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INTERNATIONAL BANKING AND FINANCIAL MARKET DEVELOPMENTS

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I

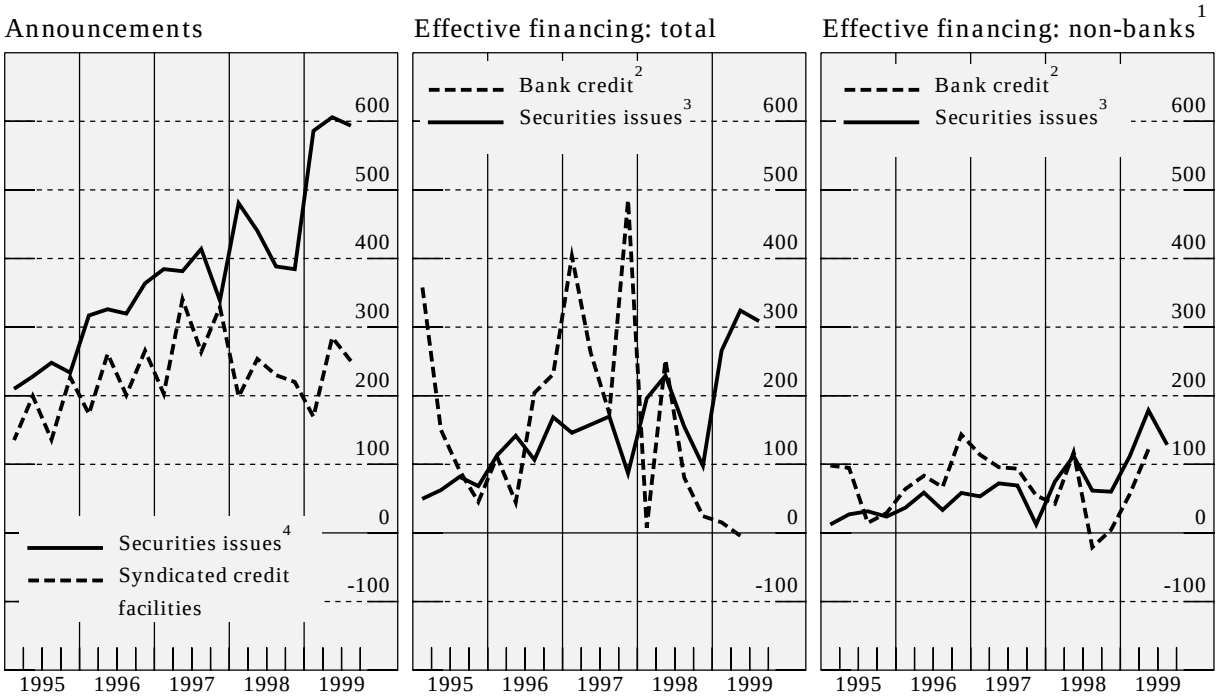
Overview of recent international banking and financial market developments

The continued rise of long-term interest rates in Europe and the United States does not appear to have hampered issuing activity in the international securities markets in the *third quarter of 1999*. As shown in the graph below, the volume of new securities moderated slightly but remained well above the quarterly average for 1998. In fact, primary market activity in the money and bond markets together reached $1.8 trillion in the first three quarters of the year, already surpassing that for 1998 as a whole.

An extraordinary widening of spreads on US dollar and sterling interest rate swaps was perhaps the most striking market development during the third quarter. As shown in the graph on page 2, spreads on US dollar swaps in particular exceeded the levels reached during autumn 1998. This time, however, credit risk did not appear to be the driving force, since there was no corresponding rise in credit tiering in the US corporate bond market. Instead, the wide swap spreads may have reflected liquidity pressures, with the heavy volume of US corporate bond issuance leading to an unusual amount of hedging activity by underwriters and investors. At the same time, the memory of last autumn's events and a related cutback in the amount of market-making capital seem to have made swap dealers reluctant to provide additional liquidity. Some dealers and investors may have shifted their hedging activity from the Treasury market to the swaps market because of idiosyncratic risk in on-the-run

Activity in international bank credit and securities markets

In billions of US dollars

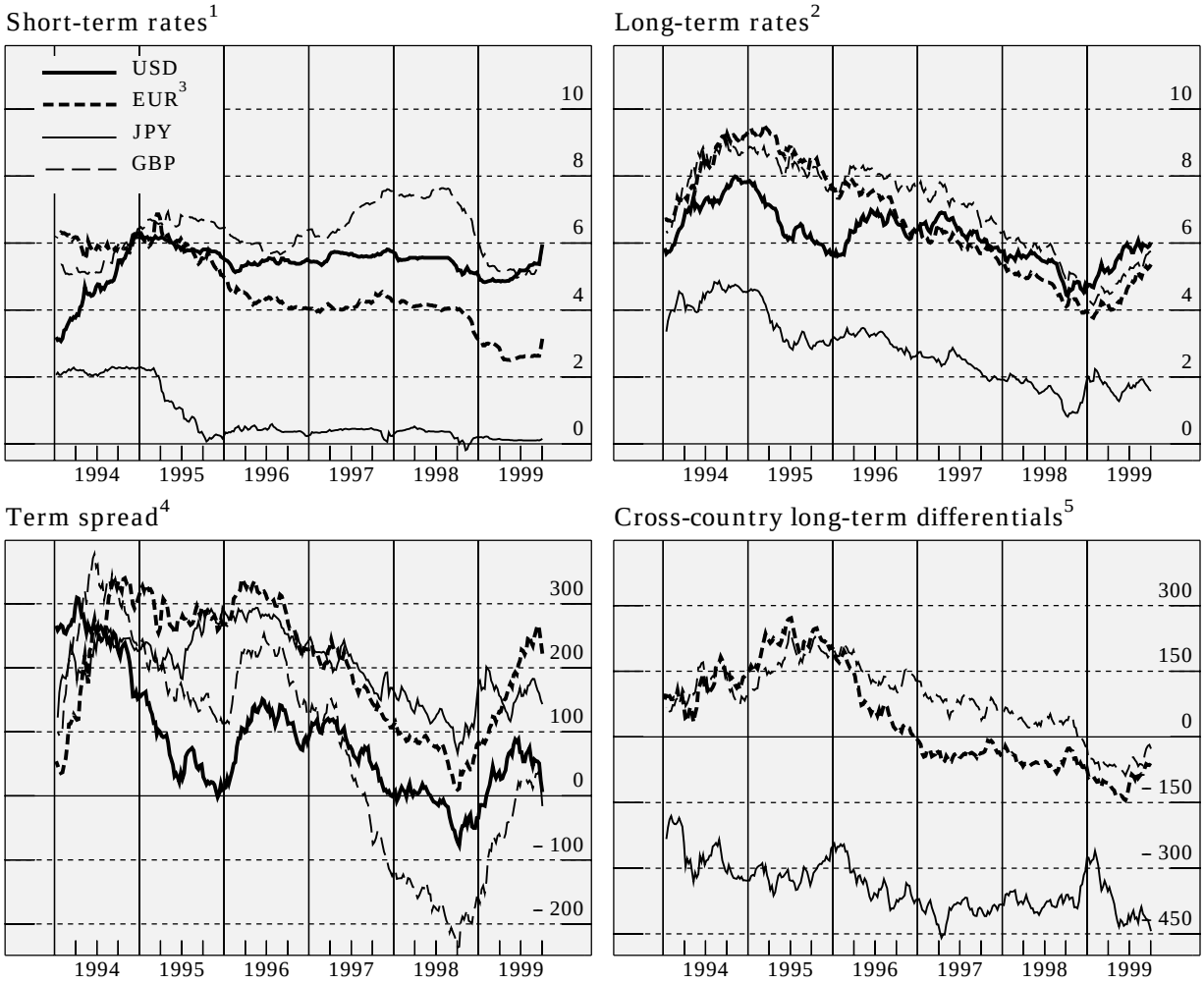


[1] Excluding non-bank financial institutions for securities issues. [2] Exchange-rate-adjusted changes in gross international bank claims. [3] Gross issues minus repayments. [4] Includes, money market instruments, bonds and notes.

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

Short- and long-term interest rates

Weekly averages, in percentages



[1] Three-month euromarket interest rates. [2] Yields in annual terms on the basis of 10-year benchmark government bonds. [3] ECU before 1999. [4] 10-year yields minus 3-month rates in basis points. [5] 10-year government bond yields over US equivalents in basis points.

Sources: Datastream; national data; BIS.

Treasuries. Reflecting such risk, spreads between off-the-run and on-the-run US Treasury issues widened as on-the-run securities went "on special" at a greater frequency than before.[1]

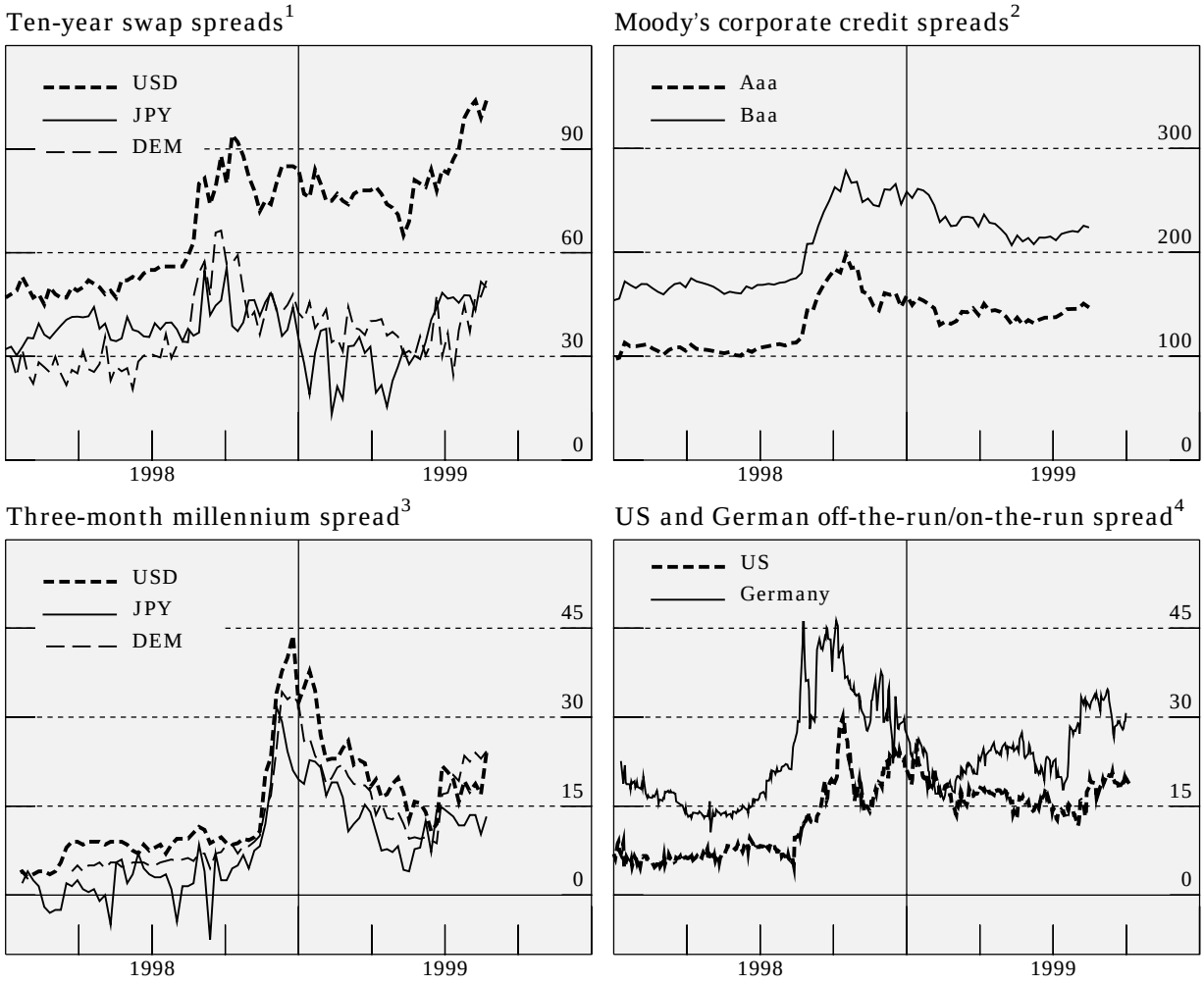
Although there was no credit event of the magnitude of last year's Russian debt moratorium, financial market participants appear to have been troubled by a succession of disturbing announcements. In July, Daewoo, Korea's second largest conglomerate, defaulted on its domestic and foreign loans, triggering a run on investment trusts and disrupting the onshore securities markets. Shortly afterwards rumours began to circulate that Ecuador would miss an August payment on some of its outstanding Brady bonds (see the box on page 5). Notably, these episodes did not create contagion on a scale comparable to that observed in 1997 and 1998.

Unfazed by the turbulence of last year and the more recent difficulties of emerging market borrowers, the international bond market has recovered rapidly since the beginning of the year. Large benchmark

[1] A security that is "on special" is one facing unusually high demand and is therefore relatively expensive.

Credit and liquidity spreads

Weekly data, in basis points



[1] Ten-year interest rate swap yield less the ten-year benchmark note yield. [2] US corporate index yield less the ten-year benchmark US Treasury note yield. [3] Spread between the yield on the December 1999 three-month interest rate futures contract and the average of the yields of the September 1999 and March 2000 contracts. [4] Daily spread between the current on-the-run bond yield and the yield of the second off-the-run bond (30-year US Treasury and 10-year German bund).

Sources: Bloomberg; Datastream; BIS.

issues have led the surge in the primary market (see Part V). Much of the expansion in international business since the beginning of the year has resulted from the funding operations of financial institutions (see the graph on page 18). The market turbulence triggered by the Russian debt moratorium in August 1998 had forced such borrowers to temporarily pare down issuance. However, the need to boost capital ratios, to finance expansion into new areas and to fund corporate mergers and acquisitions has led banks to return in force to the securities markets. Moreover, as anticipated by various observers, the introduction of the single European currency has led to a jump in euro-denominated issuance.[2] Business in the US dollar continued to exceed that in the euro in the third quarter, but the margin narrowed. Dollar and euro issuance now jointly account for four-fifths of new announcements, making the international bond market virtually a two-currency market.

[2] See R N McCauley and W R White, , "The euro and European financial markets," *BIS Working Papers*, No. 41, Basel, May 1997.

Estimated financing in international markets

In billions of US dollars

	1997	1998			1999			Stocks at end-June 1999
	Year	Year	Q3	Q4	Q1	Q2	Q3	
By instrument								
Interbank loans	906.3	113.6	87.3	9.5	–168.2	–198.1	..	6,203.7
Loans to non-banks	213.9	– 24.4	– 22.8	– 51.6	– 93.1	61.9	..	2,426.8
Money market paper	14.8	9.8	10.8	– 11.5	35.2	– 8.0	22.8	220.0
Bonds and notes	545.6	668.6	144.2	109.4	230.7	332.2	285.9	4,471.5
Gross issuance	1,005.7	1,137.4	252.2	253.0	380.1	443.3	401.2	
Redemptions and repurchases	460.1	468.8	108.0	143.6	149.4	111.1	115.4	
By location of borrowers								
Developed countries	1,245.3	909.6	296.1	121.8	93.7	212.8	..	10,091.9
Offshore centres	281.9	– 148.1	– 34.3	– 63.8	– 60.3	– 32.6	..	1,569.6
Developing countries	135.1	– 25.1	– 27.7	– 7.6	– 17.8	5.9	..	1,156.9
Other	18.2	31.2	– 14.4	5.5	– 11.0	2.0	..	503.5
Total	**1,680.6**	**767.6**	**219.7**	**55.8**	**4.6**	**188.0**	..	**13,321.9**

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

In the syndicated loan market, activity in the third quarter reflected a slowing of merger-related facilities from the brisk pace of the previous quarter. Spreads on merger-related loans have been decreasing since the first quarter, but there is no evidence of a general easing of conditions in the broader loan market. The detailed BIS international banking statistics available for the second quarter of 1999 confirm the recovery of international bank lending to the non-bank sector in the early part of this year. In contrast, there was a large decline in interbank claims, which can be partly attributed to the transition to the euro. While the introduction of the single European currency initially boosted euro-denominated interbank business, the rapid integration of the wholesale market and the disappearance of European legacy currencies reduced the need for interbank balances. International banking activity was also influenced by a contraction in Japanese interbank business and banks' further retrenchment from emerging market economies.

The official sector announced a number of initiatives aimed at redrafting the architecture of international financial markets. At the Annual Meetings of the World Bank and the International Monetary Fund in September, the Interim Committee of the IMF was given permanent status as the International Monetary and Financial Committee. The Committee will have enhanced responsibilities as an advisory group to the IMF's Board of Governors. In addition, finance ministers and central bank governors of the G7 countries announced the formation of the G20, a new international forum that will foster a broad informal dialogue on key economic and financial policy issues among systemically important countries (both developed and emerging). Lastly, in September the Financial Stability Forum held its second meeting.[3] It approved a compendium of international standards relevant for strengthening financial systems and a directory of training opportunities in financial supervision. The Forum discussed vulnerabilities in the international financial system, and set in train work in a number of areas, including the implementation of international standards, international guidance on deposit insurance, possible vulnerabilities in the insurance sector, and the implications of the internet for financial supervision.

[3] The Forum was established by the G7 in February 1999 to promote international financial stability.

Ecuador's external debt problem

Pablo Graf

On 26 September 1999 the President of Ecuador announced that the country would not make an interest payment of nearly $45 million on one of its Brady bonds due by the end of the month. This constituted the first case in which a country had missed a payment on its Brady debt.

Structure of external debt

Stock of debt at end-1998, in billions of US dollars

	Argentina	Brazil	Ecuador	Mexico	Peru	Philippines	Poland	Venezuela
Bank loans[1]	37.4	85.5	3.6	66.0	7.5	13.0	9.9	9.1
Securities issued abroad	54.8	41.7	0.7	48.6	0.3	9.1	1.3	6.5
Brady bonds	17.9	36.0	5.8	24.1	4.1	2.2	6.0	11.4
Trade credits[2]	4.8	8.0	0.6	3.9	3.0	3.3	7.5	1.0
Multilateral claims	18.6	17.5	2.8	25.5	5.2	9.5	2.2	4.2
Official bilateral loans[3]	3.4	7.7	1.1	3.4	3.8	10.4	5.9	0.5

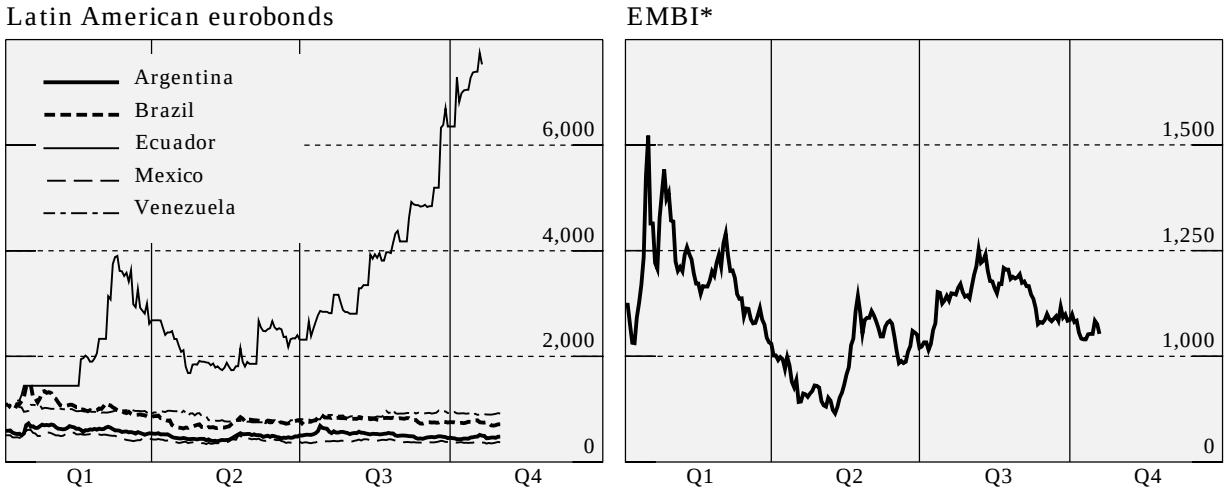
[1] BIS locational banking statistics. [2] Official and officially guaranteed non-bank trade credits. [3] DAC creditors.

