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I. Overview of global financial developments: Markets confront shifting expectations

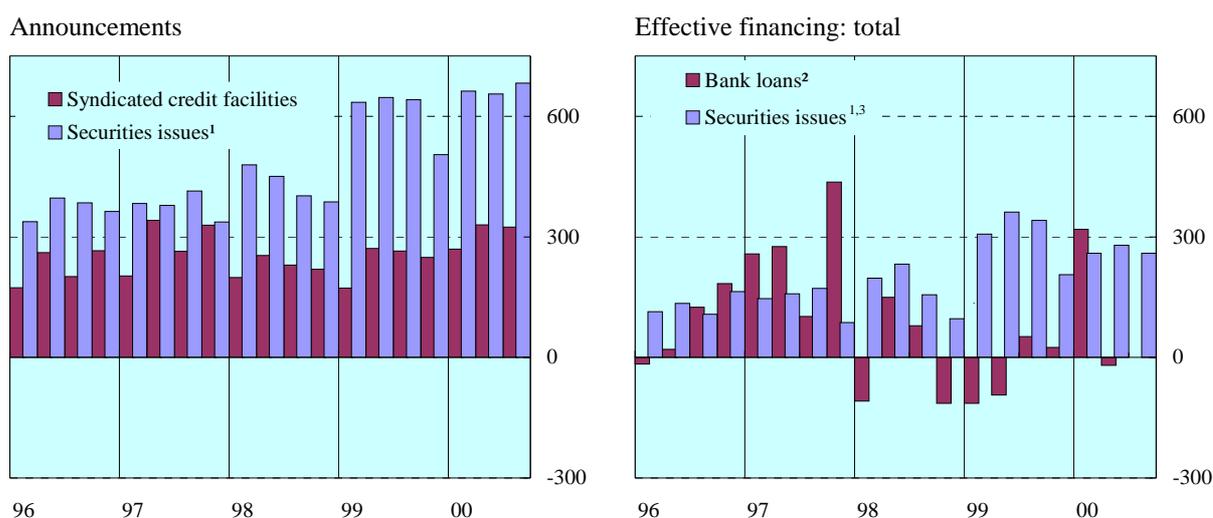
From the summer to early autumn of 2000, financial markets moved from a climate of cautious optimism to one of growing apprehension. In July and August, macroeconomic data releases and policy measures signalled a more or less benign financial environment. In September, however, as macroeconomic and corporate earnings forecasts were revised downwards and oil prices rose, market participants suddenly began to show signs of nervousness. In the equity market, a brief rally in August was decisively reversed in September and October. Apprehension spread to corporate bonds, which experienced wider credit spreads and increased scrutiny of highly leveraged issuers, including telecommunications firms. These events were accompanied by a resumption of the euro's weakening trend, which continued until the end of October. Among other things, this trend appeared to reflect renewed market concerns about growth prospects in the euro area.

To some degree, financial market jitters have reflected continued attempts to find equilibrium in a situation of rapid technological change and uncertainty about the persistence of recent high rates of productivity growth in the United States. Equity valuations have tended to rely on optimistic expectations about prospects for continued profit growth, which for a time were reinforced by earnings reports. Once earnings began showing signs of slowing and prominent credit downgrades began to be made, however, equity and debt valuations became vulnerable to sharp revisions of expectations. The strength of the dollar against the euro and other currencies has resulted at least in part from

Graph I.1

Activity in cross-border bank loans and securities markets

In billions of US dollars

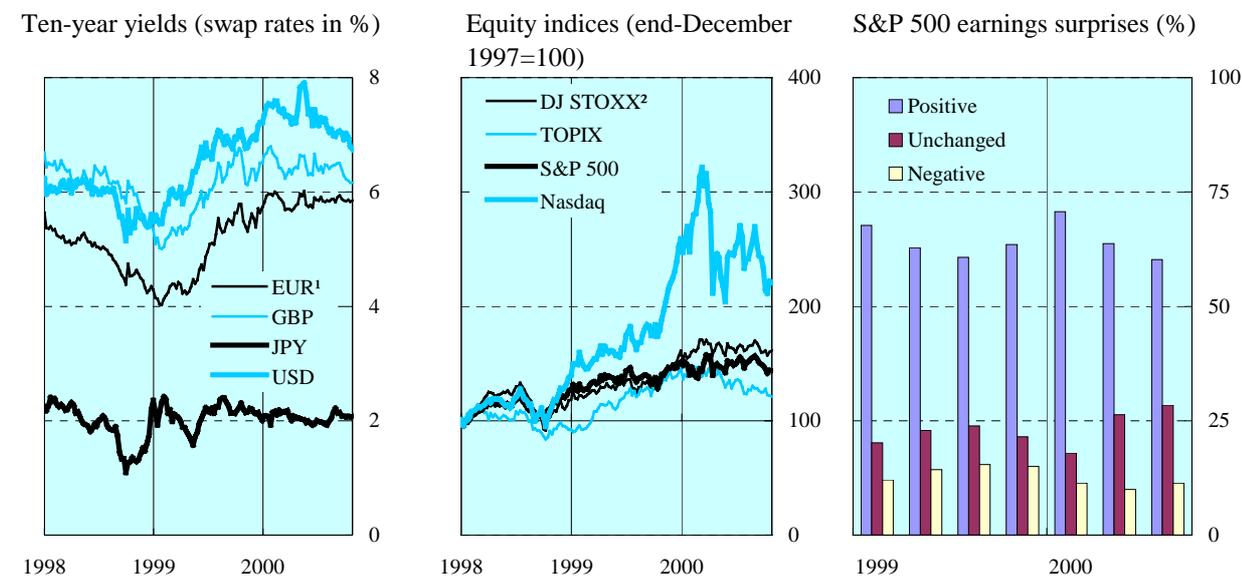


¹ Includes both money market instruments and long-term bonds and notes. ² Exchange rate adjusted changes in cross-border bank loans. Data for bank loans are available only up to 2000 Q2. ³ Gross issues minus repayments.

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

Graph I.2
Global fixed income and equity markets

Weekly averages



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

Sources: Bloomberg; Datastream; national data.

long-term capital flows from overseas investors into the United States driven by strong confidence in future returns. These flows may also have reflected a complementary scepticism about the ability of Europe and other regions to achieve similar levels of productivity growth through structural reforms.

