

Eli Remolona
 (+41 61) 280 8414
 eli.remolona@bis.org

Philip Wooldridge
 (+41 61) 280 8819
 philip.wooldridge@bis.org

I. Overview of global financial developments: Markets turn cautiously optimistic

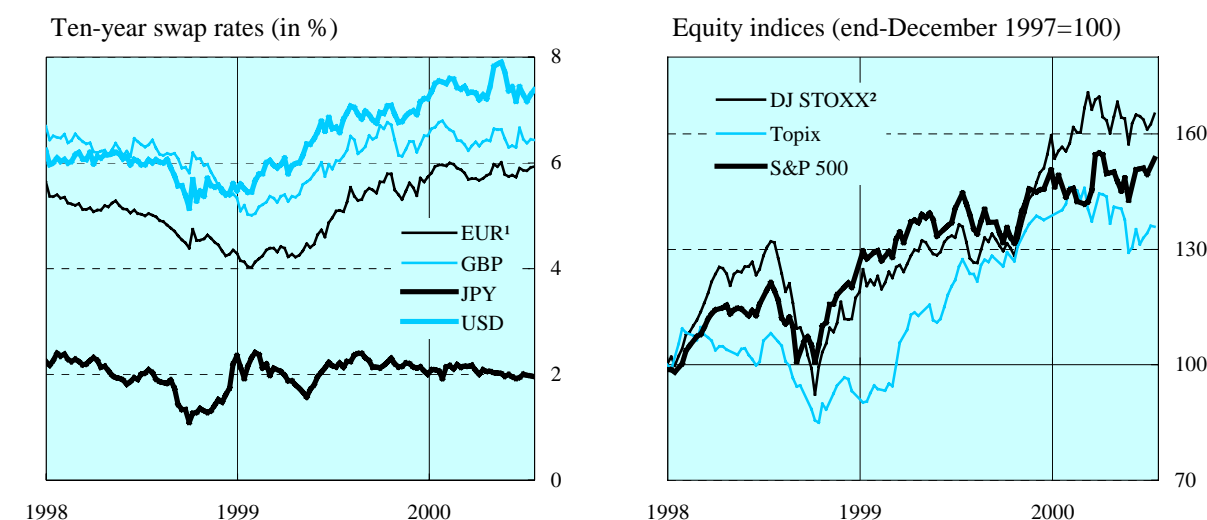
The uncertainty that pervaded financial markets in the early months of 2000 shifted to cautious optimism towards mid-year. Financial market participants around the world continued to focus on the US economy and what the Federal Reserve might do to keep inflation in check. In April and May, fears of a prolonged period of monetary tightening and a possible hard landing contributed to equity market declines in the United States and Europe, a further widening of swap and credit spreads and a general aversion to risk (Graphs I.1 and I.2). In June, US stock markets led a rally in global equity and fixed income markets on signs that were interpreted as weakening the case for further tightening by the Fed. The swing in sentiment turned on a few data releases that suggested US economic growth was slowing to a more sustainable pace.

Shifts and uncertainties in macroeconomic expectations in recent months seemingly exerted more pronounced effects on stock markets than before, most notably in the United States. In contrast to historical experience, on several occasions changes in expectations about the near-term course of US interest rates had a significant impact on equity markets but a muted impact on fixed income markets. Moreover, price declines and increases in volatility in equity markets appeared to have a greater influence on credit spreads than in the past. This latter link between credit and equity markets seemed to arise in part from a growing use of an approach to estimating credit risk based on treating equity as an option on a firm's assets. Widespread use of such an approach could potentially increase the sensitivity of credit spreads to a sharp correction in equity prices, if such an adjustment were to occur.

Graph I.1

Global fixed income and equity markets

Weekly averages



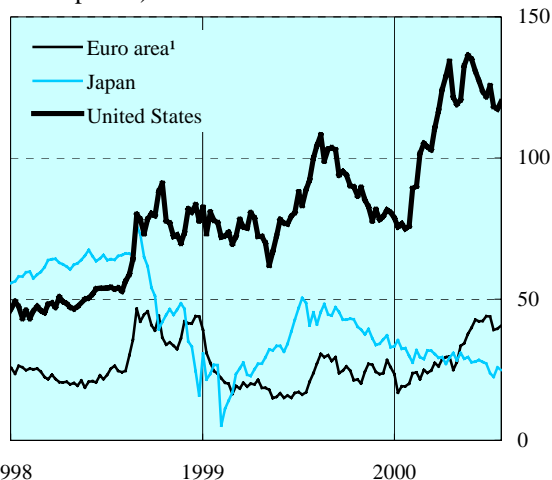
¹ Prior to 1999, Deutsche mark. ² Dow Jones index of European stocks.

Sources: Datastream; national data.

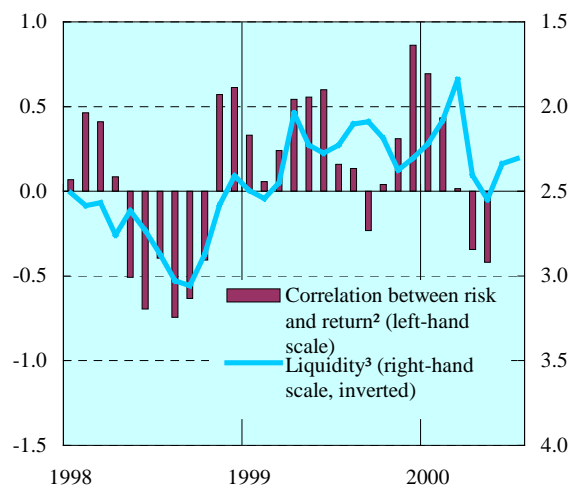
Graph I.2

Indicators of liquidity and risk attitude

Ten-year swap spreads (weekly averages, in basis points)



Risk attitude (monthly)



1998 1999 2000
¹ Prior to 1999, Germany. ² Slope coefficient of a cross-sectional regression of realised returns on historical volatility for a number of asset classes. A rise in the coefficient indicates greater tolerance for risk; a decline indicates more risk aversion. ³ GDP-weighted average of overnight real rates in the eurocurrency market for the US dollar, yen, euro and sterling.

