historical highs in a number of countries, including Australia, Belgium, Denmark, France, Ireland, the Netherlands, Norway, Spain, Sweden, the United Kingdom and the United States.

Commercial property and stock returns[1, 2]



[1] Total return indices; 1990 = 100; for 2002, mid-year data. [2] The NAREIT and NCREIF indices reflect the total return, respectively, of the public and private real estate markets in the United States. In Europe, the two equivalent indicators are the GPR and IPD indices. [3] Covers the United Kingdom only.

Sources: Datastream; Global Property Research (GPR); IPD; National Association of Real Estate Investment Trusts (NAREIT); NCREIF; national data. Graph 2

New financing methods in commercial real estate markets

The recent resilience of the commercial property sector has been partly due to the shallow nature of the global slowdown and the low interest rate environment.[6] Nevertheless, it can also be explained by the fact that commercial property booms were largely absent in the late 1990s in many countries. Looking back, one contributing factor to this missing commercial property cycle could be the development of innovative financing methods in the commercial property sector in the past decade. As funds from traditional sources, such as banks and insurance companies, were significantly curtailed in the early 1990s, new financial resources started to develop. In particular, public sources of financing, in both equity and debt forms, have grown rapidly and their roles have expanded on an unprecedented scale.

Documenting in a comprehensive way the role of public markets in the financing of commercial real estate is not straightforward. Given the nature of intermediation structures, the layers of financing can be quite complex and differ considerably across countries. In addition, available information is rather fragmentary. Nevertheless, the broad trends can be ascertained reasonably well.

Public equity markets

Public real estate equity markets ...

There are two major forms of publicly traded property equity investments: shares of listed property companies and shares of real estate investment trusts

[6] See Chapter VII of the 72nd BIS Annual Report (2002) and Sutton (2002) for relevant discussions. In addition, growing economic integration and the introduction of the euro stimulated cross-border property investment and provided further support to the European property markets.

(REITs). By definition, both property companies and REITs have to derive at least 75% of gross income from property investment (either via rents from property ownership or interest on mortgage loans) or development activities. However, REITs are distinguishable from listed property companies in several important respects. First, a REIT is a particular type of corporate or trust that is exempted from corporate income tax; in return, it is required to distribute at least 95%[7] of its net income to shareholders. Second, REITs are characterised by a relatively low level of gearing, with an average leverage ratio of 45% in the United States, and even lower in Australia. The fact that developers are betting with their own money makes them less likely to build aggressively for speculative future demand. Third, REITs are less involved in construction and development activities. Their revenue comes principally from rents or interest payments on mortgage loans, which are more stable across the business cycle. By contrast, some listed property companies (particularly in Hong Kong SAR and Japan) are conglomerates and have a greater tendency to be involved in development activities or even in other lines of business, such as telecommunications and shipping.

... have grown steadily in Europe ...

The growth of public real estate equity markets has been rapid but uneven across countries (Table 1). In Europe, the market took off at a very early stage in the form of listed property companies. By 1990, the total volume of European traded stock had reached $64 billion. The growth trend has continued in the past decade. In the United Kingdom and Germany, the two leading European markets, public equity markets have more than doubled in size since 1991. A notable exception is France, where the market has shrunk by almost one third.

... and expanded rapidly in the United States and Australia

Property investment trusts have dominated public equity markets in the United States and Australia. In the United States, the market emerged in the 1960s with the introduction of REITs, but the development of the public equity market lagged well behind its European counterpart until 1992. Since then, the

Development of the public equity markets[1]

In billions of US dollars

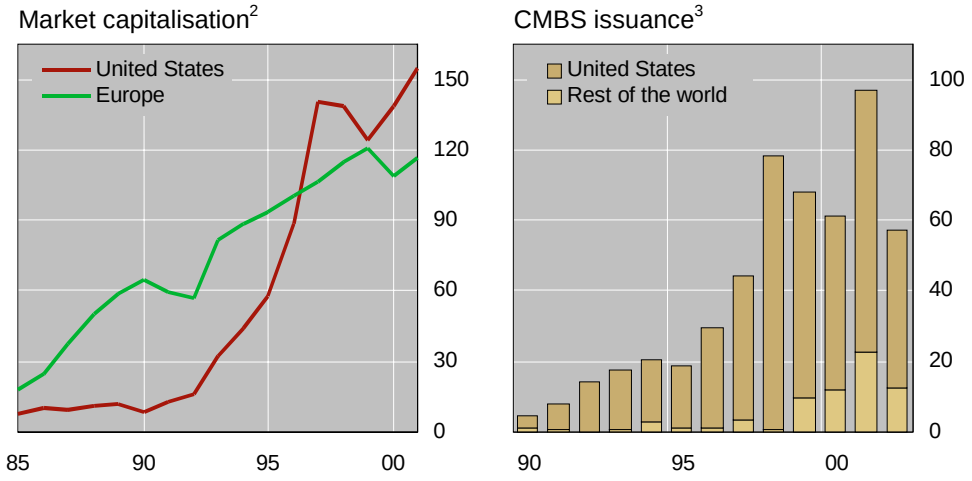
	1985	1987	1989	1991	1993	1995	1997	1999	2001
United States	7.7	9.7	11.7	13.0	32.2	57.5	140.5	124.3	154.9
Europe[2]	17.7	37.2	58.7	60.2	82.2	94.3	107.2	122.5	118.8
France	2.9	5.0	16.3	17.0	20.1	19.6	14.5	11.2	11.0
Germany	3.3	8.0	9.6	13.4	24.3	34.2	28.8	44.3	45.4
United Kingdom	7.1	13.6	16.4	14.9	21.2	21.8	40.3	40.6	32.3
Japan	12.0	40.5	67.5	37.8	32.2	38.9	33.3	27.6	27.2
Australia	–	–	–	–	7.8	12.4	16.6	25.9	22.5
Hong Kong SAR	6.2	7.7	12.4	17.2	44.8	98.6[3]	57.8	49.5	40.8

[1] Refers to REITs in the United States, LPTs in Australia and listed property companies in other countries; end-of-year data. [2] Includes all western European countries. [3] Refers to 1996, when the market reached its peak.