The adverse conditions in financial markets led some firms to defer their borrowing plans. Financial institutions, the largest group of borrowers, reduced their net issuance of international debt securities in the third quarter by 27% relative to the previous quarter. Other borrowers shifted from issuing long-term fixed rate bonds to floating rate or convertible instruments, or went to the syndicated loan market. Nonetheless, the aggregate level of fund raising was maintained, in part because a third group of issuers were relatively less sensitive to concerns about credit risks. In particular, highly rated state agencies and government-sponsored enterprises stepped up their issuance to make up for the absence of other borrowers in the market for long-term fixed rate securities.

Despite investors' increased sensitivity to credit risk, developing country borrowers were able to maintain the recent moderate pace of debt issuance during the third quarter. Latin American and Caribbean countries issued \$6.9 billion of international debt securities net of repayments and continued to refinance their Brady debt with cheaper issues at longer maturities. However, spreads on emerging market bond issues widened sharply in October, after more than a year during which they had narrowed appreciably. Equity markets and exchange rates in some countries, particularly in East Asia, were adversely affected by worries about rising oil prices, political instability and the uncertain progress of reform measures.

BIS data for the second quarter show that the role of the international banking market continued to accommodate the shift of borrowers to the securities market (Graph I.1), both through banks' own large-scale purchases and through the provision of bridge loans to borrowers who would subsequently refinance these loans by issuing long-term securities. Evidence from the syndicated loan market shows that telecommunications firms were among the principal users of bridging finance in the first quarter. These firms stepped up their issuance of securities in the second quarter, before the rise in credit spreads in the third sent them back to the syndicated loan market.

Equity markets harbour renewed doubts about earnings

The sell-off in global equity markets, which began in late March but showed signs of a reversal over the summer, regained momentum in September and October (Graph I.2, middle panel). The sell-off was concentrated in high-technology stocks. Over the five and a half months from mid-March to end-August, the broad-based S&P 500 index and the Europe-based Dow Jones STOXX index both experienced significant swings but ended up virtually unchanged in local currency terms, while the Nasdaq and Tokyo (TOPIX) indices fell by roughly 15%. A brief rally in August was decisively reversed in early September when analysts revised downwards their earnings projections for semiconductor manufacturers and wireless equipment makers.

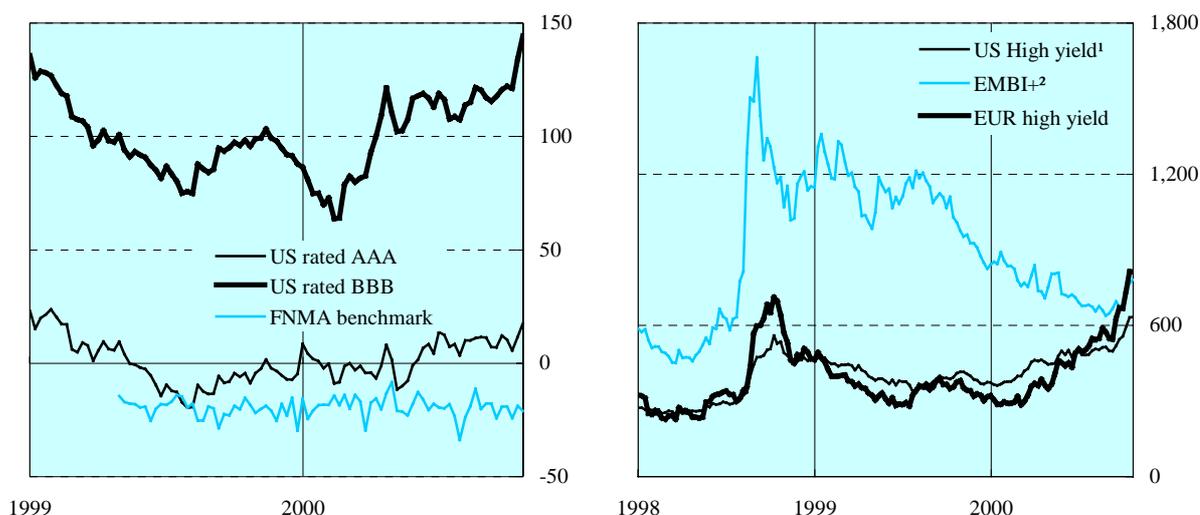
In October, Nasdaq prices fell by a further 8% as disappointing earnings announcements accumulated, mostly from technology firms. Despite the March-April correction, market valuations had in many cases continued to reflect extremely optimistic forecasts of future earnings growth. Thus, it was frequently the case that a company would report healthy current earnings growth but encounter a negative market response because it did not offer a sufficiently optimistic outlook for the future. The third quarter was also the second in a row to record a decline in the number of companies reporting earnings that exceeded forecasts (Graph I.2, right-hand panel). Because of the interconnected nature of the supply chain and the difficulties of forecasting future growth patterns in high-tech industries, reports of slower sales or investment growth in one sector often had a sharply negative impact on earnings forecasts for other sectors. Investors were also worried about the impact on corporate earnings of a potential growth slowdown in Europe, as well as about the effect of the weak euro on the income of those firms that had not adequately hedged their exposures to foreign exchange risk.

The downward revisions in revenue forecasts for high-tech companies and the accompanying decline in their stock prices led investors in East Asia to reduce their expectations about the prospects for the electronics industries based in that region. These expectations added to the woes of those Asian countries that depend heavily on electronics exports, some of which also happened to have stock markets already weakened by other factors. The Seoul market, for example, had suffered from a perception that efforts at financial and corporate reform were faltering, and the Taipei market from political problems. The Seoul market fell 25% in the third quarter and the Taipei market 23%. As the Nasdaq index continued to decline in October, the Seoul market fell a further 16% and the Taipei market a further 13%, that is, by even more than the Nasdaq index.