Sources: Datastream; BIS calculations.

Unsettled conditions in US and European credit markets contributed to greater reliance on short-term, floating rate and yen-denominated issues in the international debt securities market during the *second quarter* of 2000. Net issuance amounted to \$265 billion, a slight increase over the previous quarter but substantially below net issuance in the same quarter a year earlier. Issuance by US housing agencies and developing countries slowed markedly between the first and second quarters. However, the subdued activity of these borrowers was more than offset by strong issuance by corporate borrowers, particularly telecommunications firms in Europe.

Securities issuance by European telecoms helped to refinance large bridge loans taken out in the first quarter of 2000 to support mergers, acquisitions and bids for third-generation mobile phone licences. Such loans contributed to a spectacular surge in cross-border bank lending in the *first quarter*, to \$404 billion from \$117 billion in the final quarter of 1999. Indeed, new bank loans eclipsed net securities issuance for the first time since the fourth quarter of 1997 (Graph I.3). Lending activity was driven by interbank transactions, with a substantial amount of funds being rechannelled to Europe through various banking centres. Lending to non-bank borrowers also strengthened, and net lending to Asian borrowers turned positive for the first time since mid-1997.

Central bank watching absorbs the markets

Financial markets in recent months were more sensitive than usual to prospective actions by central banks. The future path of monetary policy in the United States, the possibility of intervention to support the euro and talk of ending the zero interest rate policy in Japan all preoccupied market participants during the period under review.

The strength of the US economy, and the monetary policy tightening that would be required to maintain price stability should such strength continue, remained a key focus of market attention. In April and May, evidence of continued strong growth raised expectations of further interest rate increases, which in turn heightened concern about an eventual hard landing. Stock and bond prices fell in response. Price declines were greatest on the Nasdaq and other technology-focused equity markets, which had earlier turned bearish on concerns about the high valuations of internet and other “new economy” stocks (see the June 2000 issue of the *BIS Quarterly Review*).

Market participants appeared to anticipate the Federal Reserve's decision in May to raise its target for the federal funds rate by 50 basis points (Graph I.4). But rather than reassuring markets that the Fed would be able to engineer a soft landing, the relatively aggressive move initially confirmed market fears of further increases to come. Towards the end of May, expectations shifted to a more favourable outlook, following the release of data indicating a possible slowdown in growth. This resulted in a significant narrowing of the spread between the two-year swap yield and the policy rate (Graph I.4). The subsequent rally was short-lived, however, dampened by concerns about earnings and economic indicators that presented a more mixed picture of the risks to growth.

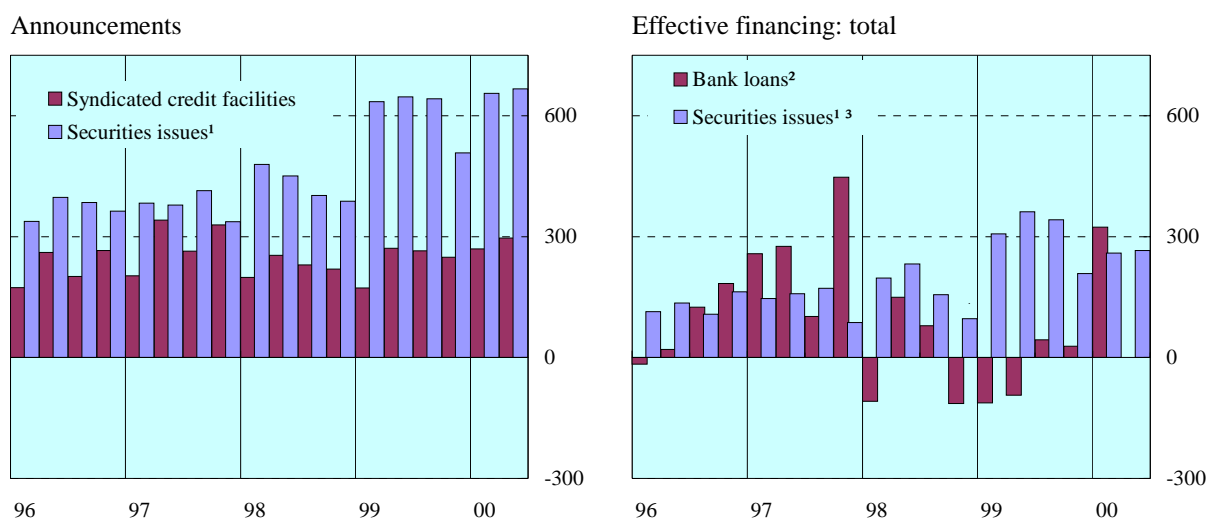
In the period under review, stock markets often reacted more promptly and forcefully than bond markets to significant data releases. In the past, bond markets had tended to be the first to reflect macroeconomic developments with implications for monetary policy, and equity markets to respond to movements in the yield curve. But with bond markets beset with liquidity problems, equity markets have increasingly been reacting in their own right rather than taking their signals from bond markets. For example, following the release on 14 April of stronger than expected inflation figures for the United States, US equity markets fell precipitously (the Dow Jones Industrial Average and the S&P 500 both fell by nearly 6%, and the Nasdaq by almost 10%), whereas fixed income markets remained largely unchanged. In the week ending 2 June, US stock markets posted impressive gains, with the Nasdaq rising 19%, in response to weaker than expected home sales, non-farm payrolls and other macroeconomic news. By contrast, the rally in bond markets during that week was not especially remarkable.