Sources: GPR; NAREIT; national data. Table 1

[7] This distribution requirement was reduced to 90% with effect from 1 January 2001 in the United States.

Development of the public equity and public debt markets[1]



[1] In billions of US dollars. [2] Refers to REITs in the United States and listed property companies in Europe. [3] For 2002, annualised first half-year data.

Sources: Commercial Mortgage Alert; GPR; NAREIT; national data. Graph 3

REIT market has grown very quickly, surpassing the European public equity market in size in 1997 and currently posting a capitalisation of more than $150 billion (Graph 3). In September 2001, REITs overtook pension funds to become the most important institutional investor in the real estate equity market. They currently represent a share of close to 40% in this market, which measures about $373 billion. In Australia, the rapid growth in the listed property trust (LPT) market over the past 12 years has resulted in AUD 44 billion of market capitalisation, controlling about one third of the commercial real estate assets in the country.

The notable exceptions in the wave of public equity market developments are Japan and Hong Kong SAR. In Japan, the market capitalisation of listed property companies has declined by about 60% over the past 12 years. The bursting of the commercial property bubble has continued to burden the banking sector and to be a drag on the underperforming economy. In Hong Kong, the market experienced a significant fall during the Asian crisis and has remained sluggish ever since.

Public debt markets

The most profound change in the commercial property debt market in the past decade has been the rapid expansion of the public debt segment, mainly in the form of commercial mortgage-backed securities (CMBSs). This innovative product involves the pass-through of interest payments on a portfolio of commercial real estate loans and can be traded publicly. It first appeared in the United States as an interesting extension of the residential MBS, but the market did not gain in stature until the early 1990s. Since then, not only has the CMBS market continued to expand in the United States, but it has also grown at an ever increasing rate in Europe.

CMBS issuance took off in the United States ...

The activities of the Resolution Trust Corporation in working out the distressed debts of the savings and loan industry largely explained the rapid

increase in CMBS issuance in the United States in the first half of the 1990s. The market then evolved from a temporary measure for cleaning up non-performing property loans into an active means of tapping the capital markets as a source of funding and loan portfolio management. The CMBS structure eliminated a number of obstacles that had stood in the way of institutional buyers of long-term mortgage debt. In particular, the new market reduced the uncertainty of cash flows by pooling a number of commercial real estate loans; it improved investment liquidity given the existence of an active secondary market; and it increased investors' flexibility in managing their exposure to the commercial property sector. In September 2001, CMBSs represented 14.8% of the $1.68 trillion commercial mortgage debt market in the United States, a market share surpassing that of insurance companies and second only to that of commercial banks.

... and then spread to Europe

In the rest of the world, the CMBS markets were basically dormant until the mid-1990s. The markets then took off, stimulated by both banks' search for capital relief and investors' desire for cross-border property investment prompted by the accelerating economic integration. In 2001, European CMBS issuance reached a record $18.7 billion. The United Kingdom and Italy posted the strongest growth, increasing by 60% and 280%, respectively, to reach $8.2 billion and $7.3 billion.

Meanwhile, in the euro area, securitisation of mortgage loans has also grown substantially in the form of Pfandbrief-style products (mortgage bonds) since the introduction of the euro.[8] Today, mortgage bonds fund approximately 19% of mortgage loans in Europe, and register a volume outstanding of about €562 billion.[9] Germany and Denmark are the two dominant players, with a market share of 43% and 29%, respectively.

The impact of new sources of funding

The rapid development of public sources of financing may have contributed to dampening the commercial real estate cycle in at least three ways. First, the emergence of an additional source of funds arguably helped to even out the financing cycle. Second, it enhanced market discipline, not least by improving information transparency. And finally, it allowed for a better allocation of risk, notably by reducing its concentration in leveraged intermediaries.

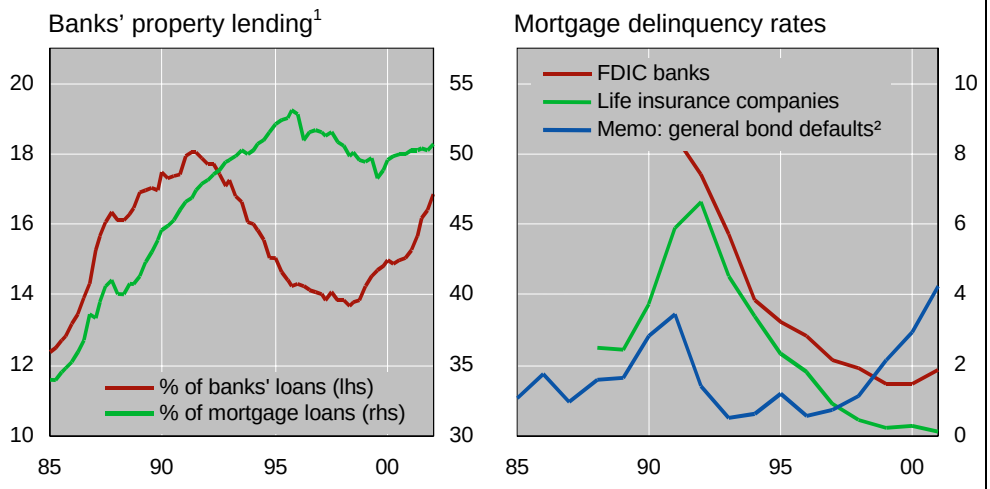
Real estate securitisation can provide new methods of funding ...