Graph I.3

Credit spreads over 10-year swap rates

Weekly averages, in basis points

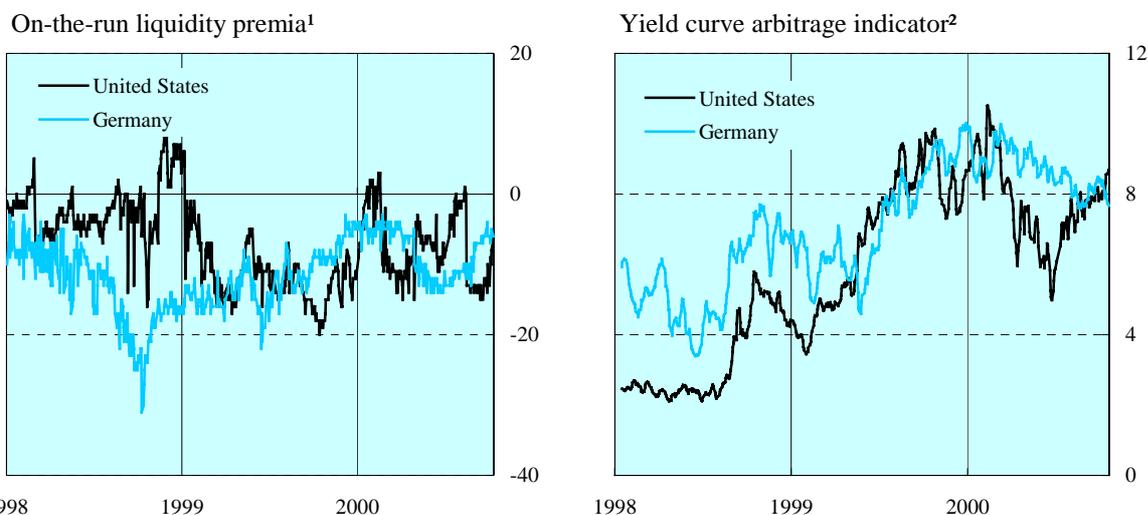


¹ Merrill Lynch US High Yield Master II. ² JP Morgan's Emerging Market Bond Index (EMBI+) spread over 10-year US swap rate. ³ Euro/ECU denominated Merrill Lynch high-yield bond index.

Sources: Bloomberg; Datastream, Moody's; national data.

Graph I.4
Liquidity in government bond markets

In basis points



¹ Static spread of the 10-year on-the-run government bond over a zero coupon yield curve. ² Standard deviation of static spreads of all bonds over a zero coupon yield curve (excluding callable bonds).

Sources: Datastream; BIS calculations.

Apprehension spills over into corporate bonds and emerging market debt

Concerns about the health of the corporate sector also resulted in wider corporate credit spreads (Graph I.3). The spread of the Merrill Lynch index of triple-A bond yields over 10-year US dollar swaps rose from virtually zero in early August to nearly 20 basis points in early October, while comparable triple-B spreads rose from 100 basis points to 140. The BBB spread had also widened in February and March, at a time when the market's attention was focused on the debt buyback strategies of the US Treasury and on the status of US agency paper, but this spread had then stabilised throughout the spring and early summer. Spreads on AAA issues had been more or less constant since autumn 1999. The renewed widening of spreads in the third quarter of 2000 may have reflected concerns about increased leverage, particularly in investment-intensive sectors such as telecommunications.¹ The higher spreads in the corporate bond market mirrored the tighter credit standards that, according to a survey by the Federal Reserve, have recently been imposed by bank lending officers in the United States. More generally, both volatile equity markets and higher credit spreads reflected increasing uncertainty over asset values.² Declines in the overall level of yields for government bonds in the United States and Europe reinforce the picture of a flight to safety among investors.

Sensitivity to credit risk also extended to emerging market debt. After narrowing steadily in the previous 12 months, spreads widened sharply in October. A tiering of risk in this market was evident in the fact that the most pronounced widening of spreads was experienced by such countries as Argentina, Brazil, the Philippines and Turkey, countries which had already been facing the widest spreads among the major borrowing countries in their respective regions. Emerging economies that are oil importers were also considered to be more vulnerable than the developed economies to higher oil prices. The problems experienced by the Argentine economy, which led to the announcement of a support package by the International Monetary Fund in November, may have contributed to a further

¹ See the box "Bond issues by European telecommunications companies" on pages 30-31.

² See the box "Credit spreads and equity market volatility" on pages 10-13.

worsening of sentiment towards emerging market debt in the fourth quarter. Nevertheless, as discussed below, capital markets continued to be fairly receptive to debt issues from the developing world for most of the third quarter.

Liquidity in fixed income markets stabilises

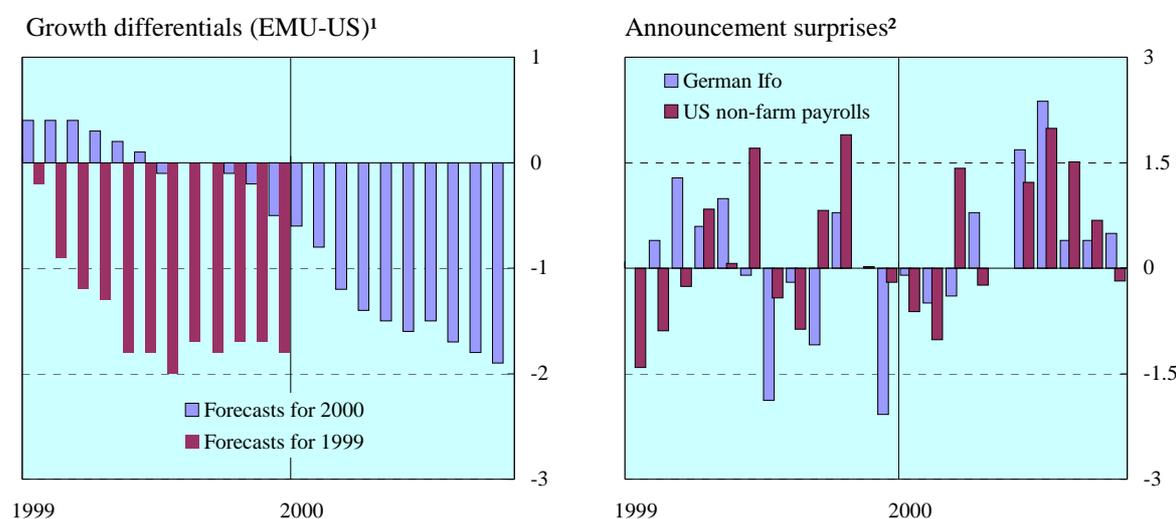
In contrast to earlier episodes of widening credit spreads, recent credit concerns about non-financial companies have not been associated with a decline in market liquidity or with worries about the health of the financial sector. The spreads of interest rate swap yields over those on government issues such as US Treasuries and German bunds were more or less unchanged over the period.³ Other closely watched indicators of illiquidity, such as the spreads between on-the-run and off-the-run issues, have been stable or declining (Graph I.4). Stable swap and liquidity spreads are also a sign that, for the moment at least, fixed income markets have adapted to the declining supply of new government issues, after being preoccupied with this question for much of the first half of the year.⁴ Another sign of the market's ability to adapt to the new supply conditions has been the fact that yields on 30-year bonds now once again exceed 10-year yields in the United States, after being below them for much of the year. The 30-year yield had been particularly affected by shifting market expectations regarding the path of future supply. At the same time, yields in the two- to 10-year section of the yield curve have fallen significantly below those at the very short end, reflecting downward revisions to the expected course of policy rates and producing an unusual U-shaped term structure.