Source: Joint BIS-IMF-OECD-World Bank statistics on external debt.

The decision followed a sharp deterioration in the country's economic conditions. Ecuador was hit first by a natural disaster; it is reported that the damage inflicted by "El Niño" on the agricultural sector and its infrastructure amounted to nearly 20% of GDP. Then it was affected by the decline in the prices of its two largest export commodities (oil and bananas) and an increase in the cost of external finance. In consequence, the current account deficit last year reached 10% of GDP and the fiscal deficit increased to 6%. Moreover, the confrontation between the government and the opposition-dominated Congress prevented implementation of the necessary adjustment policies. The banking system is also in deep crisis: deposits fell by 25% in real terms by mid-1999 and there has been official intervention in several banks. The fact that Ecuador has a higher debt ratio than other debtor countries, despite some reduction following the Brady restructuring deal in 1995, has been a further source of difficulty.

Spreads on eurobonds and Brady bonds in 1999

In basis points



* Emerging Market Bond Index.

Sources: Bloomberg; JP Morgan.

Ecuador's Brady bonds				
	Par	**Discount**	**Past due interest (PDI)**	**Interest equalisation (IEB)**
Issue date	February 1995	February 1995	February 1995	December 1994
Maturity	30 years	30 years	20 years	10 years
Coupon	step-up[1]	Libor + 13/16	Libor + 13/16[2]	Libor + 13/16
Coupon frequency	Semiannual (28 May and 28 November)	Semiannual (28 Feb. and 28 August)	Semiannual (28 Feb. and 28 August)	Semiannual (21 June and 21 December)
Amount issued[3]	1,912	1,433	2,417	190
Principal payment	bullet	bullet	21 increasing semiannual payments beginning in February 2005	20 increasing semiannual payments beginning in June 1995
Principal guarantee	Zero coupon US Treasury	Zero coupon US Treasury	None	None
Interest guarantee	5% rolling	7% rolling	None	None

[1] Coupon: year 1: 3%, year 2: 3¼%, years 3–4: 3½%, years 5–6: 4%, years 7–8: 4½%, years 9–10: 4¾%, years 11–30: 5%. [2] Option to capitalise the difference between Libor + 13/16 and the following coupon rates during the first six years: years 1–2: 3%, years 3–4: 3¼%, and years 5–6: 3¾%. [3] In millions of US dollars.

Source: JP Morgan, Emerging Markets Debt Directory, 1999.

Given these economic circumstances, the government felt that servicing the country's debt had become impossible and announced that it would try to reach an agreement with creditors to restructure its obligations. In terms of stocks, Brady bonds are particularly important for Ecuador (see the table on the previous page), as they represent nearly 40% of external liabilities. The share of Brady bonds in total public sector debt is also high. In terms of servicing flows, however, the burden of this debt is mitigated by lower interest rates and longer maturities than on other forms of public debt (the main characteristics of Ecuador's Brady bonds are presented in the table above).

At the end of August 1999 interest coupons were due on the Discount and PDI Brady bonds. The government did not make the payment and wanted to use the one-month grace period to restructure the bonds. By the end of September the government decided to pay the coupon on the PDI and asked investors to use the interest guarantee attached to the Discount bond to meet the coupon payment on this issue. However, it was then reported that a group of investors had decided to seek an "acceleration" of this bond (i.e. to seek full payment immediately).

In order to maintain access to the international capital markets, the government intended to continue servicing the rest of its liabilities. However, this would have implied an unequal treatment of creditors. In the event, in late October it decided to defer interest payments on its Par Brady bonds as well as its outstanding eurobonds, and to seek a renegotiation of its Paris Club and domestic debt.

Ecuador's debt servicing difficulties seem not to have affected the price of other countries' external debt. Thus, the difference between the spread on Ecuador's international bonds and those of other countries in the region has widened significantly since the beginning of 1999 (see the graph on the previous page). Moreover, the stripped spread on Brady bonds has declined recently despite these developments.

II

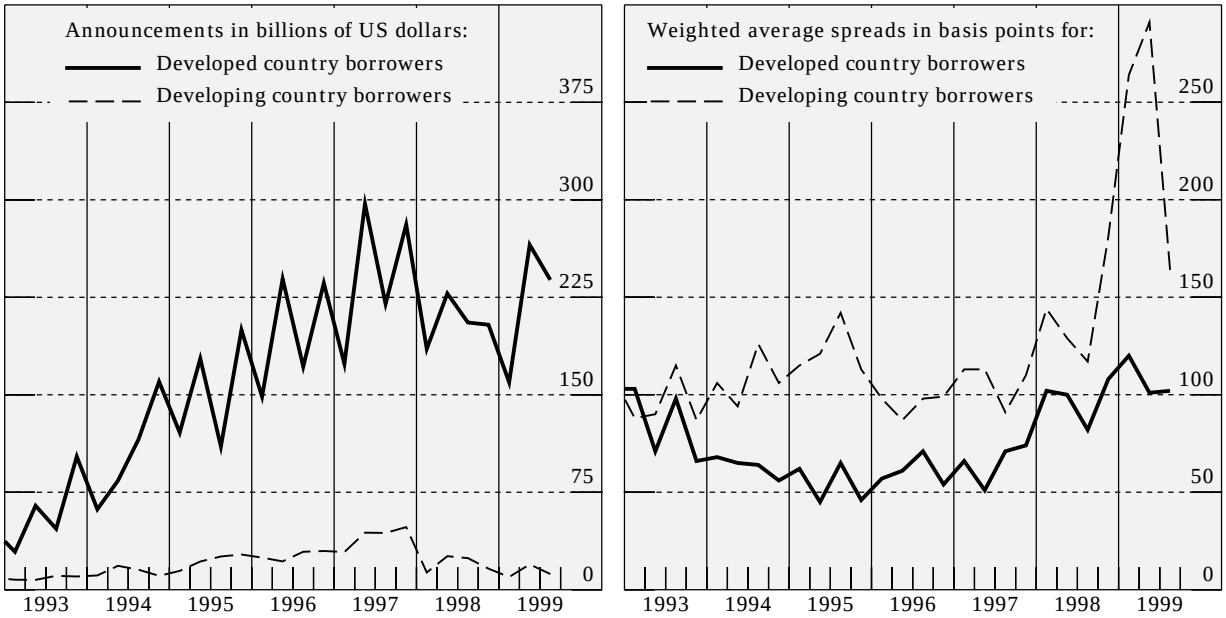
The international banking market

Overview

Activity in the syndicated loan market declined slightly in the *third quarter of 1999* (to $251 billion) but remained high by historical standards. While multipurpose and refinancing transactions increased (by 19%, to $134 billion), merger-related facilities declined from the peak reached in the second quarter (by 37%, to $40 billion). The average spread on merger-related loans has fallen from the high point reached in the first quarter of 1999, reflecting the terms of specific transactions. There is, however, no evidence of a general easing of conditions in the syndicated loan market. Spreads on non-merger-related transactions in the industrial world have increased since early 1997, while those for emerging market borrowers remain high.[4] Moreover, banks appear to have been reluctant to extend funds for long periods of time, as reflected in the gradual reduction of the maturity of transactions since 1997 (not shown here). The US dollar continued to be the main currency of denomination (75%), owing largely to the prevalence of borrowers from the United States (59%). It should be noted, however, that the introduction of the euro has been followed by an increase in euro-denominated facilities since the beginning of the year (13% of the total in the first three quarters compared with 6% for the first three quarters of 1998).

Detailed data available for the *second quarter of 1999* confirm the recovery of international bank lending to non-banks in the early part of this year. In contrast, there was an unusually large decline in interbank claims in the period under review, which can be attributed to both short- and long-term influences. Prime among the short-term contractionary influences was the transition to the euro. While

Announced facilities in the international syndicated credit market and weighted average spreads*



* Spreads over Libor on US dollar credits.

Sources: Capital DATA; BIS.

[4] The second-quarter spike reflected unusually wide spreads on two large facilities for Brazilian borrowers.

Main features of international claims of BIS reporting banks[1]

In billions of US dollars

	1997	1998				1999		Stocks at end-June 1999
	Year	Year	Q2	Q3	Q4	Q1	Q2	
Claims on developed countries	**1,056.9**	**640.1**	**233.7**	**192.2**	**105.2**	**109.8**	**54.0**	**8,171.0**
Interbank loans	730.9	369.0	94.7	187.8	25.2	– 63.4	– 130.2	4,787.4
Loans to non-banks	140.2	13.6	25.2	– 19.8	13.8	– 76.9	62.5	1,746.4
Other[2]	185.8	257.5	113.9	24.3	66.2	250.1	121.6	1,637.2
Claims on offshore centres	**199.5**	**– 185.4**	**15.5**	**– 39.6**	**– 64.9**	**– 70.6**	**– 44.2**	**1,258.2**
Interbank loans	167.2	– 182.0	– 4.8	– 54.0	– 18.0	– 74.9	– 57.4	921.2
Loans to non-banks	27.8	– 24.6	13.2	7.0	– 49.4	– 2.8	6.0	236.2
Other[2]	4.5	21.2	7.1	7.3	2.5	7.2	7.1	100.8
Claims on developing countries[3]	**69.8**	**– 66.7**	**– 5.7**	**– 39.3**	**– 7.3**	**– 17.6**	**– 13.9**	**900.2**
Interbank loans	15.0	– 53.3	– 8.1	– 23.9	4.8	– 23.5	– 9.8	381.2
Loans to non-banks	41.2	– 9.6	2.3	– 8.8	– 10.3	3.9	– 3.9	421.5
Other[2]	13.6	– 3.7	0.0	– 6.6	– 1.7	2.1	– 0.3	97.6
Unallocated	**0.1**	**– 23.2**	**8.7**	**– 32.5**	**– 8.5**	**– 6.4**	**0.0**	**210.0**
Total	**1,326.3**	**364.9**	**252.2**	**80.8**	**24.5**	**15.3**	**– 4.2**	**10,539.4**
Interbank loans	906.3	113.6	86.0	87.3	9.5	– 168.2	– 198.1	6,203.7
Loans to non-banks	213.9	– 24.4	41.7	– 22.8	– 51.6	– 93.1	61.9	2,426.8
Other[2]	206.1	275.7	124.5	16.2	66.7	276.5	131.9	1,908.9
Memorandum item:								
Syndicated credits[4]	**1,136.3**	**902.2**	**253.6**	**229.9**	**220.0**	**169.4**	**284.9**	

[1] Changes in amounts outstanding excluding exchange rate valuation effects. [2] Mainly changes in holdings of international debt securities. [3] Including eastern European countries. [4] Announced new facilities.

the introduction of the single European currency on 1 January boosted euro-denominated interbank business in its immediate aftermath, the rapid and successful integration of the wholesale market in the euro area and the disappearance of the European legacy currencies reduced the need for interbank balances.[5]

A longer-term factor acting to restrain international interbank activity in the second quarter of 1999 was banks' further retrenchment from emerging market economies. Despite the rapid containment of the Brazilian crisis, internationally active banks appeared reluctant to increase exposure to these markets. This overall pattern stands in sharp contrast to the acceleration in these countries' international securities financing observed during the same period, but is consistent with earlier market reports that countries were lengthening the maturity profile of their debt.[6] The aggregate decline in claims also masks important differences between recipient countries. Thus, there were fresh banking funds to countries such as the Philippines, which also had access to the international capital market, contrasting with the lack of spontaneous lending to Brazil and Russia. Lastly, large current account surpluses recorded by a number of Asian countries have alleviated the need for external financing, the more so as international equity capital has tended to flow back to the region.

However, the main long-term contractionary factor was the further withdrawal of Japanese banks from foreign markets (see Annex Table 8). At mid-1999, they accounted for only 16% of the international

5 For an assessment of the impact of the replacement of the 11 European legacy currencies by the euro on 1 January 1999 on the international banking statistics, see the box on page 10 of the August 1999 issue of the *BIS Quarterly Review*.

6 See the BIS press release on consolidated banking statistics dated 11 November 1999.

Currency composition of external bank lending of industrial reporting countries[1]

In billions of US dollars

	1997	1998				1999		Stocks at end-June 1999
	Year	Year	Q2	Q3	Q4	Q1	Q2	
US dollar	456.0	129.1	59.3	86.1	46.3	–124.2	19.7	3,205.9
Euro area currencies[2]	240.2	383.5	161.0	30.2	31.3	285.4	43.8	2,611.8
of which: intra-euro 11	*22.5*	*152.0*	*24.8*	*– 1.5*	*110.4*	*205.7*	*49.7*	*1,169.8*
Japanese yen	172.6	– 29.4	22.3	9.9	58.5	–145.6	– 66.6	743.6
Pound sterling	78.0	41.1	0.1	16.0	8.6	15.8	2.7	407.5
Swiss franc	30.0	4.2	10.6	– 6.3	– 9.4	1.2	0.5	228.1
Other and unallocated	30.0	24.4	9.2	12.3	– 40.2	..	– 1.3	370.9

[1] Changes in amounts outstanding excluding exchange rate valuation effects. [2] For 1997 and 1998, data relate to five euro legacy currencies (BEF, DEM, FRF, ITL and NLG) and the ECU, which were reported separately. Changes for 1999 Q1 are adjusted on an estimated basis to exclude the shift from "Other and unallocated" to "Euro area currencies" of data for six euro legacy currencies which were previously not reported separately under foreign currency positions (ATS, ESP, FIM, IEP, LUF and PTE).

assets of BIS reporting banks, against 36% at the beginning of the decade. Nevertheless, the impact of this retrenchment on the market seems to have been more muted than initially feared. First, most of the decline in recent quarters has reflected a streamlining of the banks' inter-office networks. Second, the Japanese banking system has remained a large net external creditor (to the tune of about $510 billion). Third, other banking groups made up for the reduced presence of Japanese banks, with major European banks being particularly active in expanding their networks, in Europe as well as in North America. Finally, recent developments, such as deleveraging and the more cautious attitude of banks towards emerging markets, may have reduced the need for global interbank liquidity.

Business with countries inside the reporting area

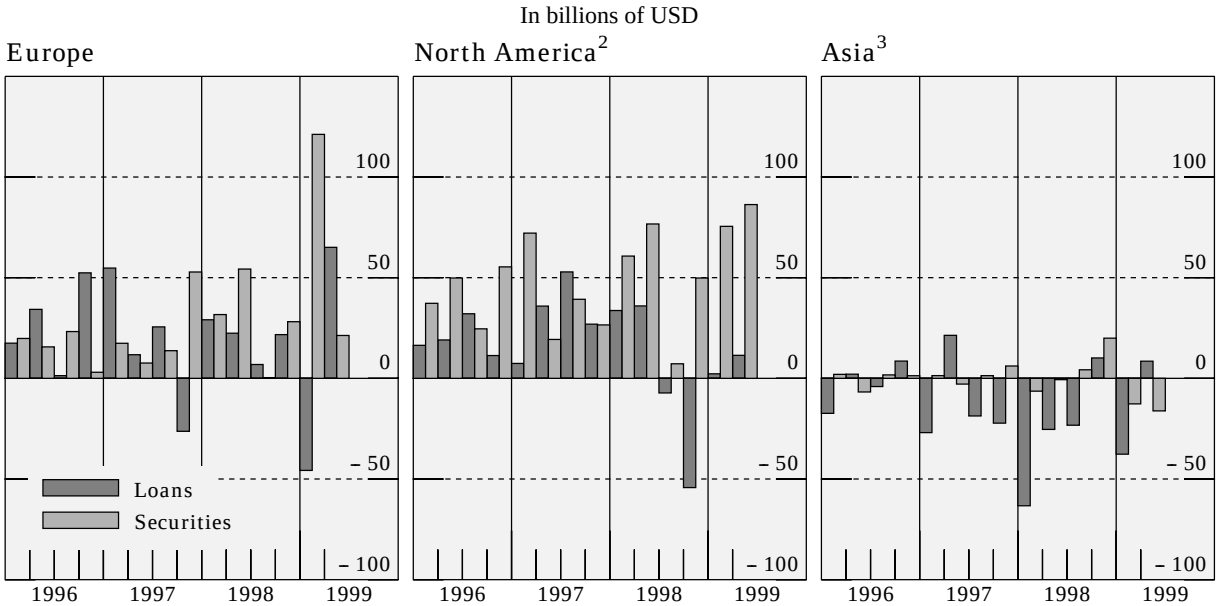
The further withdrawal of Japanese banks from the international interbank market in the second quarter of 1999 affected a large number of reporting centres. Considering the increase in direct credit to the non-bank sector inside the reporting area, two features stand out. First, there was a further build-up of banks' securities holdings, particularly as Japanese and European banks traded actively in capital markets. Second, the strong upsurge in lending to non-bank entities located in Caribbean centres, host to a number of hedge funds, as well as in the United Kingdom and the United States, suggests some return of lending to leveraged entities (see Annex Table 6B).

Business with countries outside the reporting area

There was a widespread decline in outstanding exposures to transition and emerging market economies in the second quarter of 1999 ($14 billion). However, changes in claims differed markedly both within and across regions. In emerging Asia, the common thread was the use of current account surpluses to build up international reserves and the limited need for international bank credit (–$4.8 billion). Although Korea's current account surplus recorded the largest decline in the region in the first half of the year, the country has accumulated reserves and relied only marginally on foreign bank credit. Malaysia has enjoyed the largest current account surplus relative to GDP and increased its reserves by almost as much as Korea, while repaying a small amount of bank loans. Meanwhile, the Philippines has recorded a relatively small surplus and borrowed $1.0 billion from banks during the second quarter. Indonesia and Thailand saw significant net bank outflows, of $1.7 billion and $2.5 billion respectively, although both still managed to replenish reserves.

Notwithstanding the rapid containment of the Brazilian crisis, internationally active banks retreated from Latin America in the second quarter of 1999. Thus, reporting banks' total outstanding claims on

International credit to non-bank customers[1]



[1] Changes in cross-border claims in all currencies and local claims in non-local currencies of BIS reporting banks by location of borrowers. [2] Includes Caribbean offshore banks. [3] Includes Asian offshore banks.