The rapid expansion of public real estate markets shifted property financing away from bank debt and reduced the role of traditional intermediaries. There is evidence that access to a wider variety of sources of capital helped to even out the flow of capital into the commercial property

[8] Mortgage bonds are backed by first-ranking mortgage loans. They differ from MBSs in that the assets remain on the balance sheet of the issuer. Mastroeni (2001) documents the recent development of Pfandbrief-style products in the euro area and many eastern European countries.

[9] We should to be careful in interpreting these numbers since they include mortgage bonds backed by both residential and commercial property loans. An equivalent market in the United States, the MBS market, posted an outstanding volume of $2.8 trillion in 2001.

Commercial property market in the United States



[1] Commercial banks. [2] Number of total bond defaults as a percentage of all rated companies.

Sources: American Council of Life Insurers; Board of Governors of the Federal Reserve System, *Flow of Funds Accounts*; Federal Deposit Insurance Corporation; NAREIT; Standard & Poor's Credit Pro. Graph 4

sector. In the early 1990s, REIT and CMBS markets emerged when private commercial mortgage lending declined sharply as banks and thrifts came under heavy pressure to restructure their balance sheets. Conversely, when public markets slowed their pace significantly after 1999, traditional financing sources rebounded. Pension funds and private investors accelerated the pace of their net acquisitions of property, and commercial bank lending increased steadily (Graph 4).

... improve information transparency ...

The development of public markets also increased information transparency. Publicly observable prices for tradable securities reflect the changing preferences and concerns of market participants in a timely manner. Moreover, investors' demand for information and legal disclosure requirements for public markets spurred the development of an infrastructure for promptly conveying information about property and loan performance. As investment performance became subject to greater scrutiny by analysts, investors, consultants and rating agencies, information became more plentiful, more detailed and more timely.

... strengthen market discipline ...

These factors helped to strengthen financial discipline. In particular, better data concerning not only property market conditions but also broader industry trends has greatly improved the scope for the market to detect property and capital market imbalances. An example is the performance of the US REIT market in 1997–99. During that period, more construction took place and vacancy rates increased slightly. The REIT market responded quickly to the dwindling market return. Falling share prices forced REITs to curtail their investment strategies and helped prevent the build-up of imbalances.

... and contribute to the resilience of financial institutions

The development of public markets has also allowed a better allocation of risk across the economy. With the growth of low-leverage REITs, the market's ownership structure may have become more resilient to shocks. In addition, securitisation of commercial mortgage loans provides a useful instrument for

banks and other financial institutions to manage their property-linked loan portfolios. Today, for instance, CMBSs are arguably just as liquid as corporate bonds. And active equity and bond issuance and secondary market trading allow better risk management and liability matching by market participants. The pressure associated with falling property prices can thus be spread through capital markets to a wider array of investors instead of being concentrated in the banking industry. As a result, the potential exposure of leveraged financial institutions to the commercial real estate sector may have been reduced. This, in turn, can make the emergence of financial strains less likely.

The end of commercial real estate cycles?

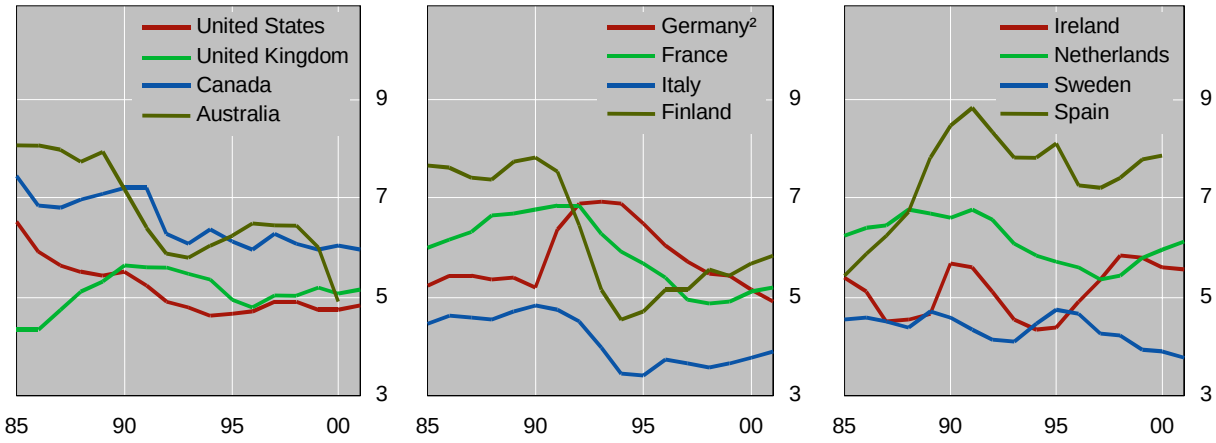
Cycles still exist because ...

Looking forward, through the channels just outlined the development of public equity and debt markets should continue to have a stabilising effect on commercial real estate markets. However, it would be unwise to consider that the commercial real estate cycle is dead. There is a risk of overestimating the role played by the development of public markets in dampening the cycle in the 1990s. A number of mechanisms that trigger or amplify real estate cycles still exist and continue to play important roles. And the closer integration of commercial real estate markets with capital markets does not imply that the commercial property sector will be immune to shocks. In fact, the commercial property markets might be subject to new sources of market volatility even in the presence of good economic fundamentals.