The depreciating euro poses a quandary for markets and policymakers

During the period under review, the steady weakening of the euro against the US dollar and other currencies raised questions about prospects for price stability in the euro zone and about the market's

Graph I.5

Growth forecasts and economic surprises



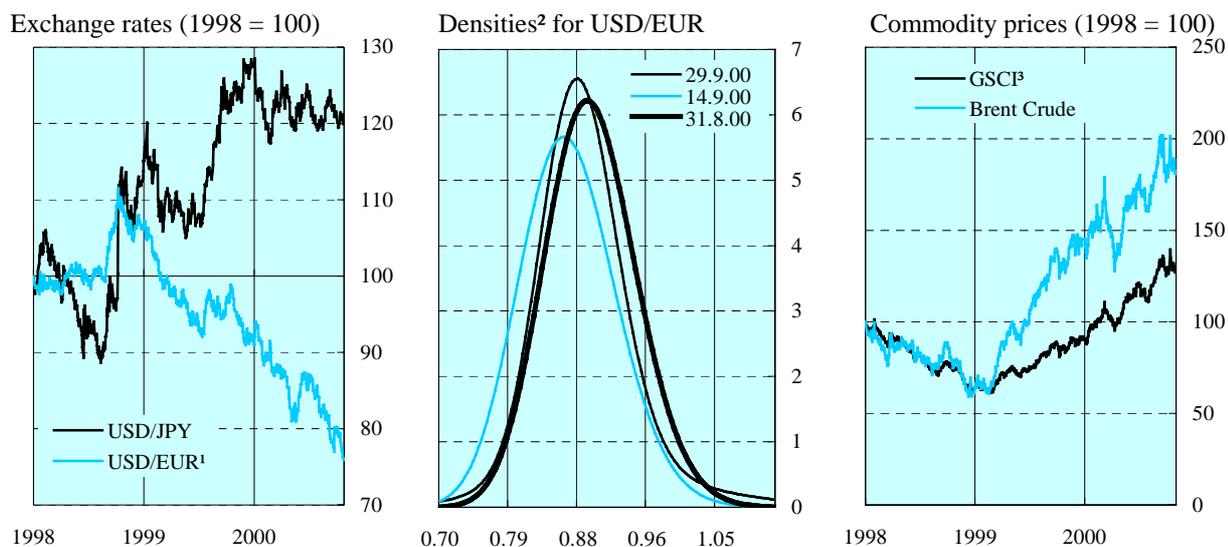
¹ Difference between EMU area and US GDP forecasts. ² Actual less expected normalised by the standard deviation.

Sources: Bloomberg; Consensus Economics; national data.

³ See the special feature "Market liquidity and stress: selected issues and policy implications" on pages 38-48 for a further discussion of the relationship between liquidity and credit risk.

⁴ See the special feature "Size and liquidity of government bond markets" on pages 52-58 for a discussion of recent trends in government bond supply and their implications.

Graph I.6
Exchange rates and commodity prices



¹ Prior to 1999, the ECU. ² Risk-neutral probability density function estimated from three-month OTC option pricing. ³ Goldman Sachs Commodity Index.

Sources: Datastream; Reuters; BIS calculations.

confidence in the European economy. Discussion of causes of the euro's weakness has focused on the relative growth outlook across the developed economies and on the flow of capital into the United States. The recent bout of weakness was precipitated by the release in August of the closely watched Ifo survey of German business sentiment (Graph I.5). Similar surveys from other euro area countries and the September release of the Ifo survey continued to indicate sluggish economic prospects, while higher inflation figures raised the possibility of further tightening moves by the European Central Bank. More recent releases, such as industrial production data for various countries and the producers' confidence index from the European Commission, suggested a more mixed picture for Europe. Data for the US economy, such as preliminary figures suggesting annualised growth of 2.7% in the third quarter, also indicated a mild slowdown, but these were at first treated positively by financial markets since they supported the optimistic scenario of a "soft landing".

During 1999, some market observers cited the relatively high level of euro-denominated debt issuance as a factor contributing to the euro's weakness that year. Data for the third quarter of 2000 indicate that issuers have recently begun to revert to their earlier pattern of issuing in the stronger currency. In particular, as has tended to be the case in past periods of dollar strength, the share of dollar-denominated securities in international issuance was relatively high. This shift may in turn remove one of the factors that has been contributing to the euro's weakening trend.

While the euro's gradual depreciation during 1999 and the early part of 2000 had been seen by market participants as having helped to promote a needed recovery in European output, its more recent weakness against the other major currencies raised fears of rising euro zone inflation, a continued tightening of monetary policy by the ECB and an associated decline of confidence, with negative consequences for growth. After trading in a narrow range of 0.94-0.95 to the US dollar and 100-102 to the Japanese yen throughout June and July, the euro resumed its fall in late July (Graph I.6). By mid-September it had reached \$0.85 and ¥90. Concerted intervention by the ECB, the Federal Reserve, the Bank of Japan, the Bank of Canada and the Bank of England on 22 September temporarily supported the euro at \$0.87 and ¥95 up to early October. The probability distributions implied by risk reversal prices indicate that, after the intervention, short-run market expectations about the dollar/euro rate returned more or less to where they had stood at the end of August (Graph I.6). The euro continued to weaken during most of October, even against economically linked currencies

such as the Swiss franc and pound sterling, before recovering somewhat towards the end of the month accompanied by a new round of ECB intervention.

Ordinarily, rising interest rates in Europe might have been expected to support the euro, particularly when US rates have been flat or declining. While the ECB's summer tightening moves had already been priced into forward interest rates and thus did not lead to a revision of market expectations, the weakening US growth outlook led to a downward shift in the near-term path of forward US dollar rates. As of end-October, a neutral or slightly looser monetary policy stance by the Fed had been priced into the yield curve up to two years (Graph I.7). Nevertheless, and despite the decline in US equity prices since March, the promise of high returns in US equity markets appears to have continued to support the dollar.⁵ The strong dollar has in turn been perceived as a positive factor for the US economy, in that it has helped to dampen inflationary pressures in conditions of strong domestic demand. Conversely, the weak euro has been seen to have exacerbated inflationary pressures and to have signalled waning market confidence regarding growth prospects in the euro area.