Source: BIS.

this group of countries declined by $4.2 billion, bringing the cumulative fall since mid-1998 to $25 billion. The outflow appears consistent with the reported tightening of lending conditions for borrowers in the region during this period, and several syndicated loan facilities at record spreads suggest a sharper drop in claims on other accounts. In particular, syndicated loans arranged for Brazilian private sector companies amounted to $1.9 billion (excluding bridge loans maturing in less than one year but including undrawn long-term facilities), helping to offset the reduction in reporting banks' outstanding exposure to the country.[7]

There was also a modest decline in outstanding exposures to Colombia and Mexico ($1 billion and $1.3 billion respectively). While Colombia faced a general contraction of private financing in a context of deteriorating economic and political conditions, Mexico's easy access to the international financial market allowed the country to repay some of its Brady bonds and extend the maturity profile of the remaining debt. In contrast, reporting banks continued to add to their claims on Argentina, albeit at a much reduced pace ($0.3 billion), despite the fact that the country was strongly affected by the Brazilian crisis. Several factors may have helped the country to withstand the recent upheaval, at least in the short term. First, the Argentine authorities have pursued a strategy of prefunding their financing requirements in the international market. It should be stressed in this connection that international debt securities outstanding issued by Argentine residents ($59 billion at end-June 1999) now exceed their combined debt to the international banking system ($49 billion) by a wide margin.[8] Second, the local banking system has strengthened considerably in recent years, owing in part to significant foreign acquisitions. Its resilience to shocks has meant in particular that concerns about the dollar peg could be allayed through changes in the denomination of deposits from the peso to the dollar without any

[7] In August, the central bank relaxed its restrictions on short-term capital inflows. Investors are exempted from a 0.5% financial transactions tax on fixed income funds and foreign exchange deals and the maturity of special export credits was extended from 180 to 360 days. The central bank introduced the amendments in order to establish a liquidity cushion in the currency market.

[8] Despite the fact that the banking figure includes some $8 billion of Argentine bonds held in the books of reporting banks.

Banks' claims on transition and developing countries*

In billions of US dollars

	1997	1998				1999		Stocks at end-June 1999
	Year	Year	Q2	Q3	Q4	Q1	Q2	
Total claims	**69.8**	**– 66.7**	**– 5.7**	**– 39.3**	**– 7.3**	**– 17.6**	**– 13.9**	**900.2**
Eastern Europe	18.7	0.4	4.6	– 10.7	0.1	– 0.6	– 1.4	99.8
Russia	9.9	– 6.4	2.7	– 10.8	– 1.6	– 2.0	– 1.5	46.9
Africa	3.0	– 1.6	– 1.5	– 0.6	– 0.3	0.4	0.0	57.2
Asia	4.8	– 86.7	– 18.3	– 24.7	– 9.2	– 11.4	– 4.8	348.1
China	10.5	– 8.4	– 3.3	– 6.4	1.1	– 3.6	– 0.4	77.3
Indonesia	7.2	– 12.3	– 3.8	– 2.0	– 1.6	– 0.1	– 1.7	50.6
Korea	– 4.0	– 31.5	– 4.4	– 4.9	– 5.6	1.6	0.2	74.4
Malaysia	3.5	– 5.7	– 1.5	– 1.0	– 0.6	– 0.4	– 0.7	22.1
Philippines	3.3	– 0.5	0.7	– 2.1	1.7	– 0.4	1.0	16.9
Thailand	– 19.6	– 26.8	– 5.9	– 5.6	– 6.0	– 6.0	– 2.5	42.8
Latin America	30.9	– 2.1	3.3	– 10.8	– 8.7	– 1.8	– 4.2	296.6
Argentina	7.5	0.5	0.0	1.3	– 2.2	1.5	0.3	49.2
Brazil	13.8	– 10.0	0.5	– 11.2	– 7.9	– 5.2	– 1.0	87.8
Mexico	– 7.2	5.0	0.9	– 0.4	2.2	0.7	– 1.3	69.7
Middle East	12.3	23.4	6.1	7.4	10.8	– 4.3	– 3.5	98.5

* Changes in amounts outstanding excluding exchange rate valuation effects.

visible sign of capital flight. Third, privatisation has proceeded apace, which has provided the country with additional financing sources at a critical time.

Meanwhile, the cutback in banks' exposure to eastern Europe intensified ($1.4 billion) following a brief stabilisation towards the end of 1998. A widespread retreat of EU area creditors was largely responsible for a $1.5 billion reduction vis-à-vis Russia. Indeed, outstanding claims on Russian entities fell to a post-Soviet era low and were down 28% from June last year. In a reversal of the trend in the first quarter, when Russian non-banks managed to attract funds from international creditors despite a crisis of confidence in the country's banking sector, second-quarter data show that the non-bank sector bore the brunt of the retrenchment ($1.3 billion). Although broad financial and economic indicators showed tentative signs of stabilisation in the third quarter, international capital flight is believed to have intensified.[9] Coupled with renewed allegations of misuse of IMF funds, this development has raised the fear of another round of cutbacks in private sector flows to Russia.

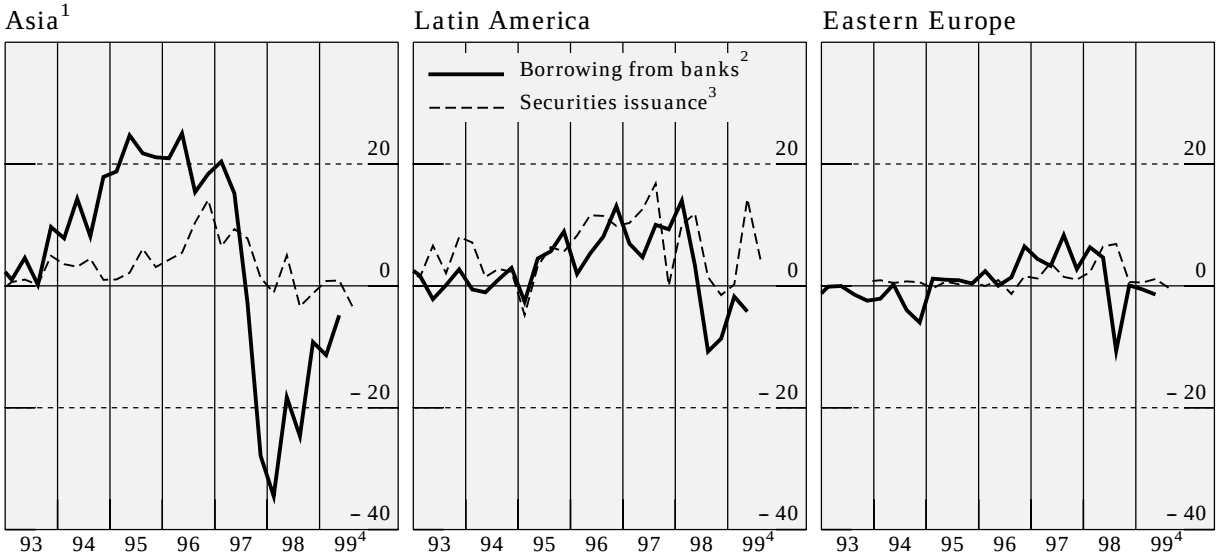
Elsewhere in eastern Europe, Poland continued to attract funds ($0.2 billion), although at substantially lower levels than in the two previous quarters. Interestingly, interbank lending to the country has expanded sharply since end-1996. Outstanding claims on the Polish banking sector have almost tripled over this period and are now approaching the level of credit to non-banks, which has risen by 51% over the same interval. In contrast, Hungary seems to have relied heavily on the international capital market for its external financing requirements in the recent period, thus bypassing international banking intermediation.[10] The other country to attract significant banking funds in the period under review was Ukraine, whose $0.5 billion increase in claims was due mainly to repos.

[9] In the absence of substantial debt repayments and given that Russia's trade balance is in surplus, the $1 billion fall in foreign exchange reserves in the third quarter implies that capital flight continues to be a problem. Some sources estimate that capital outflows rose from about $1.5 billion per month in the period January–June to $3 billion in July and August.

[10] In fact, the overall stability in banks' claims on Hungary in the second quarter of 1999 masked purchases of securities issued by Hungarian entities for a total of $0.7 billion.

International bank and securities financing by region

In billions of US dollars



[1] Excluding Hong Kong, Japan and Singapore. [2] Exchange-rate adjusted changes in BIS reporting banks' claims vis-à-vis Asian, Latin American and eastern European countries. [3] Net issues of international money market instruments, bonds and notes. [4] Data on bank borrowing are not yet available for the third quarter of 1999.

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

Structural and regulatory developments

During the course of the quarter, the Basel Committee on Banking Supervision released several reports dealing with a variety of issues. These papers form part of an ongoing effort by the Committee to strengthen procedures for risk management in banks.[11] Given the financial turmoil of the second half of 1998, the report *on Performance of Models-Based Capital Charges for Market Risk: 1 July–31 December 1998* (September 1999) attracted a significant amount of public attention. The survey analysed over 40 banks in nine countries subject to the Basel Committee's 1996 *Amendment to the Capital Accord to Incorporate Market Risk* allowing the use of internal models. The evidence gathered was anecdotal and based on a fairly short period of time, and therefore did not permit the drawing of strong conclusions regarding the robustness of the models. Nevertheless, it appears that the capital charge implicit in the internal models approach would have provided an adequate buffer against trading loss at these institutions during the period under review. Looking forward, the Models Task Force believes that banks using the internal models approach should continue to reassess the performance of these models, and complement them by a robust stresstesting programme in line with the requirements of the Amendment.

Sound Practices for Loan Accounting and Disclosure (July 1999) was also given a favourable reception. The recent crisis in emerging market countries demonstrated the need for reliable and consistent data on bank assets. Since then, various international bodies (including the Basel

[11] *Year 2000 Cross-Border Communications between Supervisors during the Millennium Period*, September 1999; *Gathering Year 2000 Information from Financial Institutions: Recommendations for Supervisors*, September 1999; *Performance of Models-Based Capital Charges for Market Risk: 1 July-31 December 1998*, September 1999; *Enhancing Corporate Governance in Banking Organisations*, September 1999; *Sound Practices for Loan Accounting and Disclosure*, July 1999; *Principles for the Management of Credit Risk*, July 1999; *Best Practices for Credit Risk Disclosure*, July 1999; *Supervisory Guidance for Managing Settlement Risk in Foreign Exchange Transactions*, July 1999; *Intra-Group Transactions and Exposures and Risk Concentrations Principles* (in cooperation with the International Organization of Securities Commissions and the International Association of Insurance Supervisors), July 1999.

Committee) have called for progress in accounting and disclosure practices for banks' lending business and related credit risk. The paper provides guidance to banks and supervisors on recognition and measurement of losses, establishment of loan loss allowances, credit risk disclosures and related matters. Accounting treatments generally, and loan accounting treatments specifically, can significantly affect the accuracy of financial and supervisory reporting and related capital calculations. Moreover, sound accounting and disclosure practices are essential to ensure the enhanced transparency needed to facilitate the effective supervision and market discipline of financial institutions.

In July, the Institute of International Finance (IIF) released a related report calling for significant improvements in the public disclosure of banks' asset quality and for greater public release of aggregated information by banking authorities.[12] The IIF notes that it is currently not possible to undertake meaningful cross-country comparisons concerning the strength of individual banking systems because of significant differences in national accounting, tax and regulatory reporting frameworks. Its primary aim in publishing the report was to contribute to improving the transparency of the banking system by establishing a framework for communicating information on the asset quality of banks.

[12] Report of the Working Group on Loan Quality, Institute of International Finance, Washington, D.C., July 1999.

III

The international securities market

Overview

Announcements of international bond and medium-term note issues declined slightly in the third quarter of 1999 (by 8%, to $411 billion), but remained much higher than the quarterly average for 1998 ($286 billion). At the same time, gross and net issuance of money market instruments recovered following a contraction in the second quarter ($182 billion and $23 billion respectively). Primary market activity in the international securities markets in the first three quarters of 1999 ($1.8 trillion) already exceeds that for 1998 as a whole ($1.7 trillion). Most of the expansion in international business has resulted from the funding operations of financial institutions (see the graph on page 18). The market turbulence triggered by the Russian debt moratorium in August 1998 had forced such borrowers to temporarily pare down issuance. However, the need to boost capital ratios, to finance expansion into new areas and to fund corporate mergers and acquisitions has led banks to return in force to the securities markets.

Interestingly, this high level of activity in the third quarter took place in a climate that was not particularly conducive to the issuance of fixed income securities. Benchmark bond rates continued their ascent on signs of an acceleration in global growth and on indications that the US Federal

Main features of international debt securities issues[1]

In billions of US dollars

	1997	1998			1999			Stocks at end-Sept. 1999
	Year	Year	Q3	Q4	Q1	Q2	Q3	
Total net issues	**560.4**	**678.4**	**155.1**	**97.9**	**265.8**	**324.2**	**308.7**	**5,123.9**
Money market instruments[2]	14.8	9.8	10.8	– 11.5	35.2	– 8.0	22.8	243.7
Bonds and notes[2]	545.6	668.6	144.2	109.4	230.7	332.2	285.9	4,880.3
Developed countries	437.3	572.8	139.7	86.1	242.6	295.8	300.2	4,269.0
Europe[3]	*251.6*	*279.7*	*71.0*	*23.7*	*129.3*	*165.3*	*177.6*	*2,422.7*
Japan	*– 1.6*	*– 18.2*	*– 4.2*	*– 1.1*	*– 0.7*	*1.7*	*3.0*	*333.2*
United States	*174.9*	*284.3*	*66.0*	*60.6*	*109.8*	*123.3*	*111.8*	*1,184.1*
Canada	*9.7*	*21.1*	*3.9*	*4.2*	*0.0*	*6.1*	*1.5*	*213.0*
Offshore centres	14.2	10.2	2.9	– 0.4	7.7	1.9	2.3	71.4
Other countries	88.6	40.3	3.2	– 1.5	3.0	20.9	1.8	400.7
International institutions	20.3	55.1	9.3	13.7	12.6	5.5	4.3	382.8
US dollar	329.0	409.3	85.4	55.4	138.1	151.3	113.9	2,366.5
Yen	32.0	– 27.2	– 3.4	– 6.3	– 12.5	– 3.4	6.8	515.2
Euro area currencies	134.9	221.3	60.4	29.6	116.7	136.4	162.2	1,487.6
Other currencies	64.4	74.9	12.6	19.2	23.5	39.8	25.8	754.6
Financial institutions[4]	353.6	369.8	93.4	37.8	154.0	145.4	180.2	2,452.9
Public sector[5]	86.4	181.8	34.9	39.0	52.5	78.1	31.9	1,411.3
Corporate issuers	120.4	126.8	26.8	21.0	59.3	100.7	96.6	1,259.7

[1] Flow data for international bonds; for money market instruments and notes, changes in amounts outstanding excluding exchange rate valuation effects. [2] Excluding notes issued by non-residents in the domestic market. [3] Excluding eastern Europe. [4] Commercial banks and other financial institutions. [5] Governments, state agencies and international institutions.

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

Main features of the international bond and note markets

In billions of US dollars

	1997	1998			1999		
	Year	Year	Q3	Q4	Q1	Q2	Q3
Announced issues	**1,002.6**	**1,142.2**	**243.5**	**252.4**	**408.4**	**446.0**	**411.3**
Floating rate issues	283.8	284.9	76.0	56.0	100.6	136.8	114.7
Straight fixed rate issues	654.9	810.1	157.5	185.6	295.8	294.5	289.7
Equity-related issues[1]	63.9	47.2	9.9	10.8	11.9	14.7	6.9
US dollar	515.1	587.8	121.1	124.8	197.4	193.9	171.0
Yen	129.5	72.8	19.0	19.7	17.7	24.9	35.3
Euro area currencies	218.6	319.3	69.2	65.9	147.6	175.5	159.7
Other currencies	139.4	162.4	34.2	42.0	45.6	51.7	45.3
Financial institutions[2]	536.9	571.1	134.0	112.9	211.4	217.5	220.2
Public sector[3]	216.2	321.9	61.6	82.5	99.2	104.5	71.6
Corporate issuers	249.6	249.3	47.9	57.0	97.8	124.0	119.5
Completed issues	**1,005.7**	**1,137.4**	**252.2**	**253.0**	**380.1**	**443.3**	**401.2**
Repayments	**460.1**	**468.8**	**108.0**	**143.6**	**149.4**	**111.1**	**115.4**

[1] Convertible bonds and bonds with equity warrants. [2] Commercial banks and other financial institutions. [3] Governments, state agencies and international institutions.

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

Reserve would respond promptly to inflationary pressures. At the same time, the pricing of new issues was made more difficult by the significant volatility of credit and swap spreads (see Part I). While the upward pressure on credit spreads might have reflected some concerns about the creditworthiness of the financial and corporate sectors,[13] a more important element appears to have been excess supply resulting from the acceleration of issuance ahead of the passage to the new millennium. Some borrowers have been concerned that access to funds could dry up towards the end of the year and have reacted by bringing forward their financing operations. A number of issuers have also sought to fix borrowing rates in anticipation of further increases in the yield of government benchmarks. Meanwhile, financial intermediaries have responded to millennium-related concerns by trimming their balance sheets, raising their cash levels and shifting transactions away from the year-end.[14] This may have reduced the market's capacity to absorb new supply. The easing of pressures in the credit market towards the end of the quarter reflected announcements of millennium-related liquidity measures by the Bank of England and the Federal Reserve.

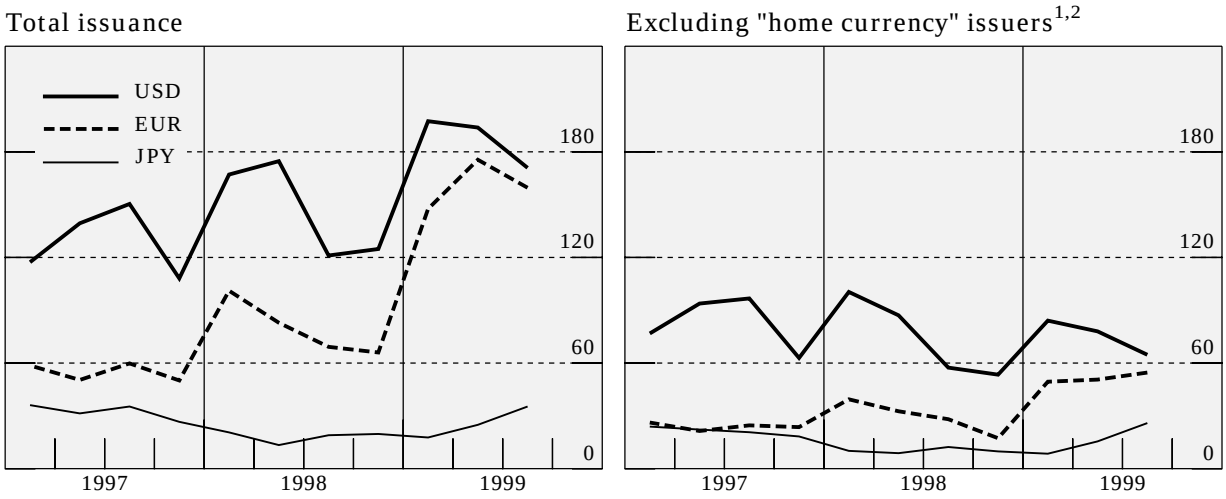
Nevertheless, it should be emphasised that the record pace of issuance since the beginning of the year goes well beyond concerns about possible year-end turbulence, reflecting a confluence of conjunctural and structural factors that cuts across currency segments. Although it is not possible to quantify its importance for actual borrowing activity, the global wave of mergers and acquisitions appears to have

[13] Rating agencies reported a sharp increase in the default rate of non-investment grade companies worldwide. However, this increase was largely accounted for by US issuers of high-yield bonds and by emerging market entities. These launched a large volume of issues between 1996 and the middle of 1998.

[14] Investment banks, in particular, have reportedly exercised stricter control over their balance sheets since the events of last year. This reluctance to hold large inventories of corporate securities might have accentuated the widening of credit spreads. Moreover, the hedging of unsold inventories in the swaps market would have put upward pressure on swap spreads.

Announcements of international bonds and notes by currency

Quarterly totals, in billions of USD



[1] Announced issues based on the nationality of the borrower. [2] i.e. US borrowers from USD issuance, euro-zone borrowers from euro issuance and Japanese issuers from yen issuance.