... slow absorption of overcapacity has played a significant role in the current cycle ...

First, the missing commercial property cycle in the late 1990s can probably be explained to a considerable extent by the lasting legacy of the previous cycle. Overcapacity has taken years to be absorbed, and the painful memory may have acted as a catalyst for market participants to improve their management of commercial property risk. In most countries, the share of non-residential construction in national output has been lower in recent years than it was in 1990 (Graph 5). And the decline in construction activity has been more

Total non-residential construction[1]



[1] As a percentage of GDP. [2] Prior to 1991, western Germany only; jump due to reunification.

Sources: European Commission; OECD; national data. Graph 5

pronounced in those countries that experienced a steep fall in property prices in the early 1990s, such as Australia, Canada, Finland, France and Italy. The only exception to this pattern is Ireland, where new construction activity has been rising considerably along with soaring property prices since 1995.

... construction lags and imperfect information remain ...

Second, long supply and construction lags, characteristics of rigidity unique to the property sector, remain at the root of real estate cycles. Developers tend to increase supply when property prices rise. However, as new construction may take several years to be completed, by the time it is ready for occupancy demand may have fallen, leading to price declines. The fact that supply adjusts slowly to changing demand will cause inefficiencies and continue to drive real estate cycles.

... banks' exposure to the commercial property sector is still significant ...

Third, the banking sector and commercial property industry remain closely related. Despite the rapid growth of public equity and public debt markets, bank lending still represents the single largest source of funding in commercial property markets. Just as before, rising real estate prices may improve banks' balance sheets and encourage the extension of new loans to the real estate sector. Conversely, declining property values can still generate banking system stress. The resilience of the banking industry and other financial institutions to falling property prices remains to be tested in the new environment.

... capital markets are not immune to shocks ...

Fourth, capital markets are also vulnerable. The liquidity appeal of securitisation to investors is a double-edged sword. Just as capital users can obtain rapid access to funds on a broad basis, so capital suppliers can quickly move their funds out of the markets. In particular, equity market swings in the past few years have provided an illustration of how the supply of capital can be vulnerable to fluctuating sentiment. During a boom period, buoyant expectations and the illusion of liquidity may induce market participants to lower their underwriting standards. Similarly, a bearish market may lead to capital flight and pessimism that further depresses prices. In fact, such a vicious circle of falling equity prices has been observed in Japan and Hong Kong SAR in recent years.

... and new sources of market volatility may emerge

Finally, as commercial property markets become more integrated with capital markets, there are new potential sources of market volatility that can constrain capital even when real estate market conditions are good. Disruptive market events, such as the Russian bond default and the implosion of Long-Term Capital Management in 1998, increased CMBS spreads by as much as 100 basis points and caused a drying-up of liquidity virtually overnight. Another example was the failure of Criimi Mae, a mortgage REIT, in autumn 1998. Since it was the predominant purchaser of low-rated CMBS tranches at that time, its failure generated a demand shortage that to some extent has remained unresolved. The limited absorption capacity of the market for the high-risk tranches represents one of the major obstacles to the CMBS market's further expansion.

Conclusion

The development of public equity and public debt markets has led to a closer integration between real estate and capital markets. From a long-term

perspective, declines in commercial property prices may not generate as much stress to the banking sector because the risk has been diversified across a wider variety of investors. Similarly, the amplification of swings in commercial property prices due to coincident funding cycles might be less likely. It would, however, be unwise to think that commercial real estate cycles will not recur. As history suggests, capital markets are as vulnerable to shocks as banks, and this could even introduce new sources of market volatility into the commercial property markets.

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Rising foreign currency liquidity of banks in China[1]

China's banking system enjoyed a $75 billion foreign currency surplus in 1999–2001. Most of this foreign currency liquidity arose from the growth of dollar deposits, and the rest from shrinking dollar loans. Understanding such surpluses provides insights into a significant source of financing for the US current account deficits in recent years.

This special feature examines determinants of the demand for foreign currency deposits in Chinese banks. It is found that interest rate differentials, exchange rate concerns and the one-off effect of the liberalisation of part of China's stock market jointly account for almost half their variation. We also

Foreign currency bank deposits of non-banks in mainland China

End of period, in billions of US dollars

	1992	1995	1997	2000	2001
Total	60.7	69.7	83.5	145.6	154.5
In mainland China (onshore)	57.9	66.7[1]	79.7[1]	134.8	142.6
Locally owned banks	56.1	63.6[1]	75.2[1]	128.3	134.9
Individuals	9.4	15.9[1]	29.2[1]	73.0	81.6
Firms	26.7	29.3[1]	33.7[1]	46.0	45.3
Others	20.1	18.4[1]	12.3[1]	9.3	8.0
Foreign banks[2]	1.8	3.1	4.5	6.5	7.8
Offshore[3]	2.8	2.9	3.8	10.9	11.9
Memo:					
In locally owned banks as a percentage of total renminbi deposits	*12.3*	*8.7*	*6.9*	*8.6*	*7.8*
Foreign exchange reserves	*19.4*	*73.6*	*140.0*	*165.6*	*212.2*