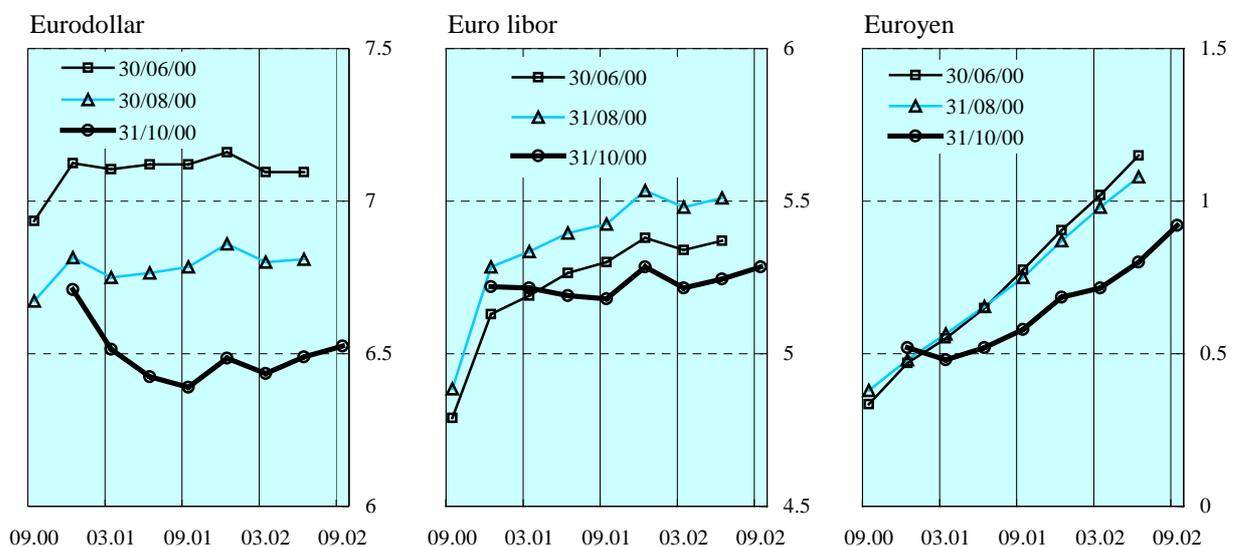
The Japanese yen has also strengthened against the euro, trading in a range of ¥105-110 to the dollar, with the help of data indicating 1.0% GDP growth in the second quarter and a rise in the Tankan business sentiment index in September. However, confidence in a strong Japanese recovery was restrained by the persistent weakness of the financial sector, which was further shaken by the failure of a large retailer in July and two insurance companies in October.

Rising oil prices add to nervousness

Another factor clouding the outlook for policymakers and market participants has been the 18-month long increase in crude oil prices (Graph I.6, right panel). In US dollar terms, most of the increase in oil

Graph I.7

Three month implied forward rates



Each curve shows the three-month implied forward rates for futures contracts commencing on the dates shown on the horizontal axis, as observed on the date listed in the legend. The forward rates are derived from interest rate deposit contracts of different maturities.

Source: Bloomberg.

⁵ For a discussion of the interactions between stock market returns, equity flows and exchange rates, see Henri J Bernard and Gabriele E B Galati, "Special feature: The co-movement of US stock markets and the dollar" in the August 2000 issue of the *BIS Quarterly Review*.

prices had already occurred in 1999, with prices rising about two and a half times from January 1999 to March 2000, in line with stronger growth in the developed economies and the revival of demand from the emerging economies. While dollar prices fluctuated widely in the spring and summer of 2000, they returned to their March levels in August before rising again in the autumn as the situation in the Middle East worsened. For European countries, the weak euro has exacerbated the effect of the oil price increases. In euro terms, oil prices more than tripled from January 1999 to March 2000, and rose by an additional 25% between March and early October 2000. High ad valorem taxes on petrol in European countries have magnified the ultimate price impact for consumers. These factors may have accounted both for the wave of petrol-related strikes and protests in several European countries in September, and for the perception that the ECB may respond more aggressively to energy price inflation than the Fed. However, it is also widely recognised that oil represents a smaller fraction of consumption throughout the developed world today than it did at the time of the 1970s price shocks, so that the overall inflationary and growth impact is likely to be less pronounced.

Borrowers turn to convertible bonds, floating rate notes and syndicated loans

Apprehension in financial markets had an immediate impact on borrowers in the international securities market. Some firms postponed their borrowing plans, while others turned to ways of raising funds that were relatively less sensitive to rising credit spreads. Financial institutions, the largest group of borrowers, reduced their presence in the primary market, raising a net \$115 billion in the third quarter of 2000, a 27% decline from the previous quarter. Net issuance by German financial institutions, in particular, declined significantly, because of the less favourable market conditions for euro-denominated paper. Among non-financial corporations, those lacking triple-A credit ratings found it increasingly difficult to raise funds from the securities market. Issuance by telecommunications firms, in particular, slowed down sharply in the third quarter, some of them turning instead to the syndicated loan market. To raise funds without paying the full credit spread on fixed rate securities, most of those telecom firms that did tap securities markets for large amounts issued bonds that would be exchangeable for equity. Other corporate issuers turned to floating rate structures.

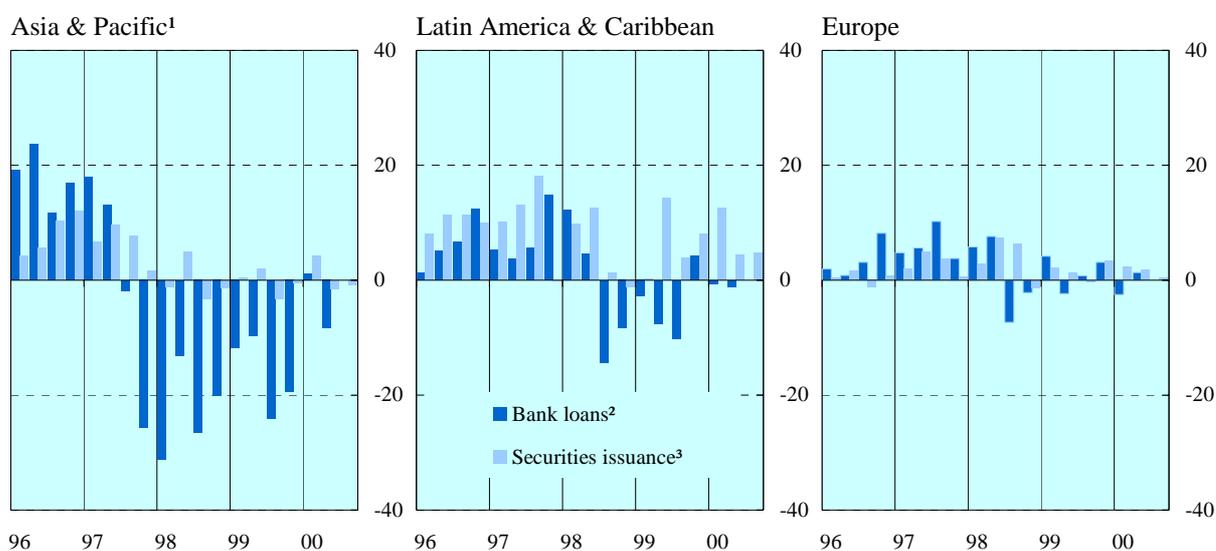
The rise in credit spreads, however, did not lead to an aggregate decline in net issuance of international debt securities. Issuers raised a net \$259 billion in the third quarter, almost as much as they had raised in the second. State agencies and government-sponsored enterprises largely made up for the reduced activity of other borrowers in the primary market. With the advantage of triple-A credit ratings, these agencies more than doubled their net debt issuance in the third quarter. In the United States, the Federal National Mortgage Association (“Fannie Mae”) and the Federal Home Loan Mortgage Corporation (“Freddie Mac”) launched over \$50 billion of new international issues combined, accounting for the bulk of gross issuance by the agency sector during the quarter. With a view to offering alternative benchmarks to government securities, these agencies concentrated their issuance in large long-term, fixed rate issues.