Sources: Capital DATA; Euroclear; Thompson Financial Services; BIS.

been a key *conjunctural* determinant of issuing activity in Europe and North America.[15] While corporate issuers have obtained funds directly for acquisition purposes, financial institutions have also sought financing for their own acquisition targets as well as for those of their corporate customers. An important *structural* element has, of course, been the creation of a pan-European fixed income market. The pool of investment demand resulting from the merger of national currencies has enabled borrowers to arrange exceptionally large transactions, while investors' shift from strategies focusing on interest rate convergence to positions in higher-yielding credit instruments has facilitated the entry of lower-rated borrowers. It is worth noting that the greater availability of funds has provided support to merger and acquisition activity in Europe. Acquirers have been able to rapidly refinance large syndicated loans in the international bond market. Moreover, consolidation of the European financial industry is likely to have encouraged corporate issuers to develop market recognition as a precautionary measure against a possible increase in the cost of bank loans.

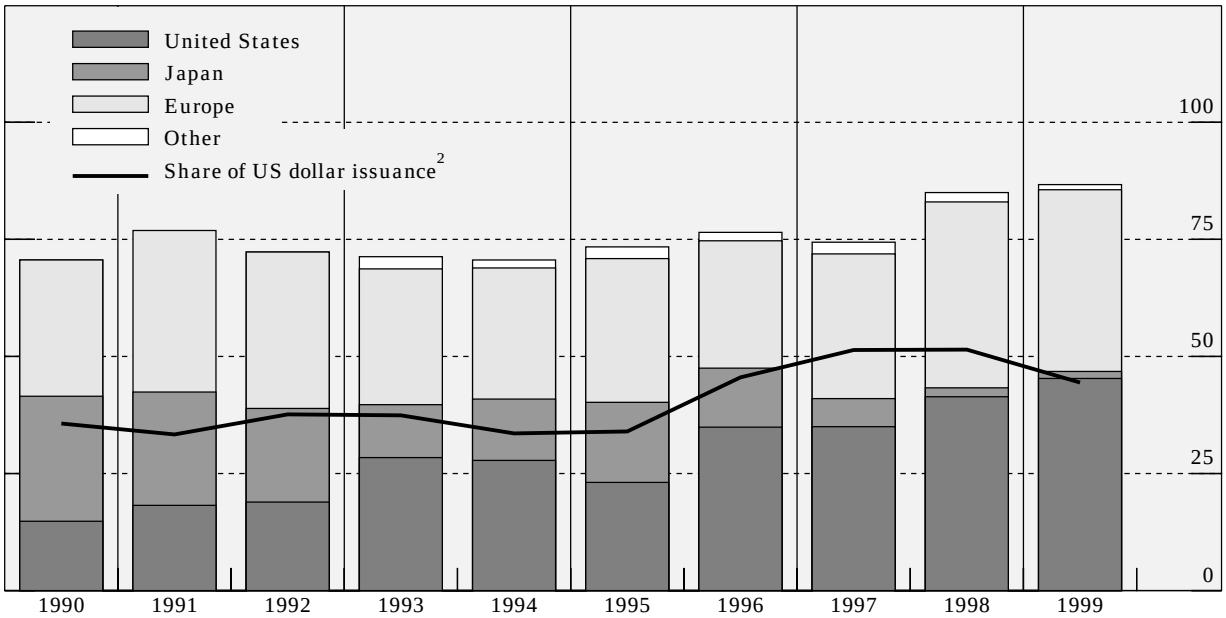
Developments in individual market segments

Currency of issuance. Business in the US dollar continued to exceed that in the euro in the third quarter but only by a small margin (42% of announced issues compared with 39%; see the graph above). The introduction of the single European currency has led to a jump in euro-denominated issuance, which now closely follows that in the dollar. With the combined share of dollar and euro issuance amounting to more than 80% of new issues, the international bond market has in effect become a dual currency market. It should be noted, however, that the pattern of activity in the euro retains a strong "home currency" bias. Euro zone borrowers have accounted for 68% of euro-denominated activity in the first three quarters of the year, compared with an average of 63% for 1998 as a whole. Nonetheless, borrowers from outside the euro zone have also been increasing their

[15] According to KPMG, the volume of cross-border merger and acquisition transactions rose by nearly 60% in the first three quarters of the year, to $608 billion. Transactions arranged by European acquirers rose by 107%, to $448 billion. *L'Agefi* reported that 40% of euro-denominated issues were related to mergers and acquisitions ("Le reçu des montants émis en dollars et en euros au troisième trimestre laisse les deux compartiments coude à coude", 1 October 1999).

Share of international bond issues of the top 20 bookrunners[1]

In percentages



[1] Includes global, offshore, foreign and eligible foreign-targeted domestic bonds, but excludes equity-related transactions. 1999 figures based on first three quarters of data. [2] Share of announced US dollar bonds and notes in total issuance.

Sources: Thomson Financial Securities Data; BIS.

recourse to euro-denominated issues. By comparison, issuance in the dollar market has traditionally been less dominated by "home currency" issuers than has the euro sector. Lastly, the strength of the yen in the foreign exchange market appears to have been associated with a recovery in business (to 9% from 6%).

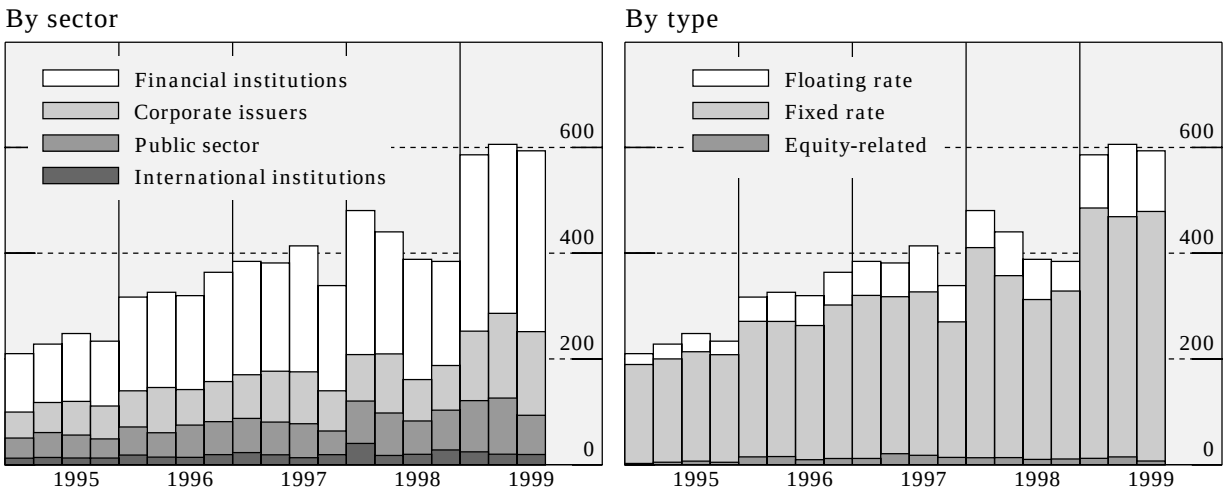
Somewhat surprisingly, the increase in the share of euro-denominated issuance in the first three quarters of the year (to 38% from 28% in 1998) has not been matched by a stronger overall position of European underwriters in the league tables (which declined slightly; see the graph above). The leading European underwriters have been able to transfer their franchise in the major legacy currencies to euro-denominated issuance but have lost market share in other currencies. By contrast, US investment banks have continued the trend increase in their overall share of underwriting (from 41% to 45%).

Type of issuers. Financial institutions launched a steady volume of issues in the third quarter of the year (up by 1%, to $220 billion), with the increase in activity by commercial banks more than offsetting a decline by non-bank financial institutions. In spite of the wider spreads attached to private sector issuance, financial sector entities, most notably from Europe, have stepped up their funding activities since the beginning of the year.[16] Banks, in particular, have increased their recourse to the market in order to boost their capital bases (through subordinated issues), finance their expansion into new business areas (such as investment banking and insurance) and fund acquisition-related packages. Meanwhile, the volume of corporate business has remained strong by historical standards (declining by only 4%, to $120 billion). In contrast, issuance by government and state agencies declined sharply (by 36%, to $56 billion) owing to reduced activity by US government-sponsored agencies and various European public sector entities. The combination of stronger European economic growth and fiscal restraint is expected to dampen European public sector issuance in the coming periods.

[16] European institutions accounted for almost two-thirds of the amount raised by the financial sector in the third quarter.

Announcements of international bonds and notes by sector and type*

In billions of US dollars



* Partial data before third quarter 1993.

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

Nationality of issuers. Activity by borrowers from industrial countries moderated slightly (by 5%, to $378 billion). While US borrowers reduced issuance overall (by 5%, to $133 billion), a number of US companies launched record-size packages, including an $8.6 billion deal for Ford Motor Credit and one of $5.8 billion for Wal-Mart. Following the example set by US government-sponsored agencies, these firms are attempting to meet the demand of investors for liquidity, and to fill the gap left by reduced issuance of US Treasury securities, by launching programmes for the regular marketing of benchmark paper (see Part V). German issuers were the second most active group, further increasing their recourse to the market (by 15%, to $75 billion). Mortgage banks were particularly prominent with large issues of Pfandbrief securities. Italian borrowers reduced their recourse to the market but, nevertheless, launched one of the largest financing packages in the euro market (a €6.3 billion issue arranged by Tecnost International for the takeover of Telecom Italia).

Meanwhile, emerging market and transition countries faced a less positive reception owing probably to investors' early-quarter aversion to lower-rated sovereign debt. With several borrowers being forced to postpone or reduce the size of their offerings, the volume of transactions launched by entities from these countries halved (to $11 billion). Following an upward blip in July and early August, the secondary market spreads on Brady securities began to narrow towards the end of the quarter, suggesting that Ecuador's decision to default on some of its Brady securities had had only a minimal impact on the securities of other emerging market countries (see the box on pages 5–6). Moreover, the evolution of secondary market spreads suggests that investors have been differentiating more sharply between countries and credits (see the graph on page 19).[17]

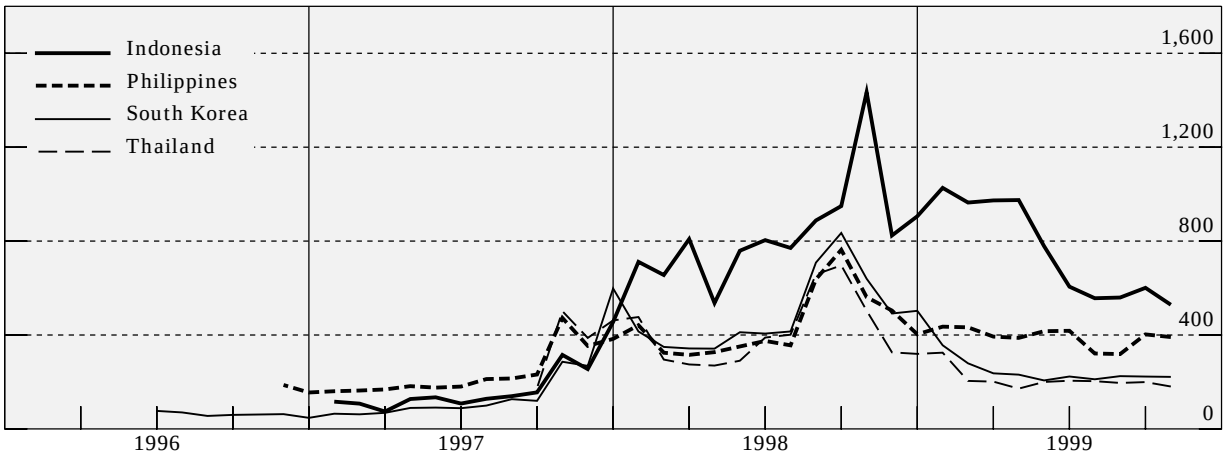
Type of issues. Net issuance of *eurocommercial paper and other short-term notes* rebounded sharply in the third quarter (to $23 billion, from a contraction of $8 billion in the previous quarter). While some issuers brought forward transactions to avoid year-end funding difficulties, others were reported to have shifted part of their funding to medium-term notes to avoid the premia required on year-end funding. In the *longer-term segment of securities markets*, the deceleration in the issuance of bonds and medium-term notes was evident in both fixed and floating rate segments. However, much of the

[17] Nevertheless, second-quarter data from the Emerging Markets Trading Association show that the volume of trading in emerging market debt fell to its lowest level in six years. This low level of activity has been attributed to the weakness of new issuance, the shift to more liquid instruments and the withdrawal of hedge funds.

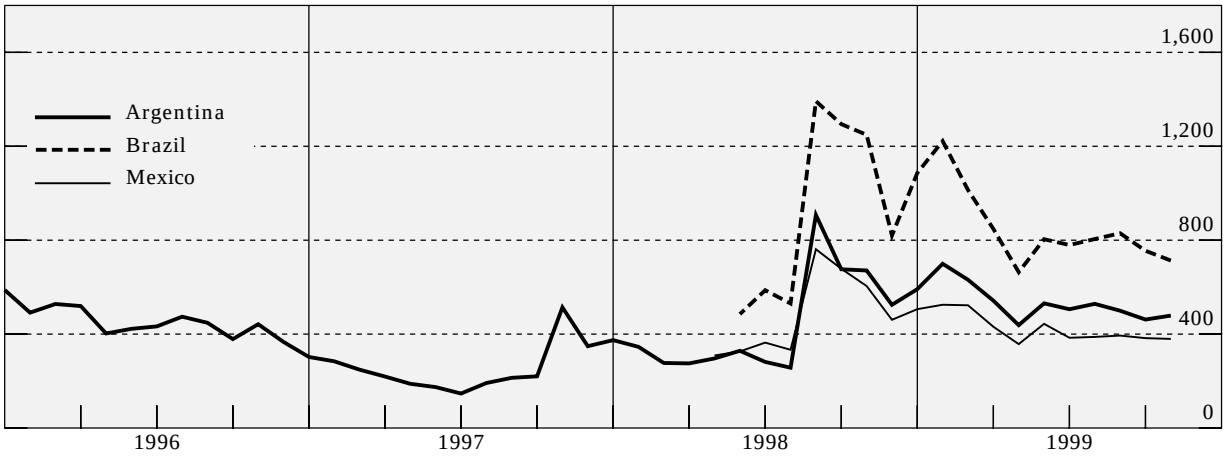
Average spread of US dollar sovereign international bonds over 10-year US Treasury notes

In basis points

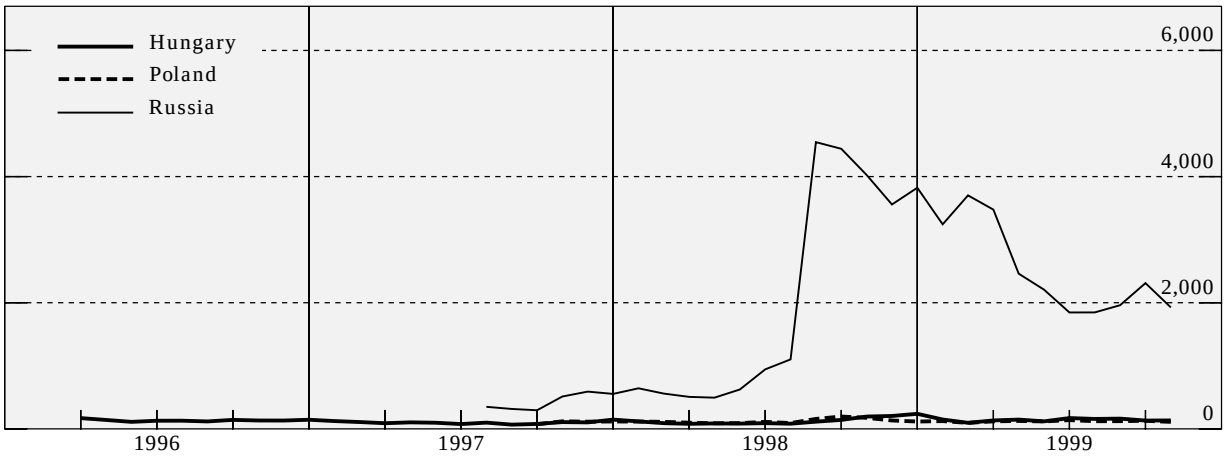
Asia



Latin America



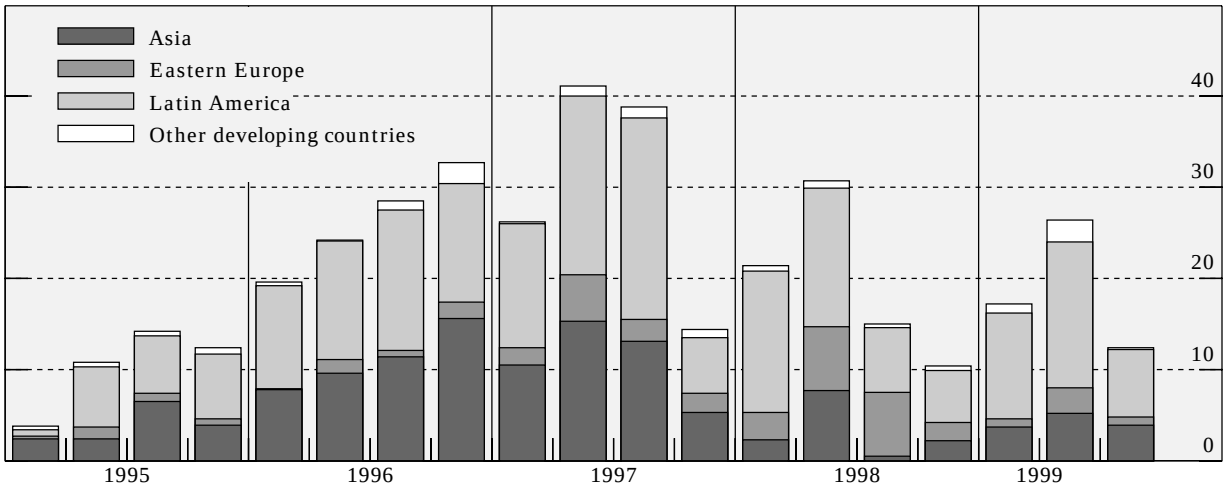
Eastern Europe



Source: Bloomberg.

International bond and note issuance by emerging market borrowers*

In billions of US dollars



* Announced issues based on the nationality of the borrower.

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

contraction took place in the floating rate sector (by 16%). Thus, despite the rise in interest rate volatility, floating rate notes (FRNs) failed to capture a larger share of activity.

Structural and regulatory developments

In July, EuroMTS, the first European wholesale electronic trading system for government bonds, announced that it would expand the range of securities it accepts to include those issued by the governments of Austria, Belgium, the Netherlands and Spain. The system, which is reported to have accounted for more than one-quarter of the turnover in French, German and Italian government bonds since its introduction in April, appears to have improved market liquidity. Units of MTS have also begun to operate domestic trading systems in a number of European countries.

In the same month a working group of the Technical Committee of the International Organization of Securities Commissions (IOSCO) and the Committee on Payment and Settlement Systems (CPSS) released a joint report on the development of securities lending transactions.[18] The working group was mandated to develop a clearer understanding of securities lending and its implications for securities regulators, central banks and, in particular, clearance and settlement systems. As a key element of the project, central banks and securities regulators in each jurisdiction conducted a qualitative survey amongst market participants of the size and structure of their lending activities and the factors that they felt were driving the market's growth. The report provides an overview of the dynamics of the securities lending market, including the underlying motivations for securities lending and legal, regulatory, tax and accounting issues. It also addresses the risks present in these transactions and the practices and procedures used by market participants to manage and reduce them.