In the euro area, central bank watching was motivated largely by concerns about the currency. During April and May, the euro continued to weaken against the US dollar and the yen (Graph I.5). Although the currency depreciated relatively rapidly in early May, at one point falling below \$0.89, market conditions remained orderly: for example, there were no marked swings in risk reversals (Graph I.5). Nevertheless, the weakness of the euro, coupled with remarks by European leaders about the risks posed by an undervalued currency, fuelled discussion about the prospect of intervention to support the currency. Towards the end of May, however, signs of slower growth in the United States and strong economic indicators for the euro area supported a turnaround, and by mid-June the euro was 7% higher than its early May trough.

Graph I.3

Activity in cross-border bank loans and securities markets

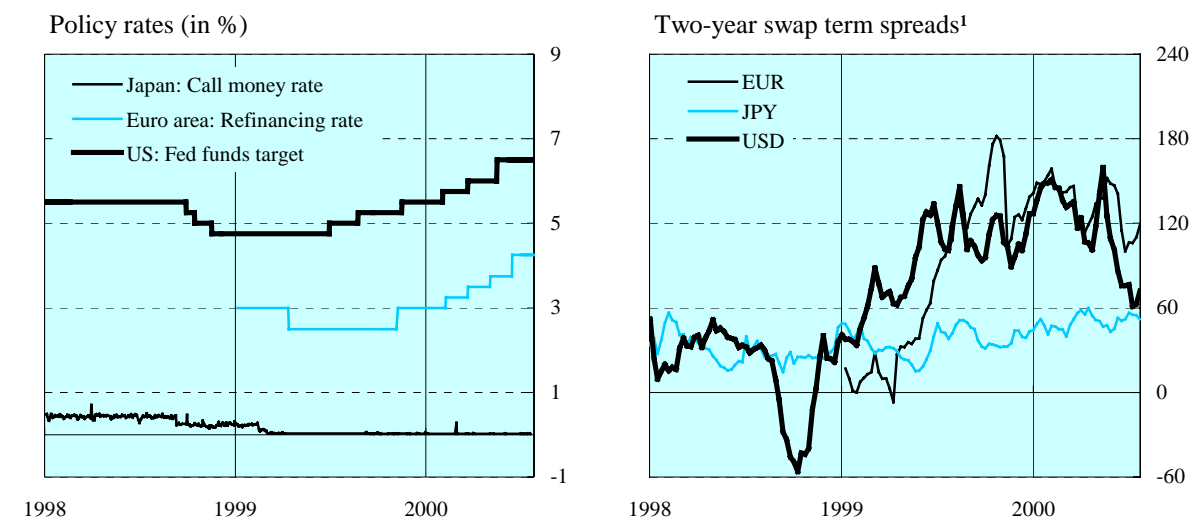
In billions of US dollars



¹ Includes both money market instruments and long-term bonds and notes. ² Exchange rate adjusted changes in gross cross-border bank loans. Data for bank loans are available only up to 2000 Q1. ³ Gross issues minus repayments.

Sources: Bank of England; Capital DATA; Euroclear; International Securities Market Association (ISMA); Thomson Financial Securities Data; national data; BIS.

Graph I.4
Policy rates and term premia



¹ Over the policy rate. Weekly averages, in basis points.

Sources: Datastream; national data.

Although the June rebound appeared to break the trend of a steadily declining euro, the currency's rise faltered soon after it began. The Eurosystem cited the impact of the euro's depreciation on import prices as one of the reasons for further tightening its policy stance in early June. Even though the 50 basis point rise in interest rates exceeded expectations, the move had little impact on the exchange rate, in part because it only brought forward increases that markets had expected for later in the year.

In Japan, market participants began to consider the possibility of a near-term end to the zero interest rate policy. With the economy showing some signs of improvement, the deflationary concerns that prompted the introduction of the zero interest rate policy in February 1999 subsided, and the focus turned to conditions for raising rates. Indications of a recovery and talk of an end to the zero interest rate policy contributed to the strength of the yen in the second quarter. Since the early part of 2000, risk reversals have shown a consistent bias in favour of the yen against the dollar (Graph I.5). Nevertheless, bond market participants evidently were not concerned that an early monetary tightening would augur a series of interest rate increases, as Japanese bond and swap yields remained relatively stable during the period under review (Graphs I.1 and I.4)¹. Japanese stock markets also languished in the second quarter.

Have credit spreads become linked to equity markets?

Credit spreads continued to widen during the second quarter of 2000, especially for high-yield debt (Graph I.6). Spreads were affected by investors' general aversion to risk (Graph I.2) as well as uncertainty about the course of monetary policy and the economy. Moreover, movements in equity markets appear to have been transmitted more directly to bond pricing in secondary markets than in the past, particularly in the US market.