Developing countries for their part brought a moderate amount of new debt issues to market and engaged in debt exchanges, with the benefit of generally narrower sovereign spreads during the summer. These countries raised a net \$8 billion from the securities market in the third quarter. Latin American issuers were especially active, while Asian and central and eastern European issuers stayed away from the primary market (Graph I.8). Some Latin American issuers floated eurobonds in order to buy back relatively more costly Brady bonds. In August, Brazil successfully issued some \$5 billion of 40-year debt in exchange for an equivalent amount of Brady bonds. Other countries were said to be exploring similar exchange offers.

In contrast to the trend in securities issuance, bank lending to developing economies remained limited in the second quarter of 2000 (the most recent one for which comprehensive data are available), with claims on developing countries contracting by a relatively small amount. A small increase in claims on Latin American countries was not enough to offset continued repayments by Asian borrowers. However, the 1998-99 cycle of net repayments by developing countries appears to have ended, and

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 cross-border loans of BIS reporting banks. Data on bank lending are not yet available for the third 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.

some countries, such as Mexico and Turkey, were able to borrow relatively significant amounts. As oil prices rose, oil-exporting countries increased their deposits with foreign banks, perhaps providing the liquidity for a further expansion of international lending in coming quarters.

More generally, as borrowers have shifted from bank loans to securities issuance in recent years, the cross-border activity of the world's major banks has increasingly taken the form of investment in debt securities and the extension of bridge loans rather than traditional direct lending. This was especially evident in the second quarter, when banks in the BIS reporting area purchased an estimated \$129 billion of international debt securities. The banks have also accommodated the securities market by providing bridge loans to borrowers who subsequently refinance the loans by issuing long-term securities. Hence, a surge in international loan flows to non-bank borrowers in Europe during the first quarter was followed by a substantial increase in securities issuance in the second quarter. Evidence from the syndicated loan market shows that telecommunications firms were among the principal users of bridging finance in the first quarter, and that they stepped up their issuance of securities in the second quarter. In the third quarter, these borrowers found themselves in need of financing for national auctions of third-generation wireless licences, particularly in Germany, and for mergers and acquisitions. Faced with wide credit spreads in the securities market, telecommunications firms reduced their securities issuance and returned to the syndicated loan market.⁶

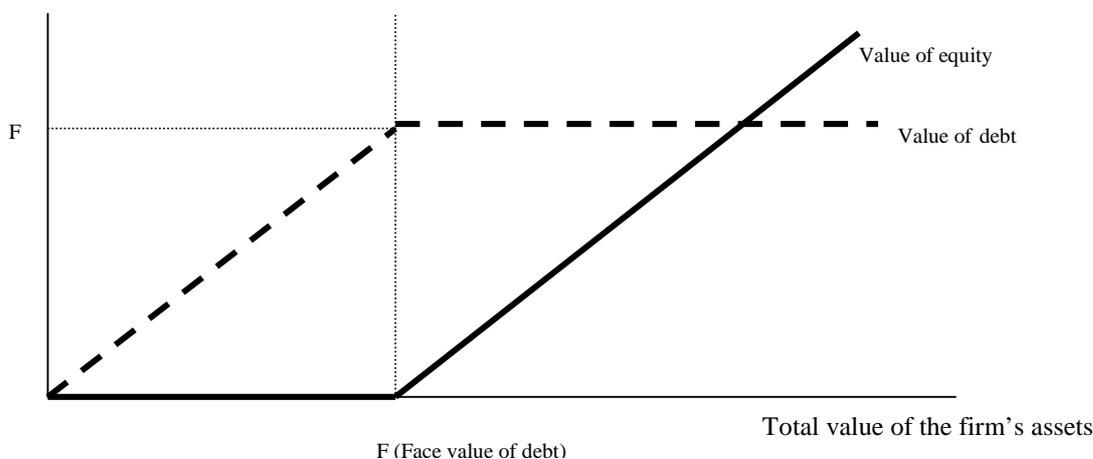
⁶ See the box "Syndicated credits in the third quarter of 2000" on page 17.

Credit spreads and equity market volatility

Benjamin Cohen

In the previous issue of the *BIS Quarterly Review*, it was suggested that recent months have witnessed a strengthening of the link between credit spreads and the volatility of equity prices. Such a link would be predicted by a view of corporate capital structure that treats a firm's common shares as, in effect, a call option on the present value of cash flows deriving from the firm's assets, with a strike price equal to the face value of the firm's debt (Graph A). Correspondingly, the position of holders of the firm's debt can be thought of as a short put option, again with a strike price equal to the debt's face value. In line with standard option theory, the valuation of these options reflects uncertainty about the future value of the underlying assets. When this uncertainty increases, the value of the option increases, to the benefit of those, such as shareholders, with a long position and to the disadvantage of those, such as bondholders, with a short position.