In August, ISMA announced that the European Securities Clearing Corporation (a partnership between Euroclear and the Government Securities Clearing Corporation) had been selected as central counterparty for Coredeal, ISMA's new screen-based real-time settlement system for international debt securities. The system, which will preserve the anonymity of transactions and permit a considerable reduction in counterparty risk, is awaiting approval from the UK Financial Services Authority as a regulated exchange market.

[18] *Securities lending transactions: market developments and implications*, CPSS/IOSCO, Basel, July 1999.

In September, intermediaries dealing in eurocommercial paper (ECP) began reporting transactions through Trax, a trade matching system for international securities operated by ISMA. The system provides real-time data on transactions, thus helping improve market transparency and liquidity. Market participants noted that issuance in the ECP market remains constrained by an EU Directive requiring money market funds operating across borders to be regulated as undertakings for collective investment in transferable securities (UCITS). The Directive limits the share of unlisted securities held by such funds to 10% of their total assets. National authorities have reportedly been reluctant to remove the threshold for fear of harming their domestic commercial paper markets.

The effect of collective action clauses on sovereign bond spreads

Kostas Tsatsaronis①

Among the objectives of current proposals to redesign the international financial architecture are minimisation of the costs of resolving international financial crises and promotion of efficiency in the market for emerging market debt through greater involvement of the private sector in the resolution of crises. In this context, suggestions have been made in both academic and policy circles in favour of the inclusion of so-called collective action clauses (CACs) in the bond contracts of sovereign borrowers from emerging market economies.② In general, CACs introduce more flexibility into the negotiation process between creditors and debtors as regards the possible inability of the latter to meet the contractually prescribed payment schedule. Examples of such clauses include those that dispense with unanimity requirements by allowing a qualified majority of bondholders to approve a binding restructuring agreement for the debt, as well as those that empower the trustee or some other agent to act on behalf of the bondholders in negotiating such a restructuring. To date, there has been no systematic investigation of the impact of such provisions on bond yields. The purpose of this note is to present a preliminary analysis of international bond data that can address this policy question.

The costs and benefits of CACs

A protracted debt renegotiation is in the interest of neither the borrowers nor the lenders. The direct litigation costs, while a matter of considerable concern to both parties, are likely to be of secondary importance compared to the indirect costs. Investors typically see the secondary market value of their claims plummet during the renegotiation period, with distressed securities specialists representing the sole source of liquidity in the market. The longer a bond spends in default, the lower its recovery rate.③ Borrowers can also benefit from speedier renegotiation as they are practically excluded from the market while part of their outstanding debt is technically in default. Investors are unwilling to extend new funds since the credit capacity of the borrower is materially affected by the terms of settlement of pre-existing debt. This includes not only the revised debt repayment schedule, but also whether or not there have been any unresolved claims that may give rise to further uncertainty. CACs can help to speed up the renegotiation process by reducing the disruptive influence of dissenting bondholders who oppose a settlement hoping to secure better terms for their portion of the claims at the expense of the rest of the creditor group (free riding). Ex ante provisions detailing the steps that are to be taken in the event of a disruption in debt repayment and providing for the representation of the usually large and quite diverse claimholders' group can minimise the loss by reducing the duration of default.

While the existence of CACs can be beneficial in the event of a payments crisis, critics claim that such clauses might exacerbate problems of moral hazard, thereby increasing the likelihood of such an event actually occurring. In particular, it is argued that by facilitating the resolution of the crisis, and therefore reducing the potential costs of default, CACs may also weaken borrowers' discipline. Moreover, borrowers may still be reluctant to include CACs in their bond contracts out of concern that they will be perceived by market participants as more prone to default than others in the same credit risk class. This perception can actually become self-fulfilling as only the riskier signatures, for which the additional penalty is arguably the lowest in relative terms, are likely to elect to include CACs in their debt contracts.

In the light of such arguments, some market participants are sceptical about the desirability of the introduction of CACs. In fact, it has been suggested that such a development will raise financing costs considerably, especially for emerging market borrowers. This negative attitude has been clearly documented in a survey of market participants conducted by the G10 in 1995, as well as through recent statements in the financial press.④

Empirical investigation of the effects of CACs on bond spreads

Surprisingly limited attention has been paid to the fact that significant differences already exist among different types of international bond contracts which can have an important influence on the speed of the renegotiation process. More specifically, bonds issued under New York State law are generally the least

① The author would like to thank without implication Gavin Bingham and Helen Hadjidaki for valuable suggestions and Denis Pêtre for statistical assistance. ② *Resolving Sovereign Liquidity Crises*, Group of Ten Washington, D.C., 1996; Willard Group/G22 Report, *International Financial Crises*, October 1998, available on the BIS website (www.bis.org); Barry Eichengreen, Richard Portes et al, *Crisis? What crisis? Orderly workouts for sovereign debtors*, CEPR, 1995; *Safeguarding prosperity in a global financial system*, Institute for International Economics, 1999. ③ Practitioners estimate that the recovery rate for international bonds declines to 36%, 34.7%, 32%, 26.9% and 25.3% respectively after the bond has spent six, 12 18, 21 and 24 months in default (P Petas and R Rahman, *Sovereign bonds – Legal aspects that affect default and recovery*, Emerging Market Research, Deutsche Bank, May 1999). ④ See the G10 report above, "Bond industry hits back at G10", *Financial Times*, 29 September 1999; and W Rhodes "Don't press-gang the private sector" *Financial Times*, 13 October 1999.

favourable to timely and orderly resolution as they require the unanimous agreement of all bondholders before any material alteration to the cash flow stipulated by the original contract can become binding.[5] Furthermore, trustees in the United States tend to restrict their activities to administrative tasks because of concerns about liability and litigation. By contrast, bonds governed by English law typically contain provisions that enable a majority of the bondholders that are present at a meeting convened for the purpose to approve a binding restructuring of the bond's payments. Quorum requirements for such meetings vary across bonds, but they generally range between 35% and 66% of the bond principal outstanding, and they are often lowered for subsequent meetings if the first scheduled meeting fails to satisfy this requirement.[6] Bonds issued under English law also tend to give the trustee considerable scope to act on behalf of the bondholders and negotiate with the borrower in order to achieve a resolution of default. Bonds governed by New York law represent the largest group of issues, followed by those governed by English law. The third main group comprises bonds governed by German law, which do not contain explicit majority restructuring provisions and do not use trustees. There is considerable uncertainty, however, regarding the actual degree of flexibility that the German legal framework allows on this issue as it has not been tested in court to date.

How does the market evaluate the impact of the governing law on sovereign debt?

Dependent variable: yield spread (in basis points)

Variable	Coefficient	t-statistic	Variable	Coefficient	t-statistic
Constant	– 45.165	– 2.314 **	Rating/large issue	7.531	2.102 **
New York law	– 32.096	– 1.658 *	Benchmark yield (in %)	– 65.018	– 3.567 ***
English law	9.939	1.357	Maturity (in years)	2.048	2.256 **
German law	– 4.356	– 0.331	Coupon (in %)	65.915	3.417 ***
Not SEC registered	21.086	1.888 *	Denominated in USD	29.274	2.029 **
Rating	6.761	2.347 **	Denominated in GBP	13.606	1.220
Rating/non-investment grade	3.509	1.462	Denominated in EUR	– 0.921	– 0.112

Note: * (**) (***) denote significance at the 10%, 5% and 1% level respectively. The sample size is 263 international sovereign bonds larger than $300 million issued after 1990 with an initial maturity of at least three years. The rating variable is constructed as an integer equal to 0 for AAA bonds, increasing by 1 for every credit grade step below this. Two interaction terms of the rating variable have also been included in the regression, the first with an indicator variable for non-investment grade bonds and the second with another indicator variable for large issues – defined as those greater than $1 billion. Bonds issued in euros, ECUs, Deutsche marks or French francs are classified as euro issues. T-statistics are calculated using heteroskedasticity-consistent standard errors for the coefficient estimates.

Sources: Capital DATA; author's calculations.

The governing law of the bond can therefore be used as a rough, but informative, proxy for the existence of clauses which can facilitate the resolution of a payments crisis. The table above reports estimates of the sensitivity of sovereign bond yields to the law that governs the specific issue. These estimates are based on a linear regression of primary market bond spreads against the identity of the governing law, controlling for a number of other bond characteristics that have an impact on bond spreads. From a universe of 517 fixed coupon international sovereign bonds issued since 1990 with principal exceeding $300 million and an original maturity of at least two years, the sample used in the regression includes 263 issues for which primary market spread and credit rating information was available.[7] At first glance, the results suggest a differentiation between New York and English law-governed instruments, with the latter commanding a premium of around 40 basis points over the former. However, despite the high explanatory power of the overall regression (the adjusted R-squared value is 88.6%), the importance of the law variables is not very precisely estimated and the difference in the spreads fails to be statistically reliable.[8] Actually, a lack of SEC registration, which implies that a particular security is not broadly available for trading in the United States, appears to have a clearer effect on spreads than the governing law. Alternative specifications of the regression equation fail to find any discernible effects for the estimated impact of the governing law on spreads for emerging market issuers or for speculative grade issues. The results suggest that while the flexibility in the renegotiation process afforded by the governing law of international sovereign bonds may give rise to higher spreads, this influence is not very systematic. Of course, it cannot be excluded that the recent debate may sharpen the focus of investors' attention on the issue of governing law and consequently bring about a clearer discrimination between bonds on this basis in the future.

⑤ The 1939 Trust Indenture Act forbids the writing-down of principal without the explicit unanimous consent of bondholders. While the Act explicitly excludes securities issued by foreign governments, sovereign borrowers have not made use of this liberty in practice. ⑥ Cases of bonds with quorum requirements as low as 25% for subsequent meetings have been observed. ⑦ The data are extracted from the Capital DATA international bond database. The sample includes 47 bonds governed by New York law, 114 by English law and 53 by German law. There are 69 bonds issued by industrial country sovereigns and 194 bonds issued by emerging market borrowers in the sample. ⑧ A Wald test for the equality of the coefficients corresponding to the New York and English law variables fails to reject the null hypothesis at the 5% significance level.

IV

Derivatives markets

Overview

The third quarter of 1999 witnessed a slight decrease in derivatives activity through organised exchanges. Much of the attention of market participants focused on consolidation in the European exchange-traded industry. While LIFFE managed a successful conversion of its short-term contracts to electronic trading, plans to create a continental "super bourse" failed to gain the agreement of exchanges. The rapid development of "new generation" online trading systems threatened to make the project redundant. Such systems are creating a major challenge for other established market-places as well.

Exchange-traded instruments

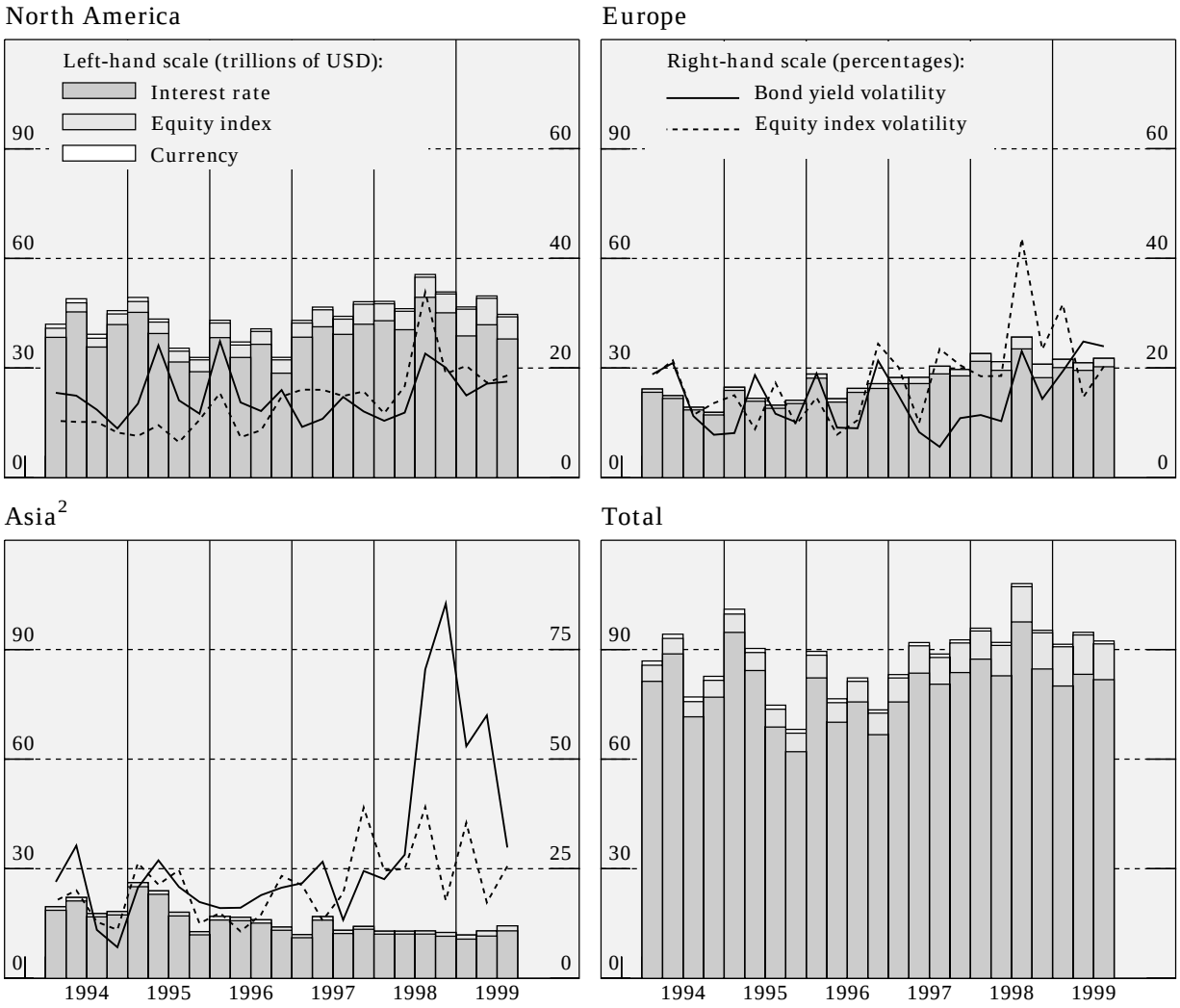
The aggregate turnover of exchange-traded financial derivatives contracts monitored by the BIS declined to $92 trillion in the third quarter of 1999, from a revised value of $95 trillion in the second quarter.[19] Activity in exchange-traded derivatives remained significantly lower than the global peak reached in the third quarter of 1998, reflecting perhaps lower overall volatility. The drop in the third quarter took place largely in options products, particularly in the US interest rate and equity segments (by 9% and 17%, respectively). This may have reflected the fact that the US Federal Reserve's indications that it would act promptly to fight inflation were fairly well anticipated by market participants. By contrast, the abrupt upward shift in the yield curve in Europe led to some increase in the turnover of interest rate and equity contracts (see the graphs on pages 25 and 26). In Japan, there was a sharp divergence between the evolution of short-term and long-term contracts, with a jump in euroyen instruments and a drop in Japanese government bond contracts. The hedging of short yen positions by Japanese financial institutions boosted activity in short-term instruments, but concerns about the millennium data change led to some drying-up of business in government bond contracts. In the area of currency contracts, the rise of historical and implied volatility in the major currency pairs translated into an increase in turnover.

In Europe, much of the market's attention focused on LIFFE's effort to switch its short-term contracts (Euroswiss, short sterling and Euribor) to Connect, its screen-based system. Business in the Euroswiss contract rapidly moved to the electronic facility but that in the short sterling and Euribor contracts remained anchored in the pit for some time. Aware that dual trading could increase its operating costs and sap the liquidity of contracts, LIFFE announced in October that pit trading would be abandoned.

With LIFFE retaining control of trading in short-term European instruments and Eurex dominating activity in government bond contracts, business in fixed income products has effectively consolidated into two dominant poles. The process of consolidation in European fixed income derivatives is reaching its limit and, as a result, the introduction of new contracts has moderated considerably (see the box on page 29). Consolidation was apparently not as advanced in the area of equity products, as illustrated by the launch of a few narrowly focused European equity indices as well as instruments based on the stocks of the largest multinational companies. Equity markets remain closely tied to domestic economic developments, thus providing scope for the introduction of a broader range of products than in fixed income markets. The largest suppliers of indices (Dow Jones, FTSE

[19] The BIS has changed the basis of its analysis from the number of contracts traded to their dollar notional value.

Turnover of exchange-traded options and futures and bond yield and equity index volatilities[1]



1 Annualised standard deviation of daily percentage changes in 10-year government bond yields and equity indices of US, German and Japanese markets for North America, Europe and Asia respectively. [2] Including Australia and New Zealand.

Sources: FOW TRADEdata; Futures Industry Association; BIS.

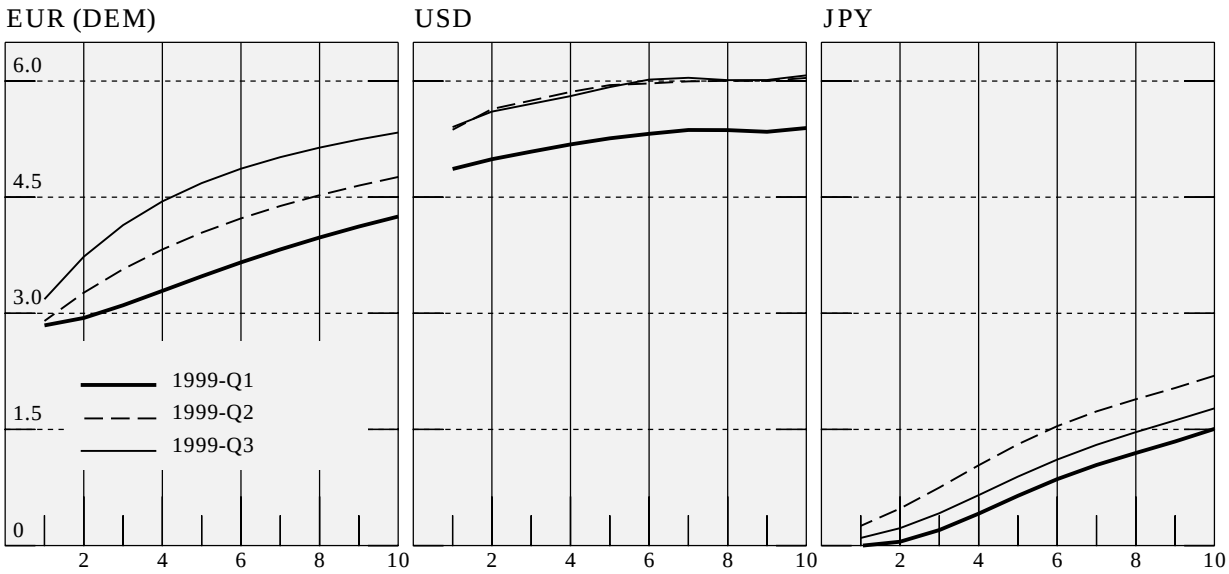
International and Morgan Stanley International) are actively seeking to capture new business through a plethora of instruments. Data for recent periods show, however, that the DJ Euro STOXX traded on Eurex is the only contract to have gained some degree of market acceptance (see the box on page 29).

The other major development in Europe was the collapse of the widely publicised plan for the creation of a common trading platform for European equities and derivatives ("super bourse"). Although the exchanges had made some progress in harmonising trading hours, disagreement between the DB and the LSE, the two leading participants, over the platform's governance structure and the move to common trading and clearing systems made it impossible for them to successfully carry the project forward. The original blueprint was replaced by a less ambitious arrangement allowing investors on each exchange to gain electronic access to the other exchanges' facilities. In any event, the rapid development of alternative online trading systems threatens to make the project redundant (see below).