In the United States, rising default rates on junk bonds helped to depress corporate debt prices. Such debt prices were also affected by concerns that some companies, especially "old economy" firms, might buy back their equity in large amounts in an effort to support their stock price and finance these

¹ The Bank of Japan terminated its zero interest rate policy on 11 August (outside of the period under review), raising its target for the overnight call rate to 0.25%. There was little immediate reaction in markets to the move.

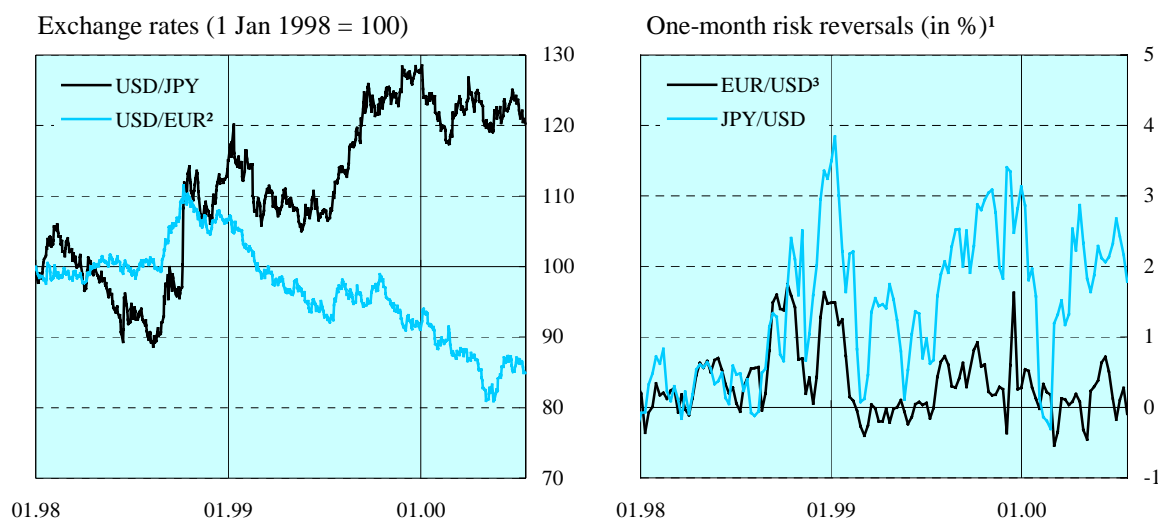
repurchases by issuing more debt. In the event, such leveraging behaviour did not materialise, apparently because credit spreads had widened and few investors were willing to provide the financing.

In European markets, auctions of third-generation mobile phone licences contributed to the widening of corporate credit spreads. Spreads were put under pressure not only by the prospect of unusually large borrowing by telecommunications firms needing to finance their bids and new projects, but also by expected reductions in governments' borrowing requirements and hence in new bond supply, owing to revenues from such auctions. Wider spreads did not deter borrowing activity, with corporate bond issuance more than doubling between the first and second quarters. European corporations were especially active in the yen market, driving net issuance of yen-denominated bonds to its highest level since the mid-1990s.

In contrast to spreads on high-yield corporate debt, spreads on developing country debt continued to trend downwards up to mid-year (Graph I.6). Notwithstanding the general trend, the spread between the EMBI+ and the 10-year swap rate widened noticeably in May, owing to concerns about future US interest rate increases. Those countries with heavy external borrowing requirements, such as Argentina, were particularly affected by the temporary widening of spreads. This contributed to a marked slowdown in issuance by developing countries during the second quarter (see Section II.2).

One of the striking developments in fixed income markets in recent months has been the apparent emergence of a new link between credit and equity markets. In particular, a widening of credit spreads has tended to follow price declines and increases in volatility in equity markets. This phenomenon seems to have stemmed from an increasingly widespread use by fixed income dealers and institutional investors of an option-based approach to estimating credit risk. The approach, first proposed by Robert Merton in 1973 but widely applied only recently, derives a firm's asset value, leverage and likelihood of default from the market value and volatility of its equity.² The approach relies on the idea that information about a firm's prospects would be reflected first in the stock market.

Graph I.5
Exchange rate indicators



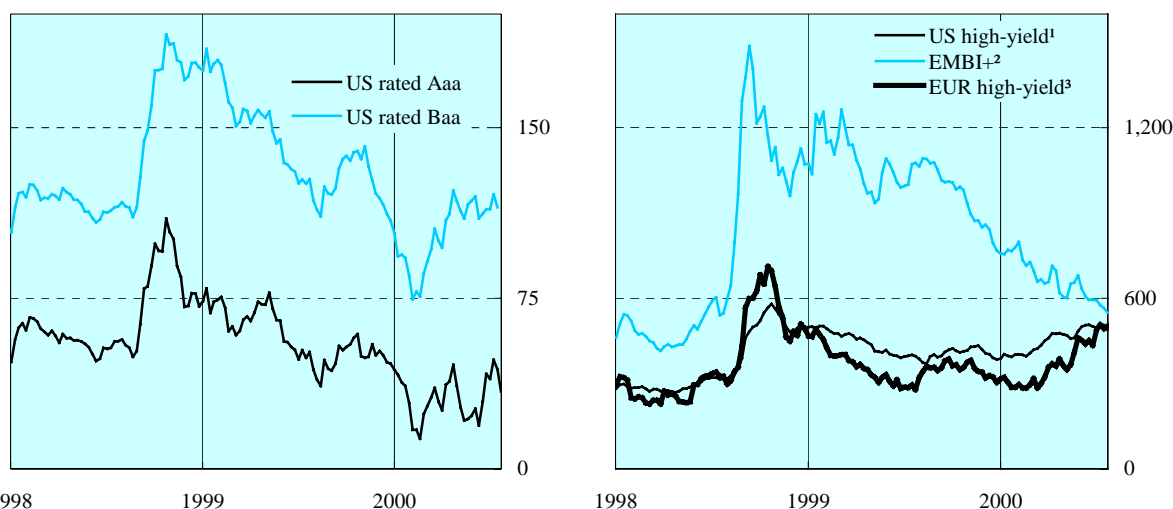
¹ Weekly averages. A negative value indicates a bias towards dollar strength. ² Prior to 1999, the ECU. ³ Prior to 1999, USD/DEM.