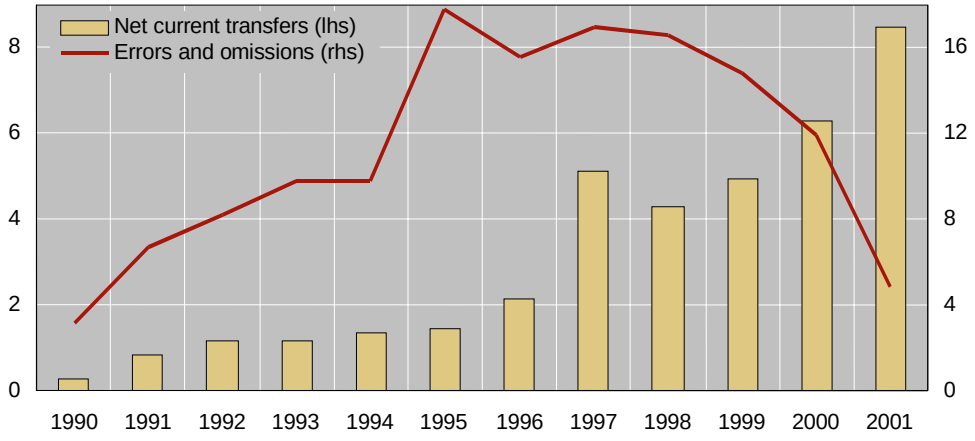
[1] Dollar deposits estimated using bank data from *Almanac of China's Banking and Finance*. [2] Onshore foreign currency deposits at foreign banks operating in mainland China are estimated as their total deposits, assuming that they are all foreign currency denominated. [3] Non-bank Chinese deposits at BIS reporting banks.

Sources: The People's Bank of China; *Almanac of China's Banking and Finance*; BIS; authors' own estimates. Table 1

[1] The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS.

Sources of foreign currency for China's household sector

In China's balance of payments, in billions of US dollars



Note: Errors and omissions outflows given a positive sign.

Source: The People's Bank of China. Graph 1

analyse the recent declining trend of dollar loans booked by banks in China, and its implications for the strengthening foreign currency liquidity position of banks on the mainland.

Growth of foreign currency deposits of Chinese non-banks

Foreign currency deposits of non-banks resident in China have grown very rapidly in recent years, rivalling the very substantial official foreign exchange reserves (Table 1). These deposits have accumulated principally at Chinese banks on the mainland, as well as in banks offshore (including in Chinese banks' affiliates in Hong Kong SAR and elsewhere) and at foreign banks in mainland China, which until recently could serve only foreign firms and individuals. Increased individual deposits represent most of the recent growth.

Dollar deposits may stem from a number of sources

It is difficult to say where all the deposits have come from. One source has been remittances from overseas Chinese, which lie behind the reported net current transfers of over $8 billion in 2001 (Graph 1). The easing of restrictions on foreign travel by Chinese residents led to 12 million reported travellers in 2001, each entitled to convert domestic currency equivalent to $2,000 into foreign currency. Leakage in China's foreign exchange controls may partly explain the outflows implied by the substantial errors and omissions in China's balance of payments, feeding the foreign currency deposits. And reasonably competitive interest rates on domestic dollar deposits have served to domesticate what might otherwise have been capital flight.[2]

[2] See McCauley and Mo (2000).

Explanations

Four possible explanations for the growth of foreign currency deposits

Following the structure of an analysis of Taiwanese foreign currency deposits (Fung and McCauley (2001)), we consider four factors to explain the monthly variation of foreign currency deposits in Chinese banks on the mainland. To summarise the results, country risk and credit risk are rejected as explanations, while interest rate differentials and exchange rate expectations appear to play important roles. In addition, the liberalisation of the so-called B-share market, previously intended to be restricted to non-resident investors, explains a drawdown in deposits in the first quarter of 2001. This general finding is remarkably consistent with the earlier works on China (Ma (1999)) and Taiwan, China (Fung and McCauley (2001)).

Country risk

Country risk is rejected ...

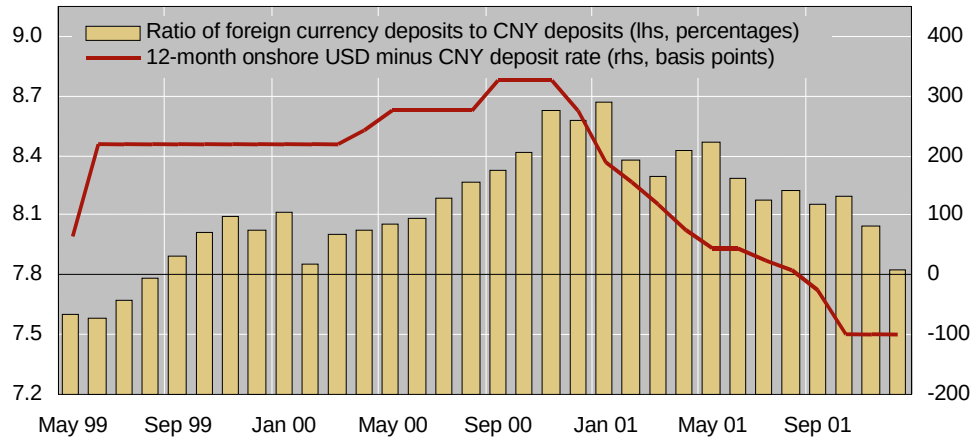
If Chinese depositors were acquiring dollars to avoid country risk, one would expect to see them placing foreign currency offshore, beyond the reach of domestic authorities. However, the available data do not indicate that they favoured offshore over onshore deposits. While offshore deposits have grown somewhat faster than total foreign currency deposits (Table 1), over 90% of such deposits remain in banks on the mainland, subject to Chinese law and policy. Country risk cannot, therefore, explain much of the build-up of foreign currency deposits.