In North America, one of the key developments was the intensification of competition in the market for equity options. In a long-standing reversal of a tacit non-competition agreement between US exchanges, the CBOE announced that it would introduce options traded on the Philadelphia Stock

Zero-coupon yield curves*

In percentage points by maturity at end of quarter



* US curve calculated using a piecewise polynomial spline. JPY and DEM curves calculated using the Svensson (extended Nelson-Siegel) methodology.

Sources: Central banks; BIS.

Exchange. The move was followed by the other exchanges trading equity options, with announcements that they would also begin cross-listing. With liquidity tending to gravitate to the largest exchanges, such initiatives could profoundly alter the balance of power in the industry. Indeed, the move to multiple listings could well become the rule in coming years, particularly if the trading of equity options successfully moves to new screen-based systems. However, this raises a number of issues, including the ability to obtain accurate price quotations and the adequacy of liquidity.

Interestingly, the competitive pressure resulting from the rapid development of electronic communication networks (ECNs)[20] seems to have given a new impetus to the creation of transatlantic alliances. Thus, in August the CME and LIFFE announced that they would merge their electronic trading systems next year. Following intense discussions concerning governance and cross-membership, the CBOT and Eurex were also reported to have reached agreement on an association. Participating exchanges hope that such moves will enable them to retain the dominance they have achieved in their respective short- and long-term contracts. Alliances can provide a number of strategic benefits to exchanges, such as an increase in the distribution network, a more efficient use of capital (particularly for investment in new technologies), the opportunity to benefit from cross-trading and margining, and a reduction in the number of potential competitors.[21] However, as was the case with the "super bourse", it remains to be seen whether such agreements can stave off competition from online systems. Indeed, in July BrokerTec, a consortium of large internationally active banks, proposed to the world's leading derivatives exchanges and clearing houses the creation of a global exchange that would centralise the trading of their contracts into one screen-based facility.

[20] ECNs are high-speed computer networks that automatically match buy and sell orders (largely in Nasdaq stocks) without committing capital. Such systems enable investors to trade anonymously and to save costs by reducing the market impact of transactions and eliminating bid/offer spreads and commissions.

[21] See Terence F. Martell, "Futures Exchanges: Which Way?", *Futures Industry*, Washington D.C., August/September 1999.

Technology is creating new ways of linking exchanges and the establishment of common facilities may no longer be required. For example, in July a group of large UK fund managers announced plans for the development of US-style ECNs that would allow for a reduction in trading costs by bypassing exchange brokers. Financial intermediaries and at least one exchange[22] are actively sponsoring the introduction of pan-European electronic trading systems.

The development of online systems is likely to have major implications for the structure of derivatives markets. While the initial impact of screen-based technology has been to induce exchanges to abandon pit trading, the development of "second generation" online systems could well lead to another revolution in the architecture of exchange-traded markets. It has become increasingly evident that large financial intermediaries and software providers have assumed a dominant role in the exchange-traded industry, forcing market-places to shed their mutual status in favour of a more flexible and market-determined governance structure.[23] The setting-up of terminals that provide access to various exchanges' products is eroding the traditional monopoly that exchanges have enjoyed in their "home" markets. In fact, the ease with which trading systems can be developed and new contracts listed may eventually make centralised facilities redundant. The value added of exchanges would then rest on their clearing house function (which provides safety and transparency), a function more difficult to replicate than the creation of new contracts.[24]

Structural and regulatory developments

In July, the International Swaps and Derivatives Association (ISDA) published its *Credit Derivatives Definitions*. The document provides a common set of terms and templates primarily for parties engaged in credit default options and swaps written under the ISDA Master Agreement. Detailed notes deal with issues relating to credit events, including default, restructuring, settlement and payment. The need for clearer definitions was highlighted by the turmoil that followed the Russian debt moratorium, which led to a number of debt restructurings and thus to disputes between counterparties over what constitutes default and restructuring. The lack of adequate documentation was reported to have hampered the confirmation of transactions, creating a backlog of unconfirmed deals. The common set of definitions should significantly improve market liquidity and efficiency. However, ISDA noted that the definitions offer no assurance that transactions will be legally enforceable. ISDA also intends to publish definitions for total rate of return swaps and to develop a third-party dispute resolution mechanism for all types of credit derivatives.

In the same month, the US Commodity and Futures Trading Commission (CFTC) proposed a two-year pilot programme which would allow exchanges to list new futures and options contracts prior to agency approval. Exchanges would only have to notify the CFTC of the contracts' terms and conditions on the day before listing and would from that moment have 45 days during which to apply for formal approval. However, contracts could only be listed out to one year until the granting of final approval. The new rules would not apply to stock index futures, which require approval from the Securities and Exchange Commission.

In the summer, the London Clearing House (LCH) launched new clearing facilities for repurchase agreements and swaps that will replace existing bilateral netting arrangements with multilateral netting. RepoClear, which began its operations in September with transactions involving German government bonds, was well received by market participants. It will reduce credit exposure in

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22 OM Gruppen, the parent company of OM of Sweden.

23 The LSE and a number of US derivatives and equity exchanges (CBOT, CME, Nasdaq and NYSE) are considering conversion from mutual to stock-based status in order to benefit from a more flexible governance structure and a better ability to cope with rapid technological progress.

24 In spite of their potential for improving market efficiency, the development of these systems is nevertheless raising questions concerning their robustness to network failure. For example, in August the CBOT lost several days' worth of business in out-of-hours trading because of a service failure by its telecommunications provider.

repurchase transactions and enable intermediaries to benefit from lower capital requirements. By contrast, SwapClear does not appear to have been greeted with as much enthusiasm. The large swap dealers, which have dealt with the problem of credit risk through bilateral multi-product netting and collateral agreements, have argued that the facility might not add much to market efficiency since its focus on plain vanilla transactions would require the break-up of multi-product agreements. Market observers have also suggested that the lukewarm reception from the largest dealers might result from a concern that they could lose market share in a system giving greater access to lower-rated counterparties.

The introduction of the euro and competition between European derivatives exchanges

Jean Kertudo

The introduction of the single European currency on 1 January 1999 has been the catalyst for consolidation in exchange-traded derivatives markets. However, the struggle for market share in euro-denominated products had begun well before the advent of the euro. Competition was most intense in the interest rate area, where the three major European exchanges had in the course of 1998 introduced a number of contracts across the yield curve. Almost one year after the launch of the euro, a number of trends are already apparent which, if confirmed, may well complete the consolidation of the industry.

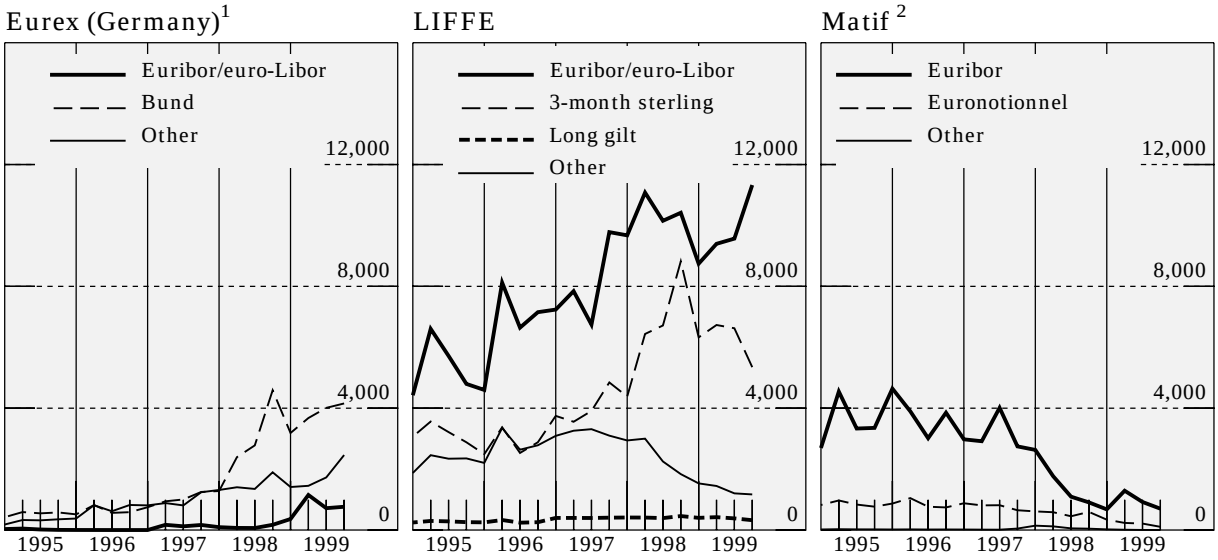
One major development in the trading of euro-denominated interest rate products has been the polarisation of business in favour of Euribor, at the short-term end of the maturity spectrum, and the bund at the long end (see the graph below). The concentration of trading into a narrow range of highly liquid instruments clearly points to the failure so far of strategies aimed at broadening the range of products across the yield curve.

More critical for individual exchanges, business in these short- and long-term products has tended to migrate to the market-places offering the highest degree of liquidity. Thus, Eurex has been the natural vehicle for transactions on the bund, which have now entirely migrated to it from LIFFE. In addition to benefiting from "home country" advantages, the exchange has been successful in attracting new participants through its low cost structure, remote electronic access and the extension of trading hours. The flight to quality which took place in the third quarter of 1998 towards German government securities also helped the exchange to strengthen its position. While LIFFE was the main victim of the geographical shift in the trading of bund contracts, Matif suffered from the preference of investors for the bund at the expense of the French "notionnel" contract as the long-term reference in the euro area. Turnover in the euronotionnel futures and options contracts in the first nine months of 1999 amounted to only 5% of that of the bund contracts traded on Eurex. Declining business on Matif has added to pressures for the exchange to innovate.①

In the short-term area, LIFFE's willingness to accommodate the preference of market participants seems to have paid off. Its share of the Euribor contract reached 95% in the period under review. The exchange had initially based its short-term contracts on euro Libor, but enabled traders to choose between euro Libor and Euribor in the early part of the year.

Turnover of major European interest rate futures

Quarterly turnover, in billions of US dollars



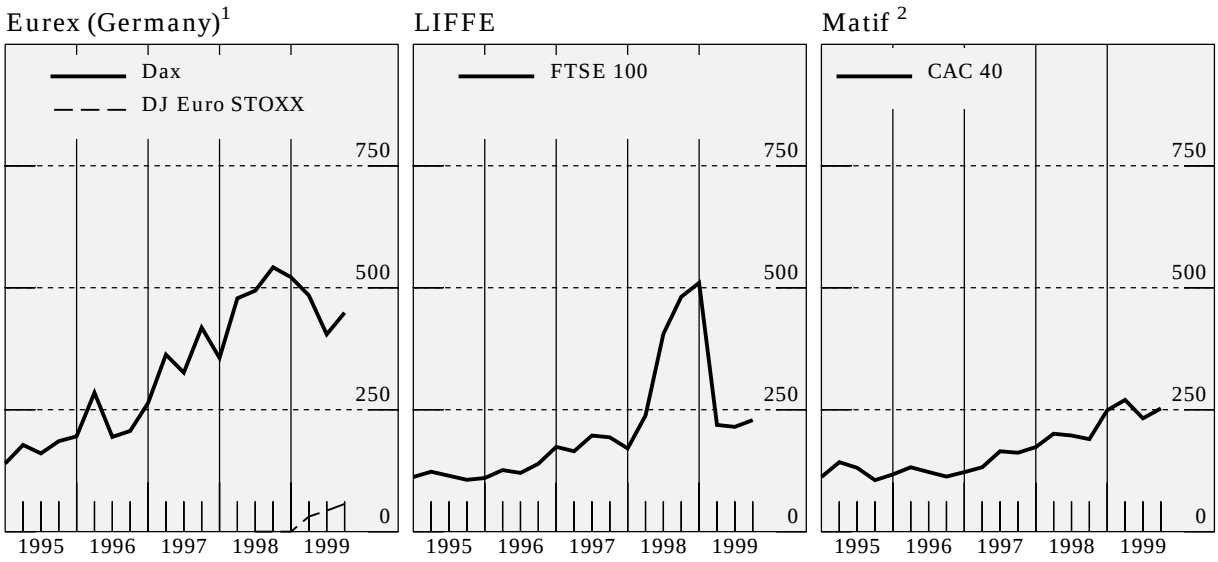
[1] Includes Eurex and DTB. [2] Includes both Matif and Monep.

Sources: FOW TRADEData; Futures Industry Association; BIS.

① Matif was reported to be developing contracts on European government and corporate bond indices. The success of such contracts would depend on the availability of real-time pricing information. Since fixed income securities are generally not traded on exchanges, such information is not as readily available as for equities. This could, however, be remedied by the development of electronic trading facilities for fixed income securities.

Turnover of major European equity index futures

Quarterly turnover, in billions of US dollars



[1] Includes Eurex and DTB. [2] Includes both MATIF and MONEP.

Sources: FOW TRADEData; Futures Industry Association; BIS.

It also switched to electronic trading in the third quarter of 1999. It remains to be seen whether the offering of financial incentives and the pool of business drawn from remote access will allow Matif and Eurex to counter the predominance of LIFFE in money market products.

Competition for market share in the wake of the introduction of the euro was also reflected in the fight to impose new equity benchmarks. While the three main European exchanges have maintained their own national indices, they have all introduced a broad range of pan-European indices. However, only the DJ Euro STOXX 50 introduced in June 1998 (as part of a family of such contracts) by the Euro Alliance② has thrived, overshadowing all the other pan-European indices. There has also been a tendency for trading in this product to concentrate at Eurex. Nevertheless, such activity remains a fraction of that in national indices, reflecting the greater difficulty of achieving continental integration in equity instruments.

The situation in the exchange-traded industry is evolving rapidly. Relative success or failure by individual exchanges in establishing their own products should be seen in the context of the broader competitive environment faced by the industry. Although European exchanges have switched to electronic trading, the proliferation of electronic communication networks is challenging them on their own turf, therefore shifting competition from the area of products to that of new services.

② The Euro Alliance has been established by the French, German and Swiss exchanges.

V

The rise of corporate credit benchmarks

Eli M Remolona[25]

Introduction

The international corporate bond market seems to be coming of age. The most encouraging sign of the market's maturity is the fact that large corporate issues *across a spectrum of credit risks* now trade with enough liquidity to be regarded as benchmarks for the pricing of less liquid instruments. Until two years ago, such benchmark status was reserved for bonds issued either by governments or by companies with the highest credit ratings. If a new benchmarking process is at work, an important part of it arises from a growing market in default swaps. The use of such instruments for hedging and arbitrage helps align prices of non-triple A corporates. The world's capital markets seem to be on their way to forming a more robust mechanism for price discovery in credit risks.

This discussion offers suggestive evidence for the new benchmark phenomenon from both the primary market where the securities are issued and the secondary market where they are traded. If real, the phenomenon would shed light on three issues: (i) the advantages of the euro, (ii) how markets are adjusting to a shrinking US Treasury market, and (iii) the importance of government yield curves for pricing private credit risk.

New benchmarks in the primary market

As borrowers around the world float bonds in unprecedented amounts, the *size* and *credit ratings* of new corporate issues suggest the creation of credit benchmarks. In particular, very large issues from non-triple-A companies have been leading the recent upsurge in the primary market. The graph on page 32 shows aggregate data on issuance of rated bonds broken down into triple-A and non-triple-A issues, with issues of all sizes included in the left panel and those of at least $1 billion in the right panel. It is useful to look at these multi-billion-dollar issues separately because these are the ones likely to trade actively and serve as benchmarks. As shown in the left panel, non-triple-A issuance of all sizes made substantial gains on triple-A issuance in the first three quarters of 1999. But it is striking how much more pronounced this pattern has been for the billion-dollar issues. As shown in the right panel, the volume of large non-triple-A issues reached $149 billion in the first three quarters of 1999, or nearly four times the pace of 1998.

Apart from the changing mix of ratings, two other features are salient in the issuance data. First, until last year most of the large non-triple-A international issues came from governments rather than private firms. With Russia's default weighing heavily in the minds of investors, however, sovereign issues from emerging markets have become few and far between. Hence, the surge in non-triple-A issuance has been entirely a private sector phenomenon and one largely involving financial firms as issuers.[26] Second, the large corporates in recent months have been concentrated in just two currencies of denomination, the US dollar and the euro. In this benchmark world, the euro seems to have started to rival the dollar.

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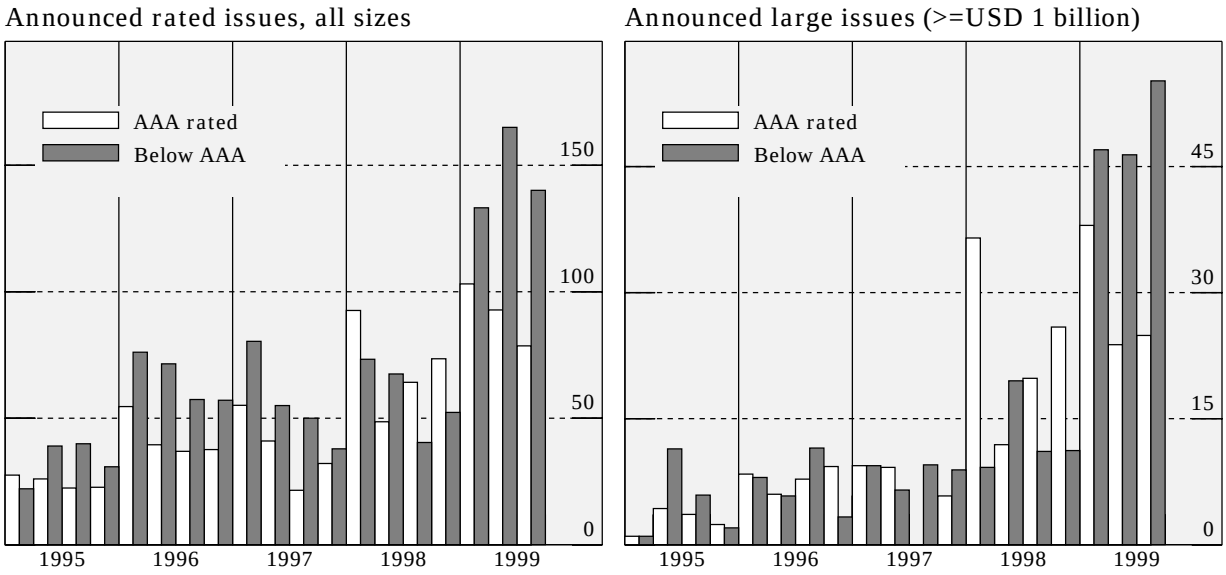
[25] The author thanks Claudio Borio, Pierre Cardon, Allen Frankel and Robert McCauley for helpful comments, Blythe Masters and Brad Mazur of JP Morgan Securities Inc. for data on default swaps, and Denis Pêtre for statistical support. The views expressed are those of the author and not necessarily those of the BIS.

[26] The *BIS Quarterly Review* has traditionally distinguished between "financial institutions" and "corporate issuers", where the latter includes only non-financial firms. This section applies the term "corporate" to both financial and non-financial firms.

International bond issuance: emergence of new benchmarks

In billions of US dollars



Sources: Capital DATA; BIS.