Source: Reuters.

² The seminal paper by Merton (1973) is "Rational theory of option pricing," *Bell Journal of Economics and Management Science*, 4, pp 141-83.

Graph I.6
Credit spreads over 10-year swap rates

Weekly averages, in basis points



¹ Merrill Lynch US High Yield Master II. ² JP Morgan's Emerging Market Bond Index (EMBI+) spread over 10-year US swap rate. ³ Euro/ECU denominated Merrill Lynch high-yield bond index.

Sources: Bloomberg; Datastream, national data.

Recent trends in stock and bond markets have been roughly consistent with such an approach. For example, the volatility implied by options on the S&P 100 rose from 23% to 31% between early February and early June, while the index itself rose only marginally. During this period, the spread between Baa-rated debt and US Treasuries widened by 65 basis points, which is approximately in line with what the option-based approach to estimating credit risk would predict. If such an approach were to become more widely used, swings in sentiment in equity markets could have significant repercussions in credit markets.

Liquidity factors drive up US and European swap spreads

Spreads between US interest rate swap and Treasury yields remained at exceptionally high levels in the second quarter, following their sharp run-up in the early part of 2000 (Graph I.2). Spreads between European swap and government yields also widened, with UK swap spreads reaching US levels and euro area spreads nearly doubling, although still far below US and UK spreads. This marked rise reflected a recognition of new liquidity risks, arising from diminishing supplies of government debt. The importance of government debt issuance as an explanation for the widening of swap spreads is supported by developments in Japan, where supplies of government debt remain plentiful and swap spreads remain low and stable.

In US fixed income markets, difficulties in obtaining long-term Treasuries have led to specials – or sharp price increases – several times a month ever since the announcement by the US Treasury in early February of its strategy for buying back debt. While the buyback strategy seems to have been effective in arbitraging deviations from the yield curve (Graph I.7), Treasuries also seem to have become more vulnerable to liquidity shocks than in the past. On a risk-adjusted basis, therefore, swaps have arguably become a more attractive instrument than Treasuries for hedging and positioning. This led investors in agency and corporate bonds to turn to the swaps market in April and May to hedge their positions, fearing possible tightening actions by the Federal Reserve. Increased activity put pressure on swap spreads, with the spread for 10-year swaps rising from approximately 75 basis points in January to 120 basis points in June. In the past, such spread behaviour might have indicated a deterioration in the

credit quality of intermediaries. However, market participants at present see little counterparty risk in the swaps market.

In European swaps markets, similar forces were at work. Swap spreads widened when market participants began to consider seriously the reductions in government debt issuance implied by the revenues raised through auctions of telecommunications licences. The United Kingdom was the first country to auction third-generation mobile phone licences, and the amount that it raised – £22.5 billion – prompted analysts and investors to revise upwards their estimates of the revenues that similar auctions by other European countries might generate. Uncertainty about the near-term course of European interest rates put added pressure on European swap spreads

International bank lending surges but developing country borrowers stay away

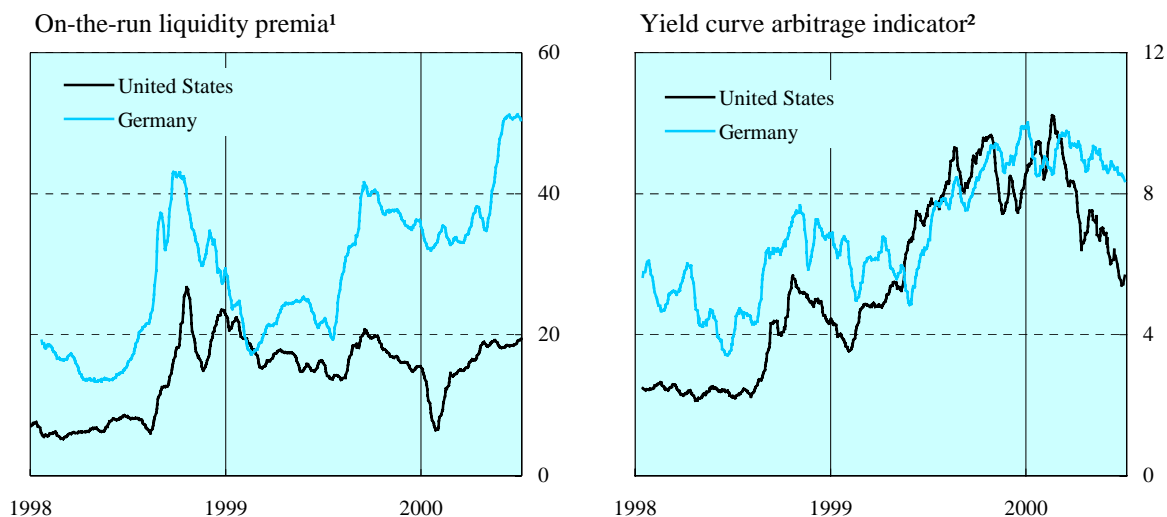
The most recent data reported to the BIS show a resurgence in the international banking market in the first quarter of 2000, driven by cross-border interbank transactions. Strong demand by the telecommunications sector in Europe for financing for mergers, acquisitions and bids for third-generation mobile phone licences appears to have set in train a movement of funds from various banking centres around the world to Europe. This rechanneling process caused lending flows between banks in developed countries to surge to \$321 billion during the first quarter, the highest level of activity seen in the interbank market since the fourth quarter of 1997. A portion of these funds was onlent to non-bank borrowers, resulting in a near tripling of loans to non-bank borrowers in developed countries to \$65 billion.