A. Using option theory for corporate debt and equity valuation

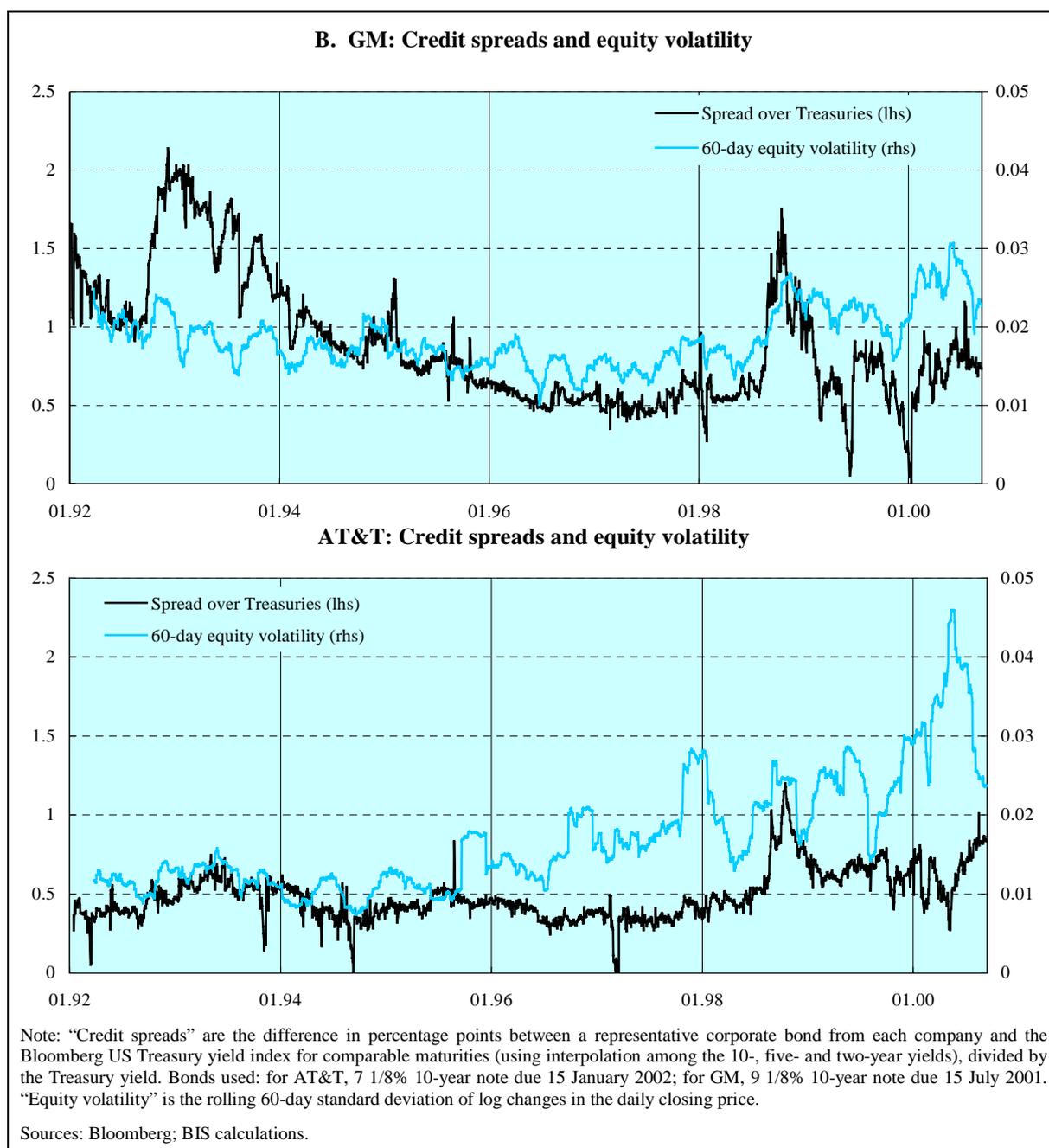


An increase in the uncertainty of asset valuations should thus lead to a simultaneous increase in equity price volatility (because the shares represent a residual claim on the firm's assets), in credit spreads (corresponding to a decline in the market value of corporate debt) and in the level of equity prices (the value of the call option). This last effect, however, may be dampened or reversed by an increase in the risk premium required by the market for holding the shares.^①

To what extent does this view of equity and debt valuation describe the actual behaviour of market prices? For most individual firms, testing this hypothesis is difficult. The lack of liquidity for the corporate bond issues of most individual firms means that prices may not always be available and may reflect temporary or idiosyncratic factors. For large companies with relatively widely traded bond issues, however, some comparisons can be made. Graph B compares the volatility of the common stock of General Motors and AT&T with the proportionate yield spread (the difference between the corporate yield and the government yield, divided by the government yield) on a bond issued by each of them. While there does not appear to be a direct relation between equity volatility and credit risk for either company, both variables did rise somewhat during 1999-2000. Certainly the *volatility* of the credit spread seems to be linked to equity volatility in both cases, confirming that uncertainty over asset valuations has a common effect on bond and equity price volatility.