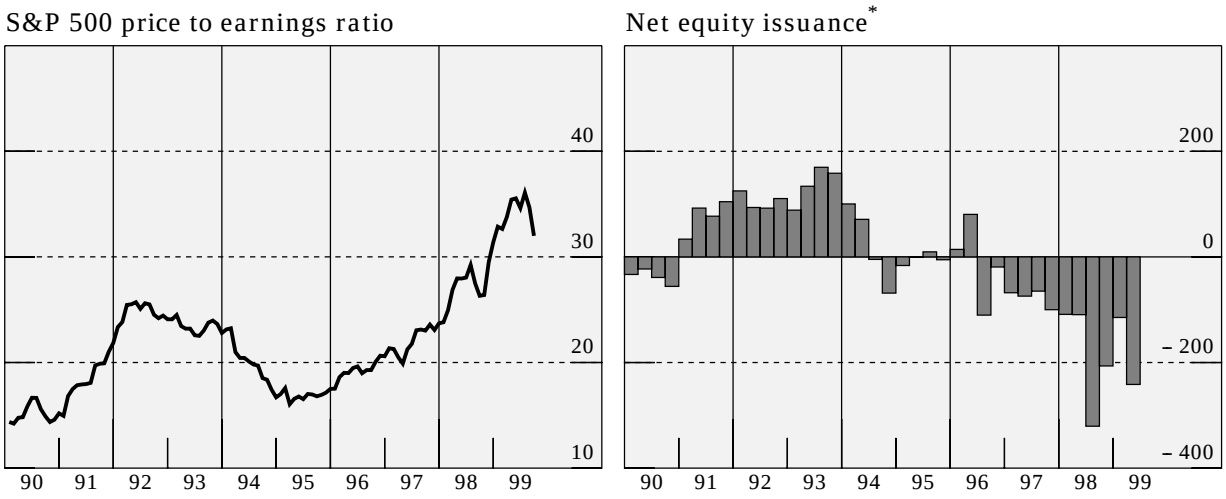
Bond pricing in the primary market confirms this recent shift in benchmarking. The evidence relies on the fact that the establishment of a benchmark bond is not an accident of size but often a deliberate objective of the issuer and underwriter. At issuance, such bonds are priced with relatively narrow spreads over domestic government yields to reflect an anticipation of future liquidity. Our analysis of issuance spreads for 3,277 international bonds issued since 1995 reveals a significant change in the types of bonds that receive benchmark treatment in the form of favourable issuance spreads.[27] Before 1998, only large international bonds issued by governments and triple-A companies tended to be priced as benchmarks. Since then, however, sovereigns seem to have lost their appeal, while "jumbo" corporates with less than the highest credit ratings have commanded benchmark prices.

The international benchmark club seems to have opened its doors to non-triple-A corporates for the first time in 1998. In January of that year, two US finance companies with single-A ratings, Ford Motor Credit and General Motors Acceptance Corp. (GMAC), both announced billion-dollar issues with an expressed intention to create international benchmarks. While both these bonds were denominated in US dollars, it took but a month before a UK financial firm with a double-A rating, Abbey National, announced a benchmark issue denominated in euros. The doors swung wide open in 1999 with a rush of double-A and single-A benchmarks in both dollars and euros. Further down the investment grade spectrum, the first triple-B corporate benchmark may have been Sprint Capital in April 1999. Three months later, Tecnost International, Olivetti's vehicle for the takeover of Telecom Italia, launched two euro-denominated benchmarks amounting to over €6 billion, both rated BBB+ and A3 by Standard and Poor's and Moody's respectively.

What explains the advent of this benchmark phenomenon at this time? One reason is clearly the scale of issuance made possible by the introduction of the euro. An equally important reason is the crowding-in effects of US fiscal surpluses. In principle, the equity markets could also take advantage

[27] A regression of issuance spreads on a dummy variable for corporate issues of at least $1 billion in size and controlling for various bond characteristics – including credit rating, currency of denomination, term to maturity and quarter of issuance – suggests an average benchmark advantage of 15 basis points for large corporate issues since 1998 (as well as a 13 basis point disadvantage for issues smaller than $150 million).

The US equity market



* In billions of US dollars.

Sources: US Federal Reserve Board; Standard and Poor's.

of the savings in the economy freed up by the surpluses. As indicated in the graphs above, however, in spite of a four-year bull market, the largest equity market in the world has instead been retiring equity through stock repurchases on a massive scale.[28] It is the global corporate bond market that seems to be taking advantage of the fiscal surpluses the most.

New benchmarks in the secondary market

Liquidity in the secondary market is an even stronger test of benchmark status. Such liquidity in Europe provides evidence of new corporate credit benchmarks. Here trading activity has shifted from dollar issues to euro issues and in the process has gravitated to securities that now include double-A and single-A corporates. The table below reports daily turnover data for the 10 most actively traded international fixed income issues on Euroclear for August 1997 and August 1999, excluding new issues. Two years ago, the list was dominated by dollar-denominated issues and included only sovereigns (such as the Russian Federation and the Kingdom of Spain) or triple-A corporates (such as Toyota Motor and Capital Credit Card Corp.). While the more recent list is full of triple-A issues that enjoy various forms of government or collateral support, it is significant that the euro has now supplanted the dollar and that a double-A issue (Abbey National) and two single-A issues (Mannesmann Finance and Philip Morris Capital) have broken into the top ten. The two new euro issues of Tecnost International seem likely to join this group soon.

Default swaps appear to be playing an important role in the current care and feeding of benchmarks in the secondary market. These swaps are instruments that specifically price credit risk and now constitute the bulk of a growing credit derivatives market. As of June 1999, US banks reported holding $258 billion in notional amounts of these derivatives.[29] While the most actively traded default swaps had been based on emerging market sovereigns, recent months have seen increased liquidity in default swaps for such corporates as British Gas, Mannesmann Finance, Ford Motor Credit, GMAC and Philip Morris Capital. The graph on page 35 shows bid and offer quotes for 5-year default swaps on

[28] The net amount retired through stock repurchases and merger and acquisition activity since mid-1996 totals $1.5 trillion.

[29] The data are based on Reports of Condition (Call Reports) filed by banks with the US Federal Reserve and Office of the Comptroller of the Currency.

Ten most actively traded international fixed income issues on Euroclear

Eurobonds and global bonds (excluding new issues), August 1997 and August 1999[1]

Issuer	Currency	Issue credit rating Moody's/S&P	Daily turnover (USD millions)
August 1999			
European Investment Bank	GBP	Aaa/AAA	144
Mannesmann Finance BV	EUR	A2/A+	139
Philip Morris Capital Co.	USD	A2/A	138
Republic of Italy	USD	Aa3/AA	136
Kreditanstalt für Wiederaufbau	EUR	Aaa/AAA	127
European Investment Bank	EUR	Aaa/AAA	111
Deutsche Pfandbrief– und Hypothekenbank	EUR	Aaa/AAA	109
European Investment Bank	GBP	Aaa/AAA	106
Abbey National Treasury Services	EUR	Aa2/AA	97
Deutsche Pfandbrief– und Hypothekenbank	EUR	Aaa/AAA	76
August 1997			
Russian Federation	USD	Ba2/BB	393
Kingdom of Spain	XEU	Aa2/AA	190
Republic of Italy	USD	Aa3/AA	136
Toyota Motor Corp.	USD	Aaa/AAA	123
Canada	USD	Aa1/AA+	120
Nippon Telegraph & Telephone	JPY	Aaa/AAA	109
Russian Federation	USD	Ba2/BB	101
Japan Development Bank	JPY	Aaa/AAA	76
Capital Credit Card Corp.	DEM	Aaa/AAA	73
Bayerische Landesbank	USD	Aaa/AAA	68

[1] These issues exclude those launched within the month and some in the previous month. Emerging market bonds are also excluded.

Sources: Bloomberg; Euroclear; Capital DATA.

one such single-A benchmark bond. The quotes indicate a narrowing of liquidity spreads and increased activity over time. By allowing leveraged positions in credit risks, such swaps help determine prices for such risks. It is significant that swaps on private debt tend to focus on double-A and single-A credits, although they are now available for triple-A credits.

Implications of credit benchmarks

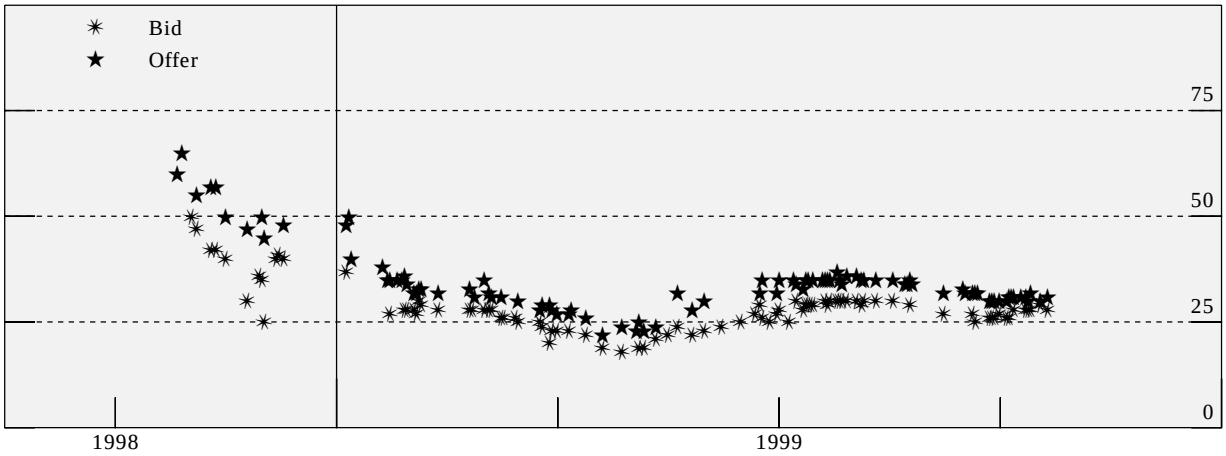
The rise of corporate credit benchmarks provides clues about the advantages of the euro, how markets are adjusting to a shrinking US Treasury market, and the importance of government yield curves for pricing private credit risk:

Advantages of the euro. McCauley and White predicted that the introduction of the euro would lead to the development of the bond market ahead of the banking market.[30] The rise of corporate credit benchmarks tellingly bears the prediction out. For issuers, the clearest advantage of access to a pan-

[30] Op. cit. (see footnote 2 on page 3).

Liquidity in default swaps

Bid and offer quotes on five-year default swaps on a single-A benchmark, in basis points



Source: JP Morgan Securities.

European base of investors is the ability to issue in size. And indeed it is in the largest corporate issues that we see the euro making its greatest gains and even beginning to challenge the US dollar. European banks themselves are among the largest issuers.

Adjusting to a shrinking US Treasury market. In the US dollar market, reduced supplies of Treasury securities since 1997 have led bond dealers to reduce the amount of market-making capital they allocate to this market. The formation of new credit benchmarks suggests that this capital is finding its way to the international corporate bond market. This migration of liquidity reflects a recognition by the markets that US fiscal surpluses will reduce the size of the Treasury market while releasing savings in the economy for corporate financing. In providing both financing and liquidity, the corporate bond market is adeptly taking advantage of the fiscal surpluses.

Importance of government yield curves. The supposed "downside" to US fiscal surpluses has been exaggerated. Financial policy analysts have been troubled by the prospect that these surpluses will eliminate US Treasury securities and thus deprive the larger market of a government yield curve as a benchmark for pricing credit risk. The surge in US dollar corporate bond issuance, however, suggests that investors have been unfazed by the possibility that the lack of such a yield curve in the future might make their bonds harder to trade. There was, after all, a corporate bond market before US fiscal deficits started to provide a convenient yield curve. In Europe, a reliable government yield curve is still struggling to establish itself. The creation of credit benchmarks in both the dollar and the euro indicates that the markets are trying to form private credit curves that may not require government yield curves.

VI

The evolution of emerging market bond spreads in the 1990s

Steven B Kamin and Karsten von Kleist[31]

Introduction

A key feature of international financial markets in the 1990s has been the increasing involvement of the emerging market economies. Capital flows from industrial to emerging market countries reached unprecedented levels in the mid-1990s following a loss of access to international capital markets by the latter in the wake of the 1980s debt crisis. With the rise in the share of emerging market assets in industrial country portfolios, developments in emerging market countries, particularly those receiving the bulk of capital flows, began to exert an increasing influence on industrial country financial markets. For example, in October 1997 sharp declines in the Hong Kong stock market triggered sell-offs in equity markets around the globe. Less than a year later, devaluation and default in Russia led to even more pronounced and lasting downward pressures in global financial markets. These events underscore the desirability of steady flows of international capital, not only for the maintenance of stable financial markets and economic growth in the countries receiving these flows, but also for global financial markets more generally.

A consequence of the growing importance of emerging market countries is a greater need for policymakers and potential investors to assess the terms on which these countries are able to access international capital markets. In particular, there is a need for a broad and comprehensive measure of financing costs and investor sentiment.[32] A widely used indicator of these terms of access is the spread on foreign currency denominated bonds – usually Brady bonds[33] – over industrial country bonds.

As indicated in the graph on page 37, Brady bond spreads, as tracked by the EMBI index, certainly move with key developments in emerging market economies, spiking upwards both in 1994–95, as a result of the Mexican financial crisis, and in 1997–99, in response to the Asian, Russian and Brazilian crises.

Nevertheless, it is not clear that specific levels and changes in these spreads are representative of the financing costs paid by the broad range of emerging market borrowers. In the first two quarters of 1999, for example, the EMBI indices in the graph appear to signal some relaxation of credit constraints. But, in fact, this relaxation has been unevenly distributed. Highly rated sovereign names accounted for most capital flows, while private sector borrowers in these countries found it very difficult to access international capital markets.

In general, both the level and movements of Brady bond spreads differ significantly from those on

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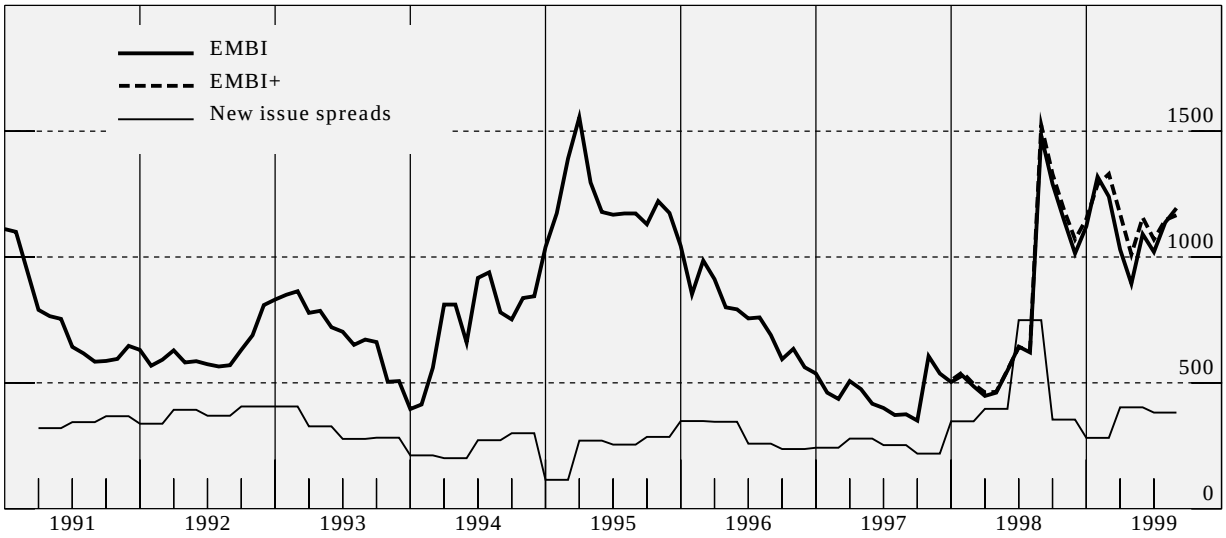
[31] Most of the research described in this section was performed while Steven Kamin was visiting the BIS. The International Financial Statistics section of the BIS, and particularly Denis Pêtre and Giorgio Glinni, was instrumental in transforming the data in the Capital DATA databases into a form suitable for statistical analysis. We are also indebted to John Ammer, Joseph Bisignano, John Clark, Sean Craig, David Howard, Serge Jeanneau, Robert McCauley, Andrew Powell and members of the BIS, Federal Reserve Board and Northwestern University workshops for useful comments and suggestions on the longer, original research paper upon which this article is based, Kamin and von Kleist (1999), and to Eli Remolona and Gabriel Sensenbrenner for comments on this section. The views in this section are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System, the BIS or any person associated with these institutions.

[32] Data on aggregate capital flows provided by debtor countries may be subject to significant lags and can be influenced by a number of separate factors that relate to current account imbalances.

[33] Brady bonds represent restructured commercial bank debt of governments that faced difficulties repaying their obligations during the debt crisis of the 1980s.

Spreads on emerging market debt instruments

In basis points



* Average spread of new emerging market issues over comparable domestic government bonds of appropriate maturity, weighted by US dollar value amounts.

Sources: Bloomberg; Capital DATA; BIS.

bonds issued by many other emerging market borrowers. While broader aggregate measures of secondary market spreads for emerging market country obligations have been developed, they remain heavily tilted towards the liabilities of those countries that issued Brady bonds.

In this contribution we attempt to develop a more comprehensive measure of emerging market credit spreads to complement other commonly used indicators, and use it to analyse developments in the 1990s. This measure of emerging market spreads has several attractive features. First, it is based on spreads on new bond issues, and hence is more representative of what countries actually pay than are spreads in the secondary market.[34] Second, it is based on a wide range of emerging market countries, and thus is not biased towards those countries that have already issued considerable debt. Third, our measure is calculated using a regression model that allows us to control for important determinants of spreads – including creditworthiness, maturity and currency – to better identify underlying trends in financing costs.

Our new measure allows us to reach several conclusions about the evolution of emerging market spreads during the 1990s. First, we confirm that such spreads had declined considerably more in the years preceding the Asian crisis in 1997 than can be explained by improvements in creditworthiness, as measured by credit rating, alone. Second, during the Mexican financial crisis in 1995 spreads did not move in the same direction for all emerging market countries; while spreads on the riskiest credits behaved much like those on Brady bonds, rising with the Mexican financial crisis and declining thereafter, spreads on investment grade credits to emerging market countries exhibited a very different pattern, declining steadily between 1992 and 1997 and enjoying the benefits of a flight to quality at the peak of the Mexican crisis. Finally, in contrast to Brady bond spreads, which rose by about the same amount during the Mexican and the Russian crises, our measure shows much sharper increases in spreads during the latter. This is consistent with the broader impact that the Russian crisis appears to have had on world financial markets.

[34] To the extent that secondary market prices are actively used to price new issues, both measures should convey essentially the same information.

1. Measures of emerging market credit spreads

In this contribution we restrict our discussion to spreads on bonds issued by emerging markets.[35] Spreads are defined as the (promised) annualised yield on the emerging market debt instrument less the benchmark yield, that is, the annualised yield on an industrial country government bond of the same currency and maturity as the emerging market instrument. They embody a premium to compensate lenders for possible future default as well as, perhaps, a premium to compensate investors for the uncertainty associated with expected returns and liquidity.

The graph on page 37 shows the JP Morgan EMBI measure of weighted average stripped spreads on Brady bonds[36] in the secondary market for 10 emerging market countries.[37] Brady bond spreads are available on a daily basis, and the market for Brady bonds has been deeper and more active than for other emerging market country obligations.[38] For these reasons, Brady bond spreads have been the central focus of market observers and participants.

However, the surge in non-Brady bond issuance by emerging market countries during the 1990s, at least prior to the Asian crisis, has diminished the relevance of Brady bond spreads as a general measure of the financing costs paid by these borrowers. First, many of the emerging market countries currently issuing bonds had better credit ratings than the countries that issued Brady bonds and hence paid lower credit spreads. Second, the countries that initially issued Brady bonds are now issuing non-collateralised debt at spreads that are frequently lower than the stripped spreads on outstanding Brady bonds. Third, and more importantly, measures of secondary market spreads may not be a good indicator of the spreads actually paid by borrowers for new money, which are new issue spreads.