The resurgence of the international banking market did not, however, extend to developing country borrowers. Securities markets continued to be by far the most important source of debt finance for developing countries (Graph I.8). In the first quarter of 2000, international banks further reduced their

Graph I.7

Liquidity in government bond markets

In basis points; 10-day moving averages



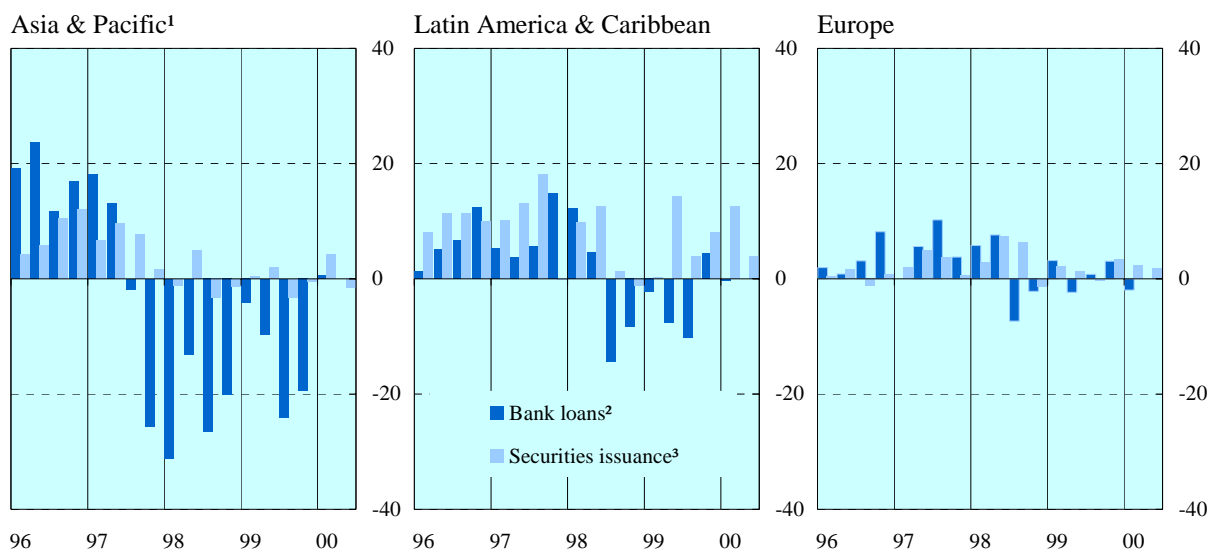
¹ For the United States, 30-year on-the-run/off-the-run spread; for Germany, Kreditanstalt für Wiederaufbau/10-year government bond spread. ² Standard deviation of static spreads of all bonds over a zero coupon yield curve (excluding callable bonds).

Sources: Datastream; BIS calculations.

Graph I.8

International bank and securities financing in developing countries

In billions of US dollars



¹ Excluding Hong Kong and Singapore. ² Exchange rate adjusted changes in claims of BIS reporting banks. Data on bank borrowing are not yet available for the second quarter of 2000. ³ Net issues of international money market instruments, bonds and notes.

Sources: Bank of England; Capital DATA; Euroclear; ISMA; Thomson Financial Securities Data; national data; BIS.

overall exposure to developing countries, albeit at a slower pace than in 1998-99. Their investment in securities – at \$7 billion, the largest flows since mid-1997 – was more than offset by a \$9 billion reduction in loans. Much of this reduction was due to a decline in lending by US banks to Middle East borrowers. In Latin America new loans roughly offset repayments, while in Asia bank lending turned slightly positive after 10 consecutive quarters of repayments. Korea was the largest developing country borrower in Asia in the first quarter, while for most other Asian countries repayments continued to exceed new loans.

Global developments in real estate prices

Asset prices play a prominent role in the course of the business cycle. Indeed, it may be argued that the boom-bust nature of asset prices exacerbates the business cycle by both fuelling the upswing and magnifying the downswing. Asset prices influence aggregate demand directly through the wealth effect on consumption and indirectly via the impact on the balance sheets of households, corporations and financial intermediaries. Price movements that improve balance sheets enhance the borrowing capacity of households and corporations: price upswings are in fact often associated with rapid credit growth. Subsequent price declines can then lead to widespread defaults, reductions in collateral values and cutbacks in lending by financial intermediaries.

The sustainability of soaring asset prices and the risks of a subsequent collapse are therefore important issues for policymakers. Recently much attention has been focused on the high valuations of global equity markets.^① Yet real property prices have also registered significant gains over the last few years in many countries. Historically, it is in fact the extensive use of real estate as collateral that has been the main source of losses for banks. During the last decade, for instance, booms and busts in real estate, accompanied by rapid credit expansion and subsequent cutbacks, played a prominent role in the banking crises of the Nordic countries and Japan, and more recently in Asia.^② Such roller-coaster price movements also led to significant credit losses in Australia, the United Kingdom and the United States at the turn of the 1990s. While residential property prices may play a more prominent role in aggregate consumption, commercial property prices have been the more significant source of credit losses.