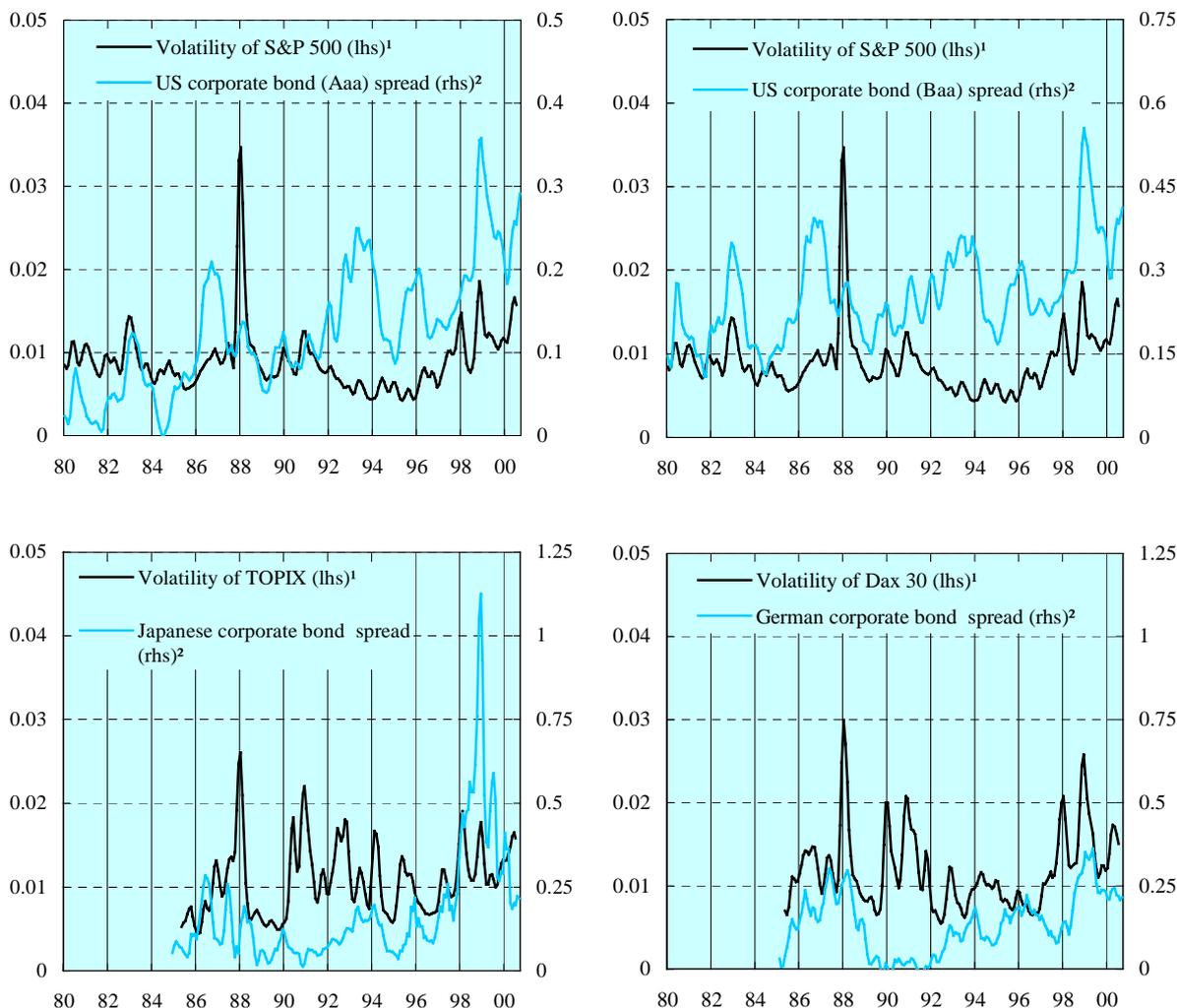
Applying this theory to yield spreads and equity prices at the aggregate level can be problematic. For one thing, there is no guarantee that the population of firms represented in the index is the same as that of those whose issues are used to measure the corporate yield spread. Even if the indices represent the same population of firms, there is the risk of a fallacy of composition: it is possible that one group of firms could be experiencing unusually high equity volatility, while another group experiences wide credit spreads, creating the illusion of a linkage that does not reflect valuations at the firm level. Despite these limitations, visual inspection reveals that there have been periods, such as the early 1980s and late 1990s, when credit spreads and equity index volatilities in the United States, Germany and Japan have tended to move closely together (Graph C).

^① For a more formal discussion of the options based approach to debt and equity valuation, see J Longstaff and E Schwartz (1995), "A simple approach to valuing risky fixed and floating rate debt", *Journal of Finance* 50:789-819.



Regression analysis confirms that this relationship appears to have become stronger in the last five years, and particularly in the current year (see the table). The table shows the impact of the standard deviation of the equity index during a given month on the average proportionate bond spread during the month. The model also includes the prevailing three-month interbank rate, as a proxy for the stance of monetary policy, and the change in the equity index over the previous two months, to correct for the possibility that the wider credit spreads merely reflect generally lower asset values rather than higher equity index volatility. The impact of equity volatility on the credit spread has tended to rise over time, and has become statistically significant for the period since 1996 for the AT&T bond shown in Graph B, for the Aaa and Baa spreads in the United States and for the Japanese corporate spread. For Japan, the effect is significant in 1996-99 but not in 2000. However, results for 2000 should be viewed with caution because of the limited number of monthly observations available for the current year. Another factor complicating interpretation of the more recent evidence is the increasing importance of supply factors in the determination of government bond yields, as a result of which credit spread changes have been heavily influenced by the market's evolving perceptions of relative liquidity conditions in corporate and government debt markets.

C. Proportionate corporate bond spreads and volatility of stock market indices



¹ 60-day rolling standard deviation of changes in the log prices of stock market indices. ² Difference between corporate and government yield (for the United States, 10-year bonds; for Japan, 12-year; for Germany, four-year); three-month moving average.

Sources: Datastream; national data.

Why might this relationship have become stronger in recent years? One possibility, as noted in the August 2000 issue of the *BIS Quarterly Review*, could be the more widespread use of risk management systems that explicitly take account of equity volatility in modelling corporate credit risk. This could in turn have an impact on the trading and lending decisions of the investors who use these models, which would be reflected in the observed behaviour of the credit spreads. Another factor in strengthening this relationship could be a decline in the risk premium demanded by equity market investors. Lower equity risk premia in recent years could reflect the greater diversification opportunities offered by vehicles such as mutual funds, as well as increased optimism about the long-term prospects for shares. The presence of such a premium in the past may have complicated the link between the option value of corporate equity and the option cost of corporate debt. For example, in the presence of a high equity risk premium, an increase in uncertainty about asset values might not have been translated as directly into higher equity price volatility as would be the case in the absence of such a premium, because equity price valuations already incorporated this possibility.

Coefficients from regressions of credit spreads on equity volatility						
	1980-85	1986-90	1991-95	1996-99	2000¹	Adj R²
GM ²			2.97*	2.63	2.46*	0.57
AT&T ²			0.04	1.53**	1.16**	0.14
US Aaa	-1.05	0.07	0.31	5.43**	5.21**	0.69
US Baa	3.88	1.35	-1.10	5.61*	4.71**	0.45
Germany		1.10	1.95	0.24	2.73**	0.62
Japan		-0.04	-2.59	14.45**	6.33	0.39

¹ Up to September for GM and AT&T; up to June for US, German and Japanese spreads. ² See notes to Graph B for the bond issues used.

Note: Each line of the table is derived from a regression of the monthly average of the proportionate credit spread (the corporate yield minus a corresponding government yield, divided by the government yield) on a constant, the monthly average three-month eurocurrency interest rate, the change in the average log equity price or index relative to two months previously, the standard deviation of the daily change in the log equity price or index during the month, and this standard deviation interacted with dummy variables for the time periods indicated in the first line. Credit spread and equity index variables are the same as in Graphs B and C. Equity volatility and price change observations for October 1987 were replaced by the averages of the corresponding observations for September and November 1987. A double asterisk (**) indicates that the coefficient is significant at a 95% confidence level, and a single asterisk (*) indicates significance at a 90% confidence level, using Newey-West standard errors.

Sources: Bloomberg; national data; BIS calculations.