For these and other reasons, trends in Brady bond spreads may not provide an accurate indication of more general movements in emerging market credit spreads. Partly in recognition of this, other aggregate measures have been developed that include significant amounts of non-Brady bond spreads, such as JP Morgan's EMBI+. However, as indicated on the graph on page 37, the EMBI+ has moved largely in lockstep with the EMBI. This reflects the fact that it is also based on secondary market spreads, and therefore continues to assign high weights both to Brady bonds and to non-Brady bond instruments issued by countries that have also issued Brady bonds.[39]

To develop an aggregate measure of spreads that is more representative of the financing costs faced by the full range of emerging market borrowers, we used data in the Capital DATA Bondware database on the promised yield to maturity of new international bond issues. Based on these data, we calculate weighted (by US dollar amounts of bonds issued) average spreads on new issues by emerging market countries. These computed spreads, shown in the graph on page 41, are considerably lower than those on Brady bonds, confirming that, for all the reasons discussed above, Brady bond spreads (and, perhaps more generally, secondary market spreads on the outstanding stock of emerging market bonds) may not be representative of actual borrowing costs faced by the broadest range of emerging market countries.

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35 Kamin and von Kleist (1999) provide a complete description of this analysis, applied to loans as well as bonds.

36 The principal and interest on Brady bonds are partially collateralised. Stripped spreads refer to spreads on these bonds after the estimated effect of the collateral on these spreads is removed.

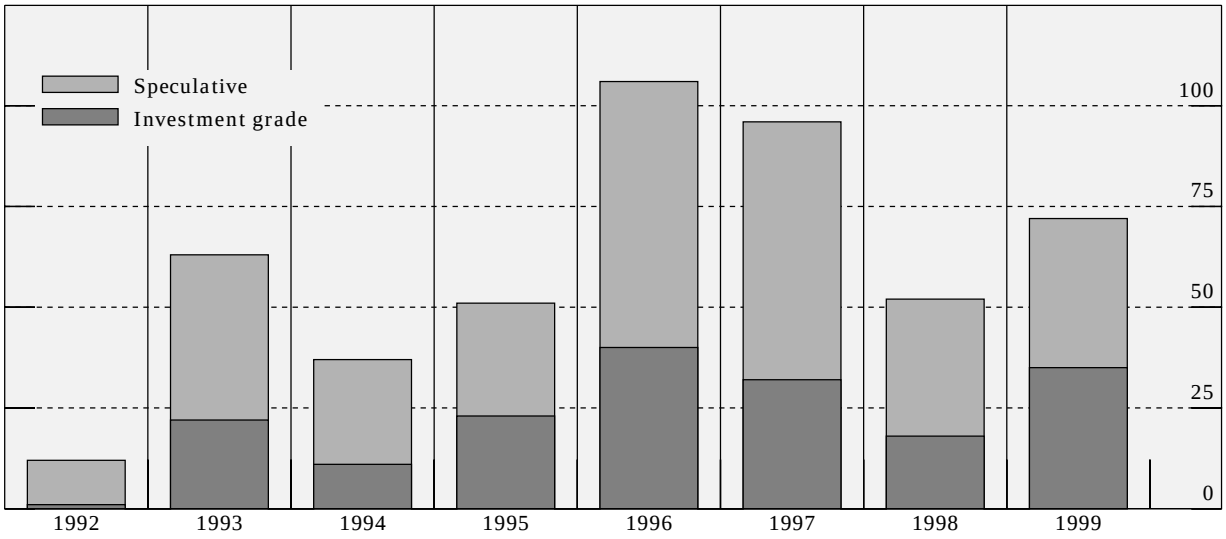
37 Argentina, Brazil, Bulgaria, Ecuador, Mexico, Nigeria, Panama, Peru, Poland and Venezuela. Spreads are weighted by US dollar amounts.

38 In fact, at the beginning of the 1990s, Brady bonds were virtually the only longer-term sovereign bonds issued by emerging market countries.

39 Several analysts, including Clark (1994), Andrews and Ishii (1995), IMF (1997) and Cline and Barnes (1997), examine spreads on selected emerging market eurobonds as an alternative to Brady bonds, but do not develop a more general index or average based on these spreads. Andrews and Ishii (1995), IMF (1997) and Eichengreen and Mody (1997), among others, present data on average spreads on new emerging market bond issues; however, as will be discussed below, movements in average new issue spreads can be misleading if this measure is not corrected for changes in the composition of new issues.

New emerging market bond issues by credit rating*

Number of issues



* Issues for which spreads are available.

Sources: Capital DATA; BIS.

Notwithstanding the benefits of using new issue spreads, the graph on page 41 also makes it clear that the weighted average spreads on new bonds that we calculate exhibit some peculiar patterns over time. In particular, average bond spreads declined in the first quarter of 1995, when the Mexican financial crisis occurred and Brady bond spreads peaked, and rose through the remainder of 1995 and early 1996, when the effects of the Mexican financial crisis began to dissipate and Brady bond spreads declined. Similar counter-intuitive declines are apparent during the Asian crisis in late 1997 and the Brazilian crisis at the beginning of 1999.

These unusual features of the evolution of average spreads probably reflect important changes over time in the composition of new issues.[40] Because investors require higher spreads for longer maturity credits, for example, movements in the maturity of bonds have contributed to some movement in average bond spreads. Even more important have been variations in the composition of emerging market borrowers by creditworthiness. The graph above breaks down new bond issues by credit rating. In 1995, for example, the fraction of riskier borrowers in the total dropped off as investors responded to the Mexican financial crisis by temporarily cutting off funding to many emerging market economies. Therefore, the plunge in average bond spreads identified in early 1995 most likely reflects the withdrawal from the market of the most poorly rated borrowers, who pay the highest spreads, rather than an actual decline in the cost of borrowing. Similar withdrawals of poorly rated borrowers were evident during the more recent financial crises as well.

These considerations suggest that, to identify underlying movements of credit spreads for a wide range of borrowers, variations in maturity and creditworthiness must be taken into account. In principle, this could be accomplished by examining movements over time in very narrowly defined credit categories, for example BB-rated 10-year bonds. However, even though our database includes a large number of bonds, there are at times relatively few observations for any given subcategory. Hence, directly tracking spreads over time on instruments with particular attributes is not feasible with these data.

[40] The importance of compositional changes in the issuance of securities is also underscored in Andrews and Ishii (1995), Eichengreen and Mody (1997) and IMF (1997).

2. A regression-based measure of emerging market credit spreads

In this part, we describe an alternative approach in which we estimate a regression equation that relates the spread on emerging market bond issues to various characteristics of those bonds, including their maturity and credit rating. This regression equation allows us, in essence, to simulate what the spread would be at a particular point in time on a BB-rated 10-year bond, for example, even if we did not observe an actual issue of such a bond at that time. Based on this regression, variations over time in credit spreads that are not explained by movements in maturity, credit rating and other factors can then be interpreted as the underlying movements in credit spreads.

The equation was estimated on observations of 499 new issues for which data on both spreads and credit ratings were available in the Capital DATA Bondware database between 1992 and the third quarter of 1999 (preliminary). Each observation in the regression equation represents a single new issue. The dependent variable is the log of the spread on that new issue. The explanatory variables, described briefly below, capture attributes of that new issue such as credit rating, maturity, currency and period in which it was issued.[41]

2.1 Explanatory variables

Rating. Most analyses of emerging market debt spreads have used various country performance variables, including debt/GDP, debt service/exports and reserves/imports, as measures of borrower creditworthiness.[42] However, Cantor and Packer (1996) suggest that the credit ratings assigned to sovereign borrowers by Moody's and Standard & Poor's not only subsume all information contained in country performance measures but also add information to those measures in explaining sovereign debt spreads.[43] A further advantage of using credit ratings as a measure of creditworthiness is that they take into account many attributes that are specific to the issuer and not merely to the issuer's country of origin.

Therefore, we use the credit ratings assigned to new issues by Moody's and Standard & Poor's as measures of credit risk. The ratings were transformed into numerical rankings, with 1 being the best credit risk and 16 the worst.[44] Our estimation results confirm that poorer credit ratings are significantly associated with higher spreads.

Maturity. The longer an instrument's maturity, the more likely it is that the borrower's creditworthiness will change during the life of the instrument. Hence, the maturity of an instrument is an important determinant of the degree of uncertainty about repayment and is therefore related to the spread. This hypothesis is well supported by the statistically significant positive coefficient on an explanatory variable indicating the maturity of the bond that was included in the regression equation.

Currency effect. Inspection of the data suggests that spreads on dollar-denominated bonds appear to be higher than those on bonds issued in other industrial country currencies. To account for the effect of possible changes in the shares of bonds denominated in different currencies, separate dummy variables are included in the equation to control for the currency of the bond issue. The effect of denominating an issue in a currency other than the dollar is found to be statistically significant for all industrial currencies except the Deutsche mark.

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41 Full details of these regressions are in Kamin and von Kleist (1999).

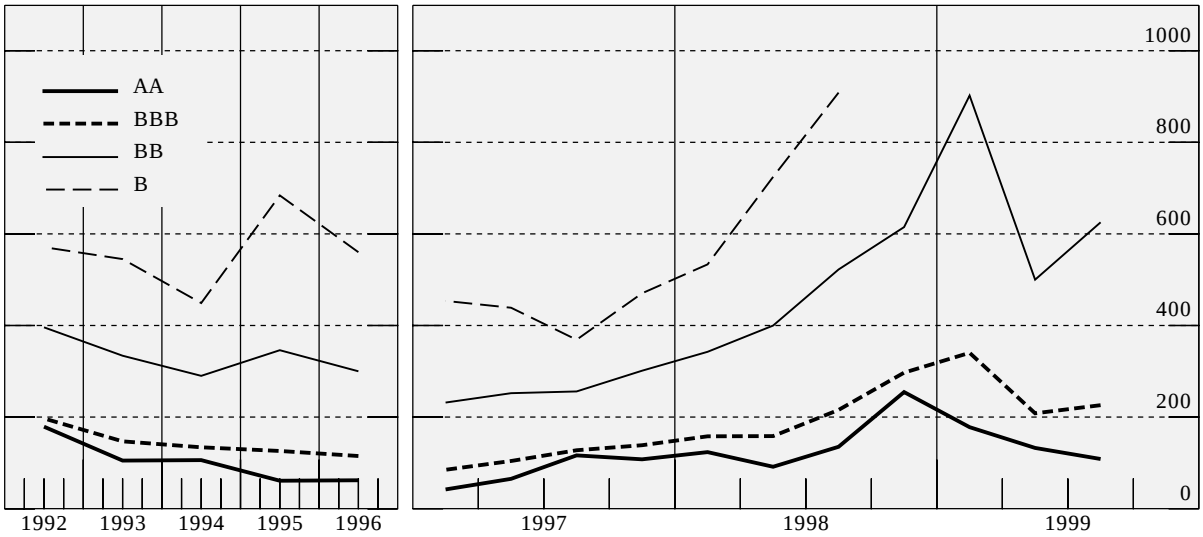
42 Edwards (1984, 1986), Özler (1992), Rockerbie (1993), Demirgüç-Kunt and Detragiache (1994), Cline and Barnes (1997) and Min (1998). Exceptions include Feder and Ross (1982), who use an *Institutional Investor* survey of creditworthiness perceptions as a proxy for credit risk, and Eichengreen and Mody (1997), who use both country performance measures and *Institutional Investor* ratings to explain spreads.

43 See also Ammer (1997) and Larrain, Reisen and von Maltzan (1997).

44 In cases of conflict, the Moody's rating was chosen to dominate because most of the ratings available in the database were derived from this source.

Spreads on emerging market bonds by credit rating*

In basis points



* Estimated credit spread on a 10-year rated bond issued by emerging market economies over the benchmark industrial country government bond. No data available for B-rated issues after third quarter 1998.

Source: BIS.

Period effect. The final explanatory variables included in the regression are those designed to identify changes over time in spreads, assuming constant rating, maturity and currency. Separate dummy variables are included for each year prior to 1997, and for every quarter from the first quarter of 1997 to the third quarter of 1999. Additionally, these period dummies are interacted with the credit rating variable, so that the responsiveness of spreads to ratings is allowed to vary from year to year. The measured effect of these period dummy variables on spreads can be interpreted as the underlying temporal pattern of these spreads, assuming constant credit rating, maturity and currency. This underlying temporal pattern may in turn be thought of as reflecting changes in investor perceptions of creditworthiness that are not reflected in credit ratings and/or changes in investor willingness to bear risk, all things being equal.

2.2 A simulated measure of emerging market spreads

The graph above presents the bottom line for our analysis: simulations of the equation described above to portray the evolution of spreads (shown in basis points) on 10-year dollar-denominated bonds of different credit ratings.[45] The simulations themselves are straightforward. To calculate the spread of a BB-rated 10-year dollar-denominated bond in 1994, for example, we multiply the appropriate values of the explanatory variables for credit rating, maturity, currency and issue date by their estimated coefficients in the regression equation; this gives us the log of the predicted spread, whose exponent we then take to calculate the spread itself.

As the graph makes clear, a central advantage of our methodology for calculating aggregate spreads is that it allows us to track movements in spreads by different risk category. Based on these calculations, three results stand out. First, the surge in borrowing costs indicated by movements in Brady bond spreads during the Mexican financial crisis was not shared by all categories of emerging market borrowers. While spreads on speculative grade bonds (those rated BB and in particular B) certainly tracked the upswing in Brady bond spreads during the crisis, spreads on investment grade bonds (BBB

[45] Note, for comparison, the path of the EMBI measure of Brady bond spreads in the graph on page 37.

and better) continued to decline; in fact, spreads on AA-rated bonds declined slightly faster in 1995 than in 1994, perhaps benefiting from a relative flight to quality from the liabilities of more poorly rated borrowers. Analogously, with the resolution of the Mexican crisis in late 1995 and 1996, spreads on more poorly rated bonds fell considerably faster than those on better rated instruments, in part reflecting a correction of the oversold condition of the market for speculative grade emerging market bonds at the height of the crisis.

A second point underscored by the calculations shown in the graph on page 41 is that the declines in emerging market credit spreads observed between 1995 and mid-1997 went beyond what could be justified on the basis of improved creditworthiness alone. Each of the paths of spreads shown in the graph is calculated for bonds of a given credit rating. Hence, unless investor perceptions of emerging market creditworthiness were improving more rapidly than the credit rating agencies' assessments of creditworthiness – a possible but not necessarily probable scenario – spreads probably declined for reasons other than reductions in expected default probabilities.[46] One possible reason, cited above, is that spreads had overshot appropriate levels at the height of the Mexican crisis, so that subsequent declines were merely correcting this overshoot. Other factors cited for the decline in spreads prior to the Asian crisis include the effect of low industrial country interest rates in raising investor appetites for risk and the longer-term trend towards increased globalisation of financial markets and corresponding declines in the risk premia required for holding foreign assets.[47]

The third result implicit in the graph on page 41 concerns the comparison between movements in spreads during the Mexican crisis (1994–95) and movements in spreads during the most recent crises (1997–99). Average Brady bond spreads rose by about the same extent in early 1995 and in September 1998, in the aftermath of Russia's devaluation and default. By contrast, our methodology indicates that new issue spreads on bonds rated BB or B rose much further following the Russian crisis than they did during the Mexican crisis.

The most plausible explanation for this difference in patterns is that the Brady bond spreads are very heavily weighted towards Argentina and Mexico, which were hardest hit by the Mexican crisis; therefore, notwithstanding the greater severity and wider geographical extent of the more recent financial crisis compared with the Mexican crisis, the two crises appear to have affected emerging market borrowing conditions about equally when gauged by aggregate Brady bond spreads. Conversely, our measure of aggregate credit spreads is essentially weighted by the number of new issues in a given credit category and thus reflects borrowing conditions across a much wider range of emerging market borrowers. Because the most recent international financial crisis was considerably more global in scope than the Mexican crisis, our measure of credit spreads rises considerably more in 1998 than it does in 1995.

3. Conclusion

The increasingly important role played by the emerging market countries in the international financial system underscores the need to find timely, reliable indicators of these countries' access to foreign capital. To date, most market analysts and participants have focused on Brady bond spreads, which are available daily and are based on deep markets, as a measure of financing costs and investor sentiment in emerging financial markets. However, Brady bond spreads may not be representative of the borrowing costs faced by the broadest range of emerging market countries for a number of reasons: (i) the countries that issued Brady bonds are often considered less creditworthy than other emerging market countries that issue debt; (ii) once stripped of collateral, Brady bonds appear to pay higher yields than non-Brady bond instruments; and (iii) secondary market yields for Brady and other internationally traded bonds may not always coincide with actual yields paid on new issues.

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[46] Cline and Barnes (1997) and Eichengreen and Mody (1997) reach similar conclusions.

[47] Kamin and von Kleist (1999) provide a statistical assessment of these hypotheses.

To address these problems, we have developed a new measure of emerging market bond spreads that utilises new issue yields and is based on a much broader range of countries than those that receive the most weight in Brady bond and related indices. Moreover, by using a regression model to control for changes in the composition of bond offerings, we can track the movement over time of spreads for emerging market bonds with particular credit ratings, maturities and currencies. This provides a much more informative depiction of trends in bond spreads than single measures of bond spreads – such as the EMBI or the EMBI+.

Our new measure provides several important insights into the recent evolution of emerging market bond spreads. First, movements in spreads during the Mexican crisis were much less uniform than Brady bond spreads alone would indicate: while spreads on lower-rated bonds did indeed rise during the crisis, spreads on bonds issued by investment grade emerging market borrowers actually fell at the time. Second, our measure confirms that emerging market spreads had declined considerably more in the years preceding the Asian crisis than can be explained by improvements in creditworthiness alone. Finally, unlike Brady bond spreads, our measure of emerging market spreads rose much more sharply following the Russian crisis in 1998 than during the Mexican crisis in 1995. This correlates with the much deeper global impact exerted by the Russian crisis, and confirms that our measure is more representative of emerging market financial conditions.

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ABBREVIATIONS USED FOR EXCHANGES

AEX	Amsterdam Exchanges
AMEX	American Stock Exchange
ASX	Australian Stock Exchange
BDP	Bolsa de Derivados do Porto
BM&F	Bolsa de Mercadorias y Futuros
CBOE	Chicago Board Options Exchange
CBOT	Chicago Board of Trade
CME	Chicago Mercantile Exchange
CSCE	Coffee, Sugar & Cocoa Exchange
CX	Cantor Exchange
DB	Deutsche Börse
FINEX	New York Cotton Exchange – Finex Division
HEX	Helsinki Securities and Derivatives Exchange, Clearing House
HKFE	Hong Kong Futures Exchange
ISE	Italian Stock Exchange
KLOFFE	Kuala Lumpur Options and Financial Futures Exchange
KLSE	Kuala Lumpur Stock Exchange
LIFFE	London International Financial Futures and Options Exchange
LSE	London Stock Exchange
MATIF	Marché à Terme International de France
ME	Montreal Exchange
MEFF RF/RV	Mercado de Futuros Financieros de Renta Fija/Renta Variable
MIF	Mercato Italiano Futures
MONEP	Marché des Options Négociables de Paris
NASD	National Association of Securities Dealers
NYBT	New York Board of Trade
NYCE	New York Cotton Exchange
NYFE	New York Futures Exchange
NYSE	New York Stock Exchange
OSE	Osaka Securities Exchange
PE	Pacific Exchange
SBF	Société des Bourses Françaises
SFE	Sydney Futures Exchange
SIMEX	Singapore International Monetary Exchange
SOFFEX	Swiss Options and Financial Futures Exchange
SWX	Swiss Exchange
TSE	Tokyo Stock Exchange