In recent years, gains in residential property prices have been quite substantial in some markets. While inflation-adjusted house prices rose by 9% between 1995 and 1999 in the United States, increases exceeded 25% in Denmark, Finland, Norway, Sweden, the Netherlands and the United Kingdom. Ireland had an even stronger housing market, with inflation-adjusted prices rising by 76% over the same period. Exceptions to the upward trend were the German, Italian, Japanese and Swiss markets, where inflation-adjusted prices declined by 8%, 9%, 12% and 13% respectively.

In the case of commercial real estate – traditionally the more volatile market – the data indicate even stronger gains.^③ Price increases in excess of 40% were recorded in Amsterdam, Stockholm and major cities in the United States over the last four years, while prices in Madrid doubled. The largest increases were recorded in Dublin, where inflation-adjusted commercial real estate prices rose by more than 170% between 1995 and 1999. In contrast, the Tokyo market registered a significant price decline.

The recent similarity of real estate price movements across markets follows in some cases very different price histories. In the Nordic countries, Italy, Spain and the United Kingdom, housing prices fell substantially during part of the 1990s. Consequently, in these countries and Japan real house prices are still below previously scaled peaks. In contrast, the Belgian, Dutch and Irish housing markets suffered no major downturn during the 1990s. Thus the steady gains posted over the last decade have taken real house prices to all-time highs. The cross-country performance of commercial real estate has been more uniform over the last decade and a half. Almost all cities covered experienced a sharp run-up in prices during the later part of the 1980s followed by an equally sharp price reversal. As a result, inflation-adjusted prices of commercial real estate remain substantially below values attained at the end of the 1980s. Important exceptions are the Amsterdam, Dublin and US markets. Commercial property in major US cities gained 60% from the price trough, indicating that the boom in equity markets is starting to be reflected in property prices. In Japan, prices have not recovered since the bursting of the bubble at the turn of the 1990s.

While statistical analysis shows that the strength of the economy has tended to be a driving factor in recent gains in property prices, the analysis also points to a number of cases where the difference between private credit growth and GDP growth has been an important factor as well. In the case of commercial real estate in particular, cross-country differences in credit growth consistently help explain the international dispersion of asset price performance even after accounting for the effects of economic growth. The commercial property booms in

^① See, for example, the 1999-2000 BIS Annual Report. ^② See the 1992-93 and 1996-97 BIS Annual Reports and C E V Borio, N Kennedy and S Prowse (1994), *Exploring aggregate asset price fluctuations across countries: measurement, determinants and monetary policy implications*, BIS Economic Papers No. 40 (April). ^③ With the exception of the United States, the data apply only to major cities and are thus not as comprehensive as the national housing price data.

Box Table I.1								
Nominal and inflation-adjusted real estate prices								
	Nominal prices				Inflation-adjusted prices			
	1996	1997	1998	1999	1996	1997	1998	1999
Indices, 1995 = 100								
Residential property prices								
United States	104	107	113	120	100	102	106	109
Japan ¹	98	97	93	90	98	95	91	88
Germany	100	97	96	97	98	94	92	92
France	101	102	105	106	100	99	102	102
Italy	97	92	94	99	95	89	89	91
United Kingdom	104	113	126	139	101	106	115	126
Canada	100	103	101	105	98	100	97	99
Spain	102	103	108	120	99	98	101	109
Netherlands	109	121	132	154	107	115	124	141
Australia	101	105	113	121	99	103	109	115
Switzerland	94	90	89	89	94	89	88	87
Belgium	104	109	114	122	102	105	110	115
Sweden	101	107	118	129	101	106	118	127
Denmark	111	123	135	143	108	118	127	131
Norway	108	118	129	142	107	113	121	129
Finland	105	124	137	149	104	120	132	141
Ireland	112	131	161	191	110	127	152	176
Commercial property prices: major cities ²								
United States	110	127	153	175	106	120	144	159
Tokyo ¹	87	80	72	64	86	78	70	63
Frankfurt	100	100	108	123	99	97	104	117
Paris	93	98	114	122	92	95	110	116
Milan	91	88	111	125	89	85	105	116
London	105	115	118	130	103	108	108	117
Toronto ³	92	96	110	120	90	93	106	113
Madrid	119	128	183	225	115	122	172	205
Amsterdam	108	117	143	167	106	112	134	153
Sydney	105	112	116	117	103	110	113	112
Zurich	91	88	85	90	91	87	84	87
Brussels	106	109	109	118	104	106	105	111
Stockholm	106	126	143	144	106	125	143	142
Copenhagen	100	111	116	130	98	106	109	118
Oslo	107	121	111	121	105	117	104	111
Helsinki	102	105	115	125	101	102	111	118
Dublin	119	151	215	294	117	146	203	271

¹ Land prices. ² Except for the United States. ³ Price index for offices in Ontario.

Note: 1999 data for Belgian residential property prices are preliminary.