Credit risk

... as is credit risk

With open discussion of the high levels of non-performing loans in Chinese banks, Chinese depositors might have been expected to react to heightened perceptions of credit risk in the banking system by shifting deposits to better-rated foreign banks in the form of foreign currency deposits. While foreign

Foreign currency deposits and relative dollar deposit yields



Note: The onshore dollar deposit rate is for small deposits (USD 3 million or less).

Sources: The People's Bank of China; Bank of China; authors' own estimates. Graph 2

banks, under the terms of China's entry into the World Trade Organisation (WTO), will be allowed to take deposits from households in China, they have, however, not generally enjoyed that right to date and deposits at foreign banks in China have remained small. In effect, the credit sensitivity of Chinese depositors largely remains to be tested. Meanwhile, credit risk cannot explain the build-up of foreign currency deposits by non-banks in China.

Interest rate differentials

Interest rate differentials seem to influence the currency mix of deposits

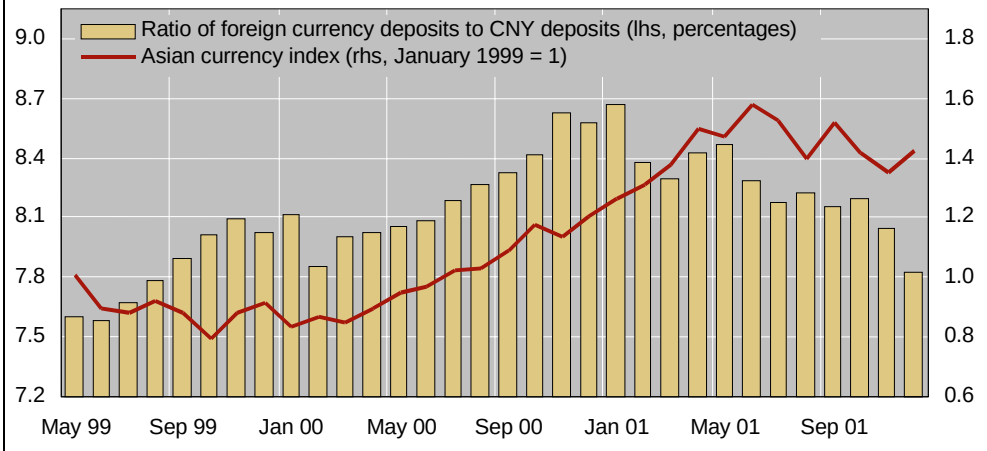
Chinese depositors could adjust the mix of foreign and local currency deposits in response to changing interest rate differentials. Given the anecdotal evidence that nearly 95% of foreign currency deposits are in US dollars, we focus on differentials between the onshore dollar deposit rate and the renminbi deposit rate. From mid-1999 to late 2000, the 12-month dollar/renminbi interest rate spread widened to as much as 300 basis points in favour of onshore dollar deposits, which might have spurred accumulation of foreign currency deposits relative to renminbi deposits (Graph 2). With the Federal Reserve's easing of US dollar rates in 2001, the situation reversed, with dollar/renminbi interest rate differentials turning decisively in favour of renminbi deposits. Chinese depositors apparently reacted by allowing the ratio of dollar to renminbi deposits to fall.

Exchange rate expectations

Currency expectations appear to have influenced the decision to hold dollar deposits

Similarly, total expected yields on foreign currency deposits would rise in anticipation of renminbi weakness, which should encourage the holding of foreign currency deposits. Given the stability of the renminbi against the dollar, it may seem odd to speak of expectations of its movement. However, when neighbour currencies weakened against the dollar, there was public discussion of the loss of competitiveness and the possibility of some response in the renminbi's exchange rate. Thus, we take as a proxy for exchange rate

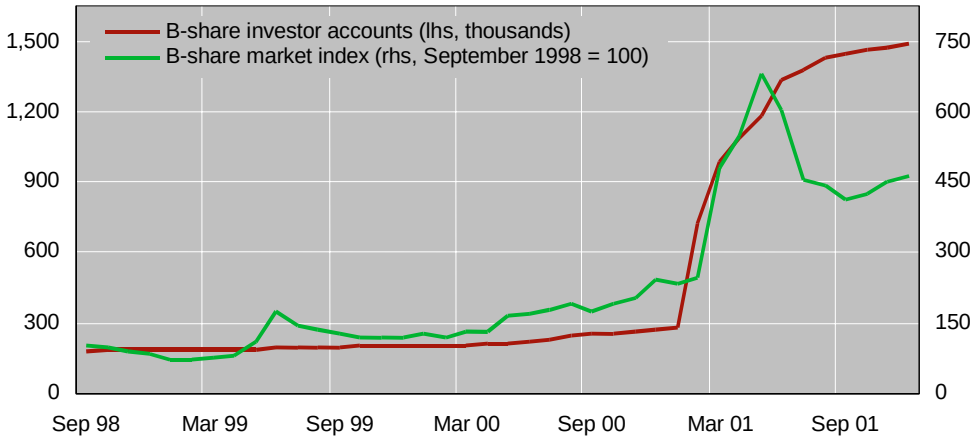
Foreign currency deposits and currency expectations



Note: A rise in the Asian currency index indicates a collective depreciation of the included Asian currencies against the US dollar.

Sources: The People's Bank of China; Bank of China; CEIC; authors' own estimates. Graph 3

The B-share market liberalisation factor



Note: The B-share index is the weighted index of Shanghai and Shenzhen's B-share market indices.

Source: CEIC. Graph 4

expectations (or fears, since the expectations were never justified in the sample period) a trade-weighted index of the main floating East Asian currencies (see note in the box on page 74). When neighbour currencies slip, Chinese depositors might then be expected to hold more foreign currency deposits. The index weakened against the dollar from mid-1999 to late 2000 before stabilising into 2001 (Graph 3). Consistent with our hypothesis, Chinese depositors did seem to adjust the currency denomination of their bank deposits.

B-share liberalisation

A one-off effect of partial equity market liberalisation

In February 2001, the Chinese government announced a decision to allow Chinese individuals to invest their existing foreign currency deposits in the B-share market, which is traded in foreign currency. This market had a market capitalisation of less than $8 billion before the announcement (10% of household dollar deposits), of which it was widely believed that Chinese residents already owned more than half, despite the official prohibition. Given the wide ownership of foreign currency deposits and the relatively attractive valuations of the B-shares at that time, the newly empowered Chinese individual investors snapped them up (Graph 4). This policy shift was associated with a $2.5 billion drop in foreign currency deposits in February and March 2001. It appears that foreign investors took profits and exited the B-share market and that Chinese residents drew down dollar accounts to finance their purchases. However, over the medium term, the policy shift could increase Chinese demand for such deposits if investors anticipate that foreign currency holdings might tend to enjoy advantages in the course of further liberalisation.

Growing dollar liquidity of Chinese banks

While Chinese non-banks have built up their onshore foreign currency deposits, Chinese firms have also been paying off their dollar debts.

Foreign currency deposits and loans at banks in China

In billions of US dollars

Sources: The People's Bank of China; Bank of China; authors' own estimates. Graph 5

Cumulatively, onshore dollar loans fell by more than $25 billion during 1999–2001. As a result, the Chinese foreign currency loan/deposit ratio fell from 130% to 70% in four years (Graph 5). It should be noted that the dollar loan/deposit ratio fell not only at Chinese banks but also at foreign banks operating in China.

Lower local currency interest rates led to repayments of dollar loans

Chinese firms seem to have paid off dollar loans for the same reasons that Chinese households and companies increased their holdings of dollar deposits. Falling renminbi lending rates relative to dollar rates induced Chinese companies to switch to local currency loans. Reinforcing this incentive, episodes of heightened perceptions of currency risk may also have encouraged Chinese firms to reduce exposure to dollar obligations. Similarly, fears of renminbi weakening appear to have prompted affiliates of foreign companies operating in China to seek local currency financing of their operations. Since late 2000, dollar loans outstanding appear to have stabilised, consistent with the shift in interest differentials that moderated dollar deposit growth, as discussed earlier.

Rising dollar deposits, together with declining dollar loans, have generated a foreign currency surplus of $75 billion in mainland banks during the past three years, a sum larger than the $67 billion increase in China's official foreign reserves. Taken together, the increase in foreign currency liquidity in China's banking system and higher official foreign exchange reserves suggest that Chinese bank managers and official reserve managers needed to find uses for over $140 billion during this period. This sum flowed in large part into BIS reporting banks and US debt markets (Ma and McCauley (2002)).

Conclusion

China's households and firms have made significant deposits of foreign currency in Chinese banks over the past decade. Whatever the source of the funds, the government has chosen to attract onshore foreign currency deposits,

partly by keeping onshore dollar deposit rates broadly in line with overseas markets. That this policy was important is suggested by our finding that interest rate differentials seem to affect the monthly variation in the fraction of foreign currency bank deposits. Perhaps more surprisingly, our proxy for currency expectations also helps explain increments in the share of foreign currency deposits, notwithstanding the steadiness of the renminbi. The official coupling of the opening of the B-share market and foreign currency deposits immediately drained away some deposits, but over the medium term it may suggest that further head starts may be given to holders of these accounts, thereby increasing demand for them. The same driving forces behind rising dollar deposits have arguably also led to declining dollar loans. The Chinese banking system's dollar surpluses have joined increases in official reserves in flowing into BIS reporting banks and the US debt markets.

Looking forward, an eventual return to higher dollar interest rates could lead to a resurgence of growth in foreign currency deposits in China. Any shift to a more flexible exchange rate system would add a new element to the formation of exchange rate expectations. Whatever the demand for such deposits, they are serving as an early experiment in China's interest rate liberalisation. In addition, under the terms of China's WTO entry, Chinese and foreign banks will first compete for foreign currency deposits before competing directly in the renminbi business.

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What determines the growth of Chinese foreign currency deposits: some econometric evidence

We rely on regression analysis to explain the monthly change in the ratio of onshore foreign currency deposits to renminbi deposits for a very limited sample from 1999:06 to 2001:12. We test three hypotheses posed by our analysis. First, the ratio would rise in response to wider differentials between onshore dollar deposit rates and local currency deposit rates. Second, the ratio would increase in anticipation of dollar appreciation vis-à-vis the renminbi. Finally, the recent B-share market liberalisation would drain foreign currency deposits from the system on impact. The estimated coefficients reported below are of the right sign and statistically significant. The empirical evidence lends support to the main arguments of our analysis.

(1) $F_t = -0.065 + 0.041R_t + 0.382E_{t-1}$
(–1.96) (2.59) (1.13)

$\bar{R}^2 = 0.190$; $DW = 2.175$; $LLF = 25.14$

(2) $F_t = -0.042 + 0.083R_t + 0.558E_{t-1} - 0.002B_t$
(–1.46) (2.83) (1.93) (–3.54)

$\bar{R}^2 = 0.426$; $DW = 2.203$; $LLF = 31.04$

where

F_t = the change in the ratio of onshore foreign currency deposits to renminbi deposits
R_t = the interest rate differential (onshore USD minus CNY 12-month rate)
E_{t-1} = the lagged percentage changes in the Asian currency index
B_t = the percentage change in the number of B-share investor accounts.