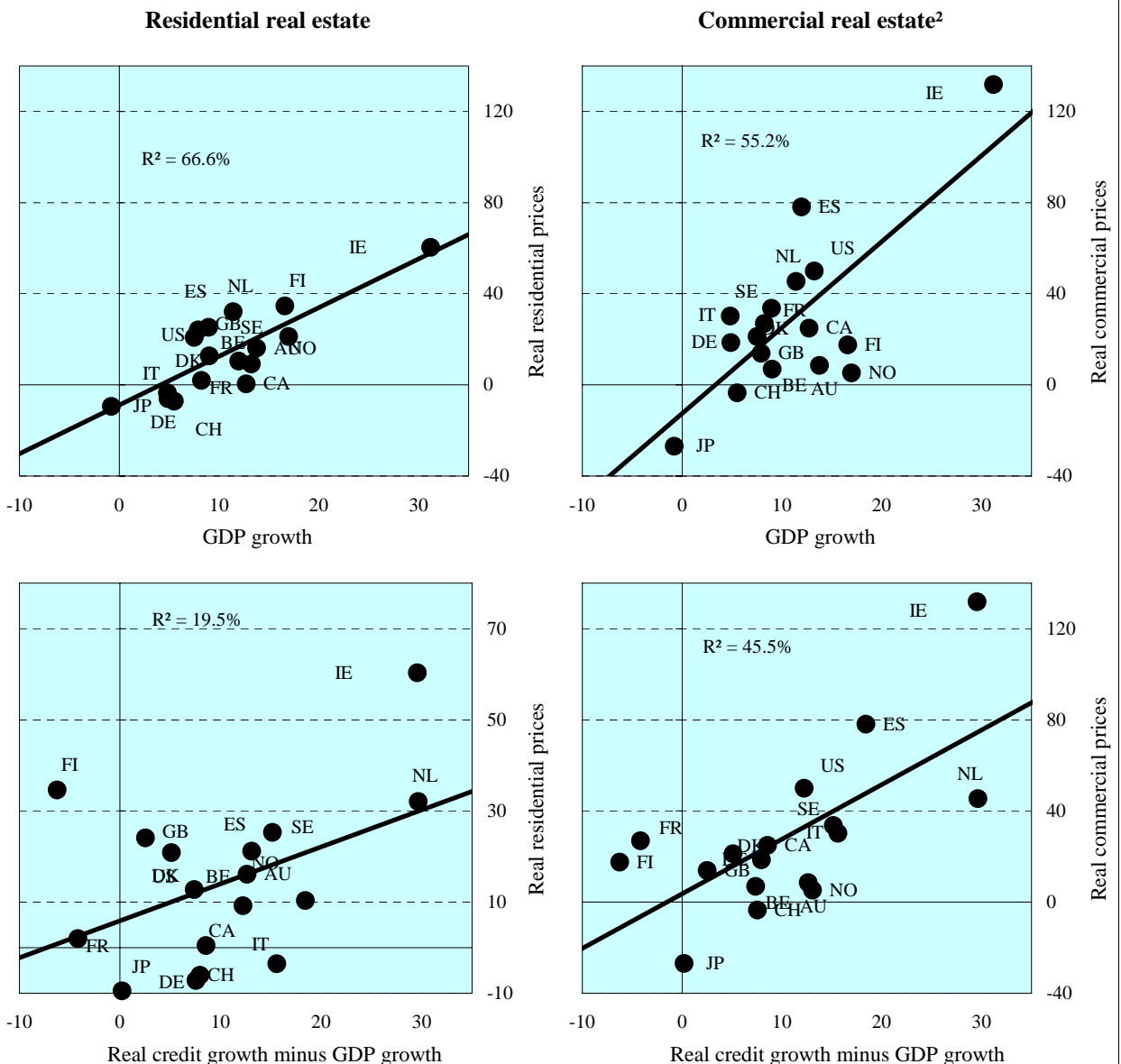
Sources: Frank Russell Canada Limited; Investment Property Databank; Jones Lang LaSalle; Ministère de l'Équipement, des Transports et du Logement; Nomisma; Office of Federal Housing Enterprise Oversight; OPAK; Sadolin & Albæk; Wüest & Partner; other private real estate associations; national data.

Dublin, Madrid and major US cities, for example, have been accompanied by private credit growth that has far outpaced that of the underlying national economies (Box Graph I.1). In the case of residential real estate, credit growth has little systematic influence on the cross-country differences in performance. Indeed, even the spectacular gains in the Irish residential market appear to be in line with GDP growth.

In fact, credit growth significantly in excess of GDP growth has been a rather widespread phenomenon. Various institutional developments have eased credit conditions in general and those on property lending in particular. In the United States, for example, the Federal National Mortgage Association (“Fannie Mae”) and Federal Home Loan Mortgage Corporation (“Freddie Mac”), with the benefit of implicit interest rate subsidies arising from

Box Graph I.1

Real estate prices, GDP and credit growth, 1996-99¹



¹ For all variables, percentage change over three years. Credit variables are based on BIS estimates of total credit to the private sector.
² For the United States, nationwide index; for other countries, major cities.

Sources: Jones Lang LaSalle; Sadolin & Albaek; Investment Property Databank; OPAK; Frank Russell Canada Limited; Wüest & Partner; IMF; national data.

investors' beliefs about government backing, have dramatically expanded their support for home purchases. In Europe, flourishing securitisation added strength to the commercial real estate market. Total European issuance last year set a record at just over \$7.5 billion. In Ireland, new entry has sharply raised competition in the mortgage market and led to a significant relaxation of terms on real estate financing.

In some countries, the rapid increase in credit, especially to such cyclically sensitive sectors as commercial real estate, has elicited public expressions of concern. Supervisory authorities, most notably in France and Spain, have warned about such credit while pointing to banks' comparatively low levels of provisioning at this point in the cycle. Experience indicates that, at least in those countries where price increases have been particularly rapid and prices are beyond or close to previous peaks, developments warrant close monitoring.