Note: The "Asian currency index" is the trade-weighted index of the bilateral US dollar rates of seven floating Asian currencies: the Indonesian rupiah, Japanese yen, Korean won, Philippine peso, Singapore dollar, New Taiwan dollar and Thai baht. The trade weight is the 1999 total trade value in dollars.

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Recent initiatives by Basel-based committees and the Financial Stability Forum

Basel Committee on Banking Supervision (BCBS)

The BCBS publishes a summary of discussions and recommendations on terrorism financing ...

In April, the BCBS published the summary of a meeting of supervisors and legal experts from G10 central banks and supervisory authorities held on 14 December 2001 in Basel. The focus of the meeting was the sharing of financial records between jurisdictions in connection with the fight against the financing of terrorism. The BCBS considered the issues discussed at the meeting and took a number of decisions, including (a) that continued efforts should be made to ensure that the standards set out in the BCBS's report of October 2001 on customer due diligence for banks are adopted around the world;[1] (b) that the BCBS's working group on cross-border banking (which drew up the above-mentioned report) would consider the possible issuance of supplementary guidance concerning terrorism funding; (c) that supervisors should ensure that adequate systems and procedures are in place to carry out groupwide consolidated risk management for banking groups operating internationally;[2] and (d) that the BCBS would review the experiences of bank supervisors and other official authorities, as regards the exchange of information about the banking activities of suspected terrorists, with a view to identifying whether further steps needed to be taken to ensure an effective national and cross-border exchange of information.

... and releases a survey on bank disclosures in 2000

In May, the BCBS published a report presenting the results of a survey on public disclosures based on a sample of internationally active banks in 13 countries.[3] Together with a similar survey conducted a year earlier, the survey's aim is to identify trends in disclosure practices and to serve as a guide to the banking industry by indicating which disclosure practices are currently prevalent and where enhanced disclosure would be desirable.

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[1] See *Customer due diligence for banks*, BCBS, Basel, October 2001. Available at www.bis.org.

[2] In particular information sharing arrangements should exist to ensure that, in circumstances where the financing of terrorism is suspected, formal procedures exist to notify both home and host supervisors.

[3] See *Public disclosures by banks: results of the 2000 disclosure survey*, BCBS, Basel, May 2002.

Good disclosure of basic information ...

The results of the 2000 survey show that the most basic information relating to capital structure and ratios, accounting and presentation policies, credit risk and market risk is well disclosed, with disclosure rates typically over 80% for these survey questions. Disclosure rates generally decrease, however, as the sophistication, complexity or proprietary nature of the information increases, with information about credit risk modelling, credit derivatives and securitisation disclosed by fewer than half of the banks.

... but room for improvement

The Committee noted that there is room for improvement and that once the proposals contained in its last working paper on public disclosures are finalised,[4] the BCBS expects to see disclosure increase in anticipation of the New Basel Capital Accord.

Overall, modest increase in frequency of disclosure

Overall, there appears to have been a modest increase in the frequency of disclosures as compared to 1999. The most notable increases involve questions on complex capital instruments and procedures for setting credit risk allowances, securitisation, and operational and legal risks – although disclosures on securitisation are still not very frequent. For a few survey questions, there appears to be some reversal of direction, with disclosures appearing less frequently in 2000 compared to 1999.

The BCBS releases details of operational risk data collection exercise

In June, the BCBS released details of its second data collection exercise on operational risk. The exercise, which was initiated in May 2001, seeks to gather information on banks' operational risk losses and various exposure indicators, enabling the BCBS to further develop and refine the framework of the operational risk charge proposed in the New Basel Capital Accord. The latest survey covers the most recent financial year (2000/01). The BCBS asked banks to complete and return the survey via national supervisors by 31 August 2002.

International supervisory bodies update the Joint Forum's mandate

In June, the BCBS, the International Organization of Securities Commissions and the International Association of Insurance Supervisors published an updated mandate for the Joint Forum. The Joint Forum is a group of technical experts working under the aegis of the three international supervisory bodies, whose work encompasses issues relating to financial conglomerates as well as issues that are of common interest to the three parent committees.

Financial Stability Forum (FSF)

The FSF publishes a list of work on sound financial systems ...

In April, the FSF published a list of ongoing and recent work relevant to sound financial systems. The list had been discussed at a meeting of the FSF on 25–26 March in Hong Kong.[5] Also in April, the FSF published an overview of recent developments affecting highly leveraged institutions. The document considers the progress made in addressing earlier concerns about such entities and highlights changes that have given rise to some fresh concerns (though

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[4] See *Working paper on Pillar 3 – market discipline*, BCBS, Basel, September 2001.

[5] See *Ongoing and recent work relevant to sound financial systems*, FSF, Basel, March 2002 and *The FSF recommendations and concerns raised by highly leveraged institutions (HLIs): an assessment*, FSF, Basel, March 2002. Both documents are available at www.fsforum.org.

these do not pose a threat to financial stability per se). The note concludes with a number of issues for the FSF's further consideration.

... and holds regional meetings

In the same month, the FSF also held a first regional meeting with central and eastern European authorities at the European Bank for Reconstruction and Development and a second regional meeting with Latin American authorities at the Central Bank of Brazil. Participants at the meetings exchanged views on potential vulnerabilities in financial systems, issues raised by large corporate failures and ongoing work aimed at strengthening financial